

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 1: Baseline scenario

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▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	933011	946298	937567	896393	833813	770223	724758	698486	690691	0.0	-1.2	-1.4	-0.5	
Solids	365918	277924	213693	196451	164952	152365	141764	133672	125808	-5.2	-2.6	-1.5	-1.2	
Oil	128809	170055	171665	132993	104666	77166	53111	44309	40820	2.9	-4.8	-6.6	-2.6	
Natural gas	162447	188965	207559	188021	168212	128999	114934	98306	84761	2.5	-2.1	-3.7	-3.0	
Nuclear	202589	223028	243761	257360	245217	243715	221472	208950	206403	1.9	0.1	-1.0	-0.7	
Renewable energy sources	73248	86325	100890	121568	150766	167977	193477	213248	232899	3.3	4.1	2.5	1.9	
Hydro	25101	28054	30374	26394	28650	28334	28930	29677	30182	1.9	-0.6	0.1	0.4	
Biomass & Waste	44737	54203	64774	82903	101964	112480	129229	142874	158041	3.8	4.6	2.4	2.0	
Wind	67	350	1913	6060	12441	17372	23321	27030	29437	39.8	20.6	6.5	2.4	
Solar and others	153	273	418	816	2149	4168	6242	7669	8671	10.6	17.8	11.3	3.3	
Geothermal	3190	3444	3412	5395	5562	5624	5756	5998	6567	0.7	5.0	0.3	1.3	
Net Imports	748677	730704	818875	975298	1073937	1213468	1301127	1358383	1375782	0.9	2.7	1.9	0.6	
Solids	79289	79183	98575	126702	153315	181784	200088	212519	209834	2.2	4.5	2.7	0.5	
Oil	530805	504448	525661	589611	623018	669687	706804	723977	729187	-0.1	1.7	1.3	0.3	
- Crude oil and Feedstocks	503539	488479	507317	574313	612296	659150	696273	713873	720959	0.1	1.9	1.3	0.3	
- Oil products	27265	15969	18344	15298	10722	10537	10530	10104	8228	-3.9	-5.2	-0.2	-2.4	
Natural gas	135121	145288	192531	256828	294227	358047	389963	417103	431449	3.6	4.3	2.9	1.0	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1854101	1927639	1967569	1996562	2004713	0.4	0.8	0.6	0.2	
Solids	450105	364252	321390	320065	318268	334149	341852	346191	335642	-3.3	-0.1	0.7	-0.2	
Oil	625464	642003	650399	665514	674035	690801	701599	707980	708247	0.4	0.4	0.4	0.1	
Natural gas	294905	333268	393417	444804	462439	487045	504897	515409	516210	2.9	1.6	0.9	0.2	
Nuclear	202589	223028	243761	257360	245217	243715	221472	208950	206403	1.9	0.1	-1.0	-0.7	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	152646	170461	196709	217106	237287	3.2	4.2	2.6	1.9	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	17.2	17.3	17.4	17.3	16.7					
Oil	37.9	38.9	38.0	36.7	36.4	35.8	35.7	35.5	35.3					
Natural gas	17.9	20.2	23.0	24.6	24.9	25.3	25.7	25.8	25.7					
Nuclear	12.3	13.5	14.2	14.2	13.2	12.6	11.3	10.5	10.3					
Renewable energy forms	4.5	5.2	5.9	6.8	8.2	8.8	10.0	10.9	11.8					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3568320	3839408	4078237	4272996	4408034	1.6	1.8	1.3	0.8	
Self consumption and grid losses	335093	353101	383382	407678	413952	437618	466484	501682	520412	1.4	0.8	1.2	1.1	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	415848	440003	466120	480100	473699	0.1	0.8	1.1	0.2	
Solids	259913	233747	223114	229144	232445	248240	257475	264078	256705	-1.5	0.4	1.0	0.0	
Oil (including refinery gas)	54361	51375	39172	29499	18358	14946	13366	11604	10522	-3.2	-7.3	-3.1	-2.4	
Gas (including derived gases)	56680	67840	102572	133257	132475	144740	153813	155776	148530	6.1	2.6	1.5	-0.3	
Biomass & Waste	5861	9809	14969	26638	27764	27193	36433	43340	52041	9.8	6.4	2.8	3.6	
Geothermal heat	2774	2992	2939	4645	4806	4884	5032	5301	5900	0.6	5.0	0.5	1.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	843634	868673	885771	895757	900529	-0.2	0.3	0.5	0.2	
Refineries	673810	699352	727451	749312	750904	771020	783740	791845	794522	0.8	0.3	0.4	0.1	
Biofuels and hydrogen production	2	202	624	3206	15230	23876	32268	37906	42427	80.0	37.6	7.8	2.8	
District heating	33413	23351	19302	16177	19742	19218	18450	18404	18902	-5.3	0.2	-0.7	0.2	
Derived gases, cokeries etc.	127920	86079	71473	65511	57757	54558	51313	47602	44678	-5.7	-2.1	-1.2	-1.4	
Energy Branch Consumption	81962	88206	87583	93941	90721	90473	91540	93131	93293	0.7	0.4	0.1	0.2	
Non-Energy Uses	96068	105319	109135	111706	116067	120995	125519	128820	131214	1.3	0.6	0.8	0.4	
Final Energy Demand	1070684	1066881	1112182	1166880	1237040	1302036	1347807	1382755	1405680	0.4	1.1	0.9	0.4	
by sector														
Industry	367505	325769	324835	324493	338508	355349	367691	378367	386379	-1.2	0.4	0.8	0.5	
- energy intensive industries	236724	213853	212264	209326	216422	224917	230337	234372	236848	-1.1	0.2	0.6	0.3	
- other industrial sectors	130780	111916	112571	115167	122086	130432	137355	143995	149531	-1.5	0.8	1.2	0.9	
Residential	264548	279716	287255	307013	320538	329712	336005	340246	343345	0.8	1.1	0.5	0.2	
Tertiary	159192	161639	160963	173669	187079	198671	205469	210042	212878	0.1	1.5	0.9	0.4	
Transport	279440	299758	339129	361705	390915	418304	438642	454100	463079	2.0	1.4	1.2	0.5	
by fuel														
Solids	130725	85607	61781	53475	54508	55303	55440	53938	51328	-7.2	-1.2	0.2	-0.8	
Oil	442561	455056	477166	492540	510408	528762	539780	548282	549760	0.8	0.7	0.6	0.2	
Gas	227872	245996	267506	287197	299128	308836	314216	319612	326376	1.6	1.1	0.5	0.4	
Electricity	184059	194149	217155	237501	262655	285252	303129	316864	326805	1.7	1.9	1.4	0.8	
Heat (from CHP and District Heating)	48744	45026	40988	41333	41412	43395	46154	47361	48385	-1.7	0.1	1.1	0.5	
Renewable energy forms	36724	41048	47586	54833	68901	80436	88980	96535	102851	2.6	3.8	2.6	1.5	
Other	0	0	0	0	28	53	109	163	174			14.6	4.8	
RES in Gross Final Energy Consumption (A)			91114	104237	133658	151745	176067	195377	213247		3.9	2.8	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	5226.0	5389.2	5496.4	5473.8	5379.6	-0.9	0.2	0.5	-0.2	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3996.6	4156.8	4252.5	4306.6	4263.7	-0.6	0.5	0.6	0.0	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1350.9	1430.8	1482.8	1509.5	1462.5	-1.1	0.2	0.9	-0.1	
Energy Branch	154.2	172.4	173.1	184.3	171.5	172.2	171.5	169.1	164.7	1.2	-0.1	0.0	-0.4	
Industry	801.7	684.2	632.4	599.4	617.1	630.4	637.3	637.5	633.3	-2.3	-0.2	0.3	-0.1	
Residential	507.7	482.4	466.1	483.1	487.3	487.0	485.0	483.4	483.3	-0.9	0.4	0.0	0.0	
Tertiary	304.7	274.8	242.0	254.6	259.6	265.1	263.4	261.7	260.0	-2.3	0.7	0.1	-0.1	
Transport	810.0	870.4	987.6	1050.6	1110.2	1171.2	1212.5	1245.4	1259.8	2.0	1.2	0.9	0.4	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	329.3	343.6	358.0	367.0	374.8	-0.8	0.7	0.8	0.5	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	888.8	885.9	800.3	741.1	-2.1	-0.8	-0.2	-1.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	93.7	96.6	98.5	98.1	96.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	EU27: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	149.2	137.1	125.4	115.6	107.3	-1.8	-1.3	-1.7	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.16	2.16	2.16	2.16	2.13	-0.9	-0.3	0.0	-0.2
Import Dependency %	44.4	43.3	46.7	52.4	56.3	61.2	64.2	66.0	66.6				
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1219.1	1369.1	1515.8	1626.3	1709.5		2.2	2.2	1.2
as % of GDP			9.7	9.9	9.8	9.7	9.7	9.4	9.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.5	81.4	75.5	70.8	67.2	-2.7	-1.3	-1.5	-1.2
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	90.0	82.6	75.9	70.2	65.5	-1.3	-1.0	-1.7	-1.5
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	92.1	86.1	79.6	73.8	68.9	-2.3	-0.8	-1.4	-1.4
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.9	36.0	34.9	33.6	32.5	0.1	-0.6	-0.6	-0.7
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.7	50.1	49.2	48.2	47.0	0.3	0.0	-0.3	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.33	0.32	0.31	0.31	0.29	-2.0	-1.3	-0.3	-0.8
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.00	1.96	1.93	1.90	1.88	-0.8	-0.5	-0.4	-0.3
Industry	2.18	2.10	1.95	1.85	1.82	1.77	1.73	1.68	1.64	-1.1	-0.7	-0.5	-0.6
Residential	1.92	1.72	1.62	1.57	1.52	1.48	1.44	1.42	1.41	-1.7	-0.6	-0.5	-0.3
Tertiary	1.91	1.70	1.50	1.47	1.39	1.33	1.28	1.25	1.22	-2.4	-0.8	-0.8	-0.5
Transport	2.90	2.90	2.91	2.90	2.84	2.80	2.76	2.74	2.72	0.0	-0.3	-0.3	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	10.5	11.3	12.7	13.7	14.7				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	3.9	5.7	7.4	8.5	9.5				
Gross Electricity generation by source (in GWh)													
			2992030	3275359	3568320	3839408	4078237	4272996	4408034		1.8	1.3	0.8
Nuclear energy	944823	997519	951111	948709	865576	829677	872262			0.1	-0.9	0.1	
Solids	900381	918139	1027237	1136847	1241446	1337826	1374195			1.3	1.9	1.0	
Oil (including refinery gas)	176516	150480	103619	88147	80052	74367	72686			-5.2	-2.5	-1.0	
Gas (including derived gases)	535039	721024	864361	974391	1067268	1111049	1083672			4.9	2.1	0.2	
Biomass-waste	54964	101813	132642	145230	196399	235448	281854			9.2	4.0	3.7	
Hydro (pumping excluded)	353182	306902	333139	329464	336392	345085	350959			-0.6	0.1	0.4	
Wind	22246	70469	144659	201995	271170	314305	342295			20.6	6.5	2.4	
Solar	117	1489	3731	6221	9469	13297	16545			41.4	9.8	5.7	
Geothermal and other renewables	4762	7525	7820	8404	10466	11941	13566			5.1	3.0	2.6	
Net Generation Capacity in MW_e	680864	739517	835300	861624	901228	933704	966119			2.1	0.8	0.7	
<u>Nuclear energy</u>	135806	134187	125494	123653	112688	98580	102444			-0.8	-1.1	-0.9	
<u>Renewable energy</u>	120596	151902	186712	211736	244844	266126	279257			4.5	2.7	1.3	
Hydro (pumping excluded)	107638	109284	111355	113039	114302	114886	115520			0.3	0.3	0.1	
Wind	12786	40822	71335	92238	120374	137231	145940			18.8	5.4	1.9	
Solar	172	1797	3782	6142	8979	12276	15394			36.2	9.0	5.5	
Other renewables (tidal etc.)	0	0	240	317	1189	1733	2403				17.4	7.3	
<u>Thermal power</u>	424462	453429	523094	526235	543695	568997	584417			2.1	0.4	0.7	
of which cogeneration units	123462	133684	127287	138508	158320	167584	170049			0.3	2.2	0.7	
Solids fired	191258	188695	187875	188443	186273	191516	188345			-0.2	-0.1	0.1	
Gas fired	149738	181031	243517	261100	281835	301287	313393			5.0	1.5	1.1	
Oil fired	71858	67498	68200	50189	38323	31435	30718			-0.5	-5.6	-2.2	
Biomass-waste fired	10810	15216	22504	25502	36234	43723	50700			7.6	4.9	3.4	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	798	988	998	1001	1030	1036	1261			2.3	0.3	2.0	
Avg. Load factor of net power capacity (%)			47.4	47.8	46.4	48.6	49.3	49.7	49.5				
Efficiency of gross thermal power generation (%)			37.6	38.6	44.2	46.0	47.8	49.6	51.2				
% of gross electricity from CHP			12.7	12.8	16.7	17.9	20.3	21.2	21.1				
Carbon free gross electricity generation (%)			46.1	45.4	44.1	42.7	41.4	40.9	42.6				
- nuclear			31.6	30.5	26.7	24.7	21.2	19.4	19.8				
- renewable energy forms			14.5	14.9	17.4	18.0	20.2	21.5	22.8				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	4784.5	5221.8	5819.7	6245.4	6783.8	7350.0	7897.1	8412.9	8860.8	2.0	1.5	1.5	1.2
Private cars and motorcycles	555.6	498.3	514.0	529.0	540.4	557.5	580.2	600.5	617.4	-0.8	0.5	0.7	0.6
Rail	3459.2	3930.1	4375.8	4714.4	5115.0	5498.6	5849.3	6171.7	6441.4	2.4	1.6	1.4	1.0
Aviation	464.8	412.0	438.5	446.8	468.2	509.2	556.2	611.5	667.6	-0.6	0.7	1.7	1.8
Inland navigation	247.9	325.9	442.0	506.3	610.9	734.5	860.1	976.5	1080.6	6.0	3.3	3.5	2.3
Freight transport activity (Gtkm)	57.0	55.4	49.4	48.9	49.4	50.2	51.4	52.7	53.8	-1.4	0.0	0.4	0.5
Trucks	1878.9	1929.0	2174.9	2463.9	2769.7	3061.3	3321.5	3546.3	3717.2	1.5	2.4	1.8	1.1
Rail	1096.9	1279.3	1507.5	1790.0	2048.3	2278.9	2485.6	2666.7	2803.0	3.2	3.1	2.0	1.2
Inland navigation	524.8	385.0	396.1	393.9	427.2	469.5	504.6	535.2	558.9	-2.8	0.8	1.7	1.0
Energy demand in transport (ktoe)	257.2	264.7	271.3	280.1	294.2	312.9	331.3	344.3	355.3	0.5	0.8	1.2	0.7
Public road transport	279440	299758	339129	361705	390915	418304	438642	454100	463079	2.0	1.4	1.2	0.5
Private cars and motorcycles	5216	4538	4464	4316	4256	4275	4335	4339	4279	-1.5	-0.5	0.2	-0.1
Trucks	148125	159084	174735	175721	183393	189769	193342	194654	193848	1.7	0.5	0.5	0.0
Rail	80641	85832	99349	116963	129609	142040	151841	160060	165301	2.1	2.7	1.6	0.9
Aviation	9605	9409	9710	9605	9849	10005	9688	9086	7686	0.1	0.1	-0.2	-2.3
Inland navigation	28947	34014	45368	49744	58234	66410	73432	79901	85904	4.6	2.5	2.3	1.6
	6905	6881	5503	5356	5574	5805	6003	6059	6061	-2.2	0.1	0.7	0.1

Source: PRIMES

Austria: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10427	10273	9574	9939	10275	1.6	0.9	-0.8	0.7	
Solids	644	305	293	0	16	18	18	18	18	-7.6	-25.5	1.5	0.0	
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1446	1270	400	385	386	3.4	-0.6	-12.1	-0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8115	8365	8876	9305	9681	2.6	2.0	0.9	0.9	
Hydro	2709	3187	3598	3085	3252	2998	3297	3297	3297	2.9	-1.0	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4426	4817	4913	5291	5661	2.0	4.1	1.0	1.4	
Wind	0	0	6	114	267	324	388	406	394		46.8	3.8	0.2	
Solar and others	15	36	64	92	162	217	265	296	312	15.7	9.8	5.0	1.6	
Geothermal	4	3	14	35	7	9	12	14	16	14.2	-6.6	6.0	2.9	
Net Imports	17086	17769	18853	24392	24665	26681	28302	28365	28384	1.0	2.7	1.4	0.0	
Solids	3112	2543	3064	3958	3960	4296	4781	5309	5593	-0.2	2.6	1.9	1.6	
Oil	9521	10012	10703	13028	13453	13918	13953	13893	13628	1.2	2.3	0.4	-0.2	
- Crude oil and Feedstocks	7878	8068	7704	7964	8369	8743	8985	8999	8939	-0.2	0.8	0.7	-0.1	
- Oil products	1643	1944	3000	5064	5084	5175	4969	4894	4689	6.2	5.4	-0.2	-0.6	
Natural gas	4443	5404	5253	7288	7070	8399	9573	9223	9232	1.7	3.0	3.1	-0.4	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	35092	36954	37876	38304	38658	1.3	2.1	0.8	0.2	
Solids	4042	3336	3637	4050	3976	4314	4799	5327	5611	-1.1	0.9	1.9	1.6	
Oil	10596	11196	11882	14125	14303	14538	14233	14123	13818	1.2	1.9	0.0	-0.3	
Natural gas	5184	6374	6519	8263	8517	9669	9973	9608	9618	2.3	2.7	1.6	-0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	7995	8235	8743	9162	9528	2.4	1.9	0.9	0.9	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.3	11.7	12.7	13.9	14.5					
Oil	42.4	41.9	41.7	41.6	40.8	39.3	37.6	36.9	35.7					
Natural gas	20.7	23.9	22.9	24.3	24.3	26.2	26.3	25.1	24.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	22.8	22.3	23.1	23.9	24.6					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	66002	72492	78344	83032	85871	2.0	0.9	1.7	0.9	
Self consumption and grid losses	4886	4995	5404	7536	6648	6869	7481	8408	8938	1.0	2.1	1.2	1.8	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	4073	5641	5846	6290	6510	-0.2	0.4	3.7	1.1	
Solids	1510	1055	1236	1510	1325	1641	2172	2711	2934	-2.0	0.7	5.1	3.1	
Oil (including refinery gas)	488	489	287	270	531	547	315	347	326	-5.2	6.4	-5.1	0.3	
Gas (including derived gases)	1776	2276	1974	2901	1936	3065	2840	2538	2407	1.1	-0.2	3.9	-1.6	
Biomass & Waste	237	455	428	786	278	384	513	686	833	6.1	-4.2	6.3	5.0	
Geothermal heat	0	0	0	2	3	4	6	8	10			9.1	5.0	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12792	12668	12581	12393	12394	-0.2	1.3	-0.2	-0.2	
Refineries	9123	9170	8765	9080	9221	9364	9265	9229	9129	-0.4	0.5	0.0	-0.1	
Biofuels and hydrogen production	2	5	9	42	323	492	704	865	1044	17.5	43.5	8.1	4.0	
District heating	347	438	566	612	1157	825	713	477	432	5.0	7.4	-4.7	-4.9	
Derived gases, cokeries etc.	1971	1790	1910	2009	2091	1987	1899	1822	1789	-0.3	0.9	-1.0	-0.6	
Energy Branch Consumption	1639	1703	1750	2134	1967	1946	1913	1892	1856	0.7	1.2	-0.3	-0.3	
Non-Energy Uses	1401	1145	1386	1381	1411	1465	1515	1557	1590	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	29327	30706	31646	32184	32510	1.9	2.5	0.8	0.3	
by sector														
Industry	6153	6474	7528	8825	9356	9654	9795	9896	9954	2.0	2.2	0.5	0.2	
- energy intensive industries	4048	4038	4982	5533	5766	5853	5859	5839	5790	2.1	1.5	0.2	-0.1	
- other industrial sectors	2105	2436	2546	3293	3590	3801	3936	4056	4164	1.9	3.5	0.9	0.6	
Residential	5755	6222	6042	6548	6938	7262	7520	7649	7761	0.5	1.4	0.8	0.3	
Tertiary	2544	3062	3304	3942	4397	4767	4974	5076	5115	2.6	2.9	1.2	0.3	
Transport	4603	5161	6038	7994	8635	9023	9356	9564	9679	2.7	3.6	0.8	0.3	
by fuel														
Solids	1718	1535	1415	1458	1459	1438	1380	1338	1257	-1.9	0.3	-0.6	-0.9	
Oil	7896	8728	9402	11774	11998	12223	12223	12220	12110	1.8	2.5	0.2	-0.1	
Gas	2968	3607	4254	4936	5750	5878	6222	6177	6318	3.7	3.1	0.8	0.2	
Electricity	3669	3953	4474	4884	5291	5723	6106	6384	6584	2.0	1.7	1.4	0.8	
Heat (from CHP and District Heating)	614	848	1052	1260	1388	1493	1564	1580	1541	5.5	2.8	1.2	-0.2	
Renewable energy forms	2192	2248	2316	2996	3440	3950	4148	4481	4697	0.6	4.0	1.9	1.2	
Other	0	0	0	0	1	1	2	3	3			13.8	2.6	
RES in Gross Final Energy Consumption ^(A)			6285	6788	7548	7753	8442	8849	9173	1.8	1.1	0.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	98.2	102.5	104.3	104.2	103.6	0.5	1.5	0.6	-0.1	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	74.3	78.9	80.5	81.4	81.4	1.0	2.0	0.8	0.1	
Power generation/District heating	12.8	12.1	11.6	15.0	13.2	17.0	18.2	19.6	20.1	-1.0	1.3	3.3	1.0	
Energy Branch	3.8	4.0	4.2	4.6	4.4	4.4	4.3	4.1	4.0	1.0	0.4	-0.2	-0.7	
Industry	12.7	13.6	15.5	17.5	18.4	18.3	18.4	18.0	17.8	2.0	1.7	0.0	-0.3	
Residential	9.8	9.7	8.8	9.0	9.0	9.0	9.0	9.1	9.1	-1.1	0.2	0.0	0.1	
Tertiary	3.4	4.0	3.7	4.5	4.9	5.2	5.0	4.8	4.7	0.8	2.9	0.2	-0.6	
Transport	12.7	14.6	17.2	23.1	24.3	25.1	25.5	25.8	25.7	3.1	3.5	0.5	0.0	
CO₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.6	9.7	9.6	9.7	9.7	0.2	1.5	0.0	0.1	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	13.9	14.2	13.1	12.5	-1.1	-0.7	-0.1	-1.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	122.2	127.5	129.8	129.6	128.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1	
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4	
Gross Int. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	126.5	120.7	113.0	105.5	100.0	-1.2	0.1	-1.1	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.12	2.14	2.13	2.12	2.10	-0.3	-0.1	0.0	-0.1	
Import Dependency %	68.4	66.5	66.1	71.8	70.3	72.2	74.7	74.1	73.4					
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.0	29.3	32.0	34.2	35.3		3.1	2.1	1.0	
as % of GDP			8.4	9.5	9.4	9.6	9.5	9.4	9.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.9	92.8	85.7	79.7	75.3	-0.6	0.0	-1.5	-1.3	
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	96.1	91.5	86.8	81.8	78.2	-1.6	-0.4	-1.0	-1.0	
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	109.1	106.8	101.5	95.4	90.3	0.1	0.9	-0.7	-1.2	
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	39.2	38.2	37.1	35.6	34.1	0.1	2.4	-0.6	-0.8	
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	58.9	58.1	57.1	55.8	55.0	-0.8	2.6	-0.3	-0.4	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.16	0.19	0.19	0.19	0.19	-3.4	0.0	1.7	0.3	
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.93	1.87	1.83	1.79	1.76	-0.3	-0.2	-0.5	-0.4	
Industry	2.06	2.10	2.06	1.98	1.97	1.89	1.88	1.82	1.79	0.0	-0.4	-0.5	-0.5	
Residential	1.71	1.55	1.46	1.37	1.30	1.24	1.20	1.18	1.17	-1.6	-1.1	-0.8	-0.2	
Tertiary	1.34	1.32	1.12	1.15	1.12	1.08	1.01	0.95	0.92	-1.8	0.0	-1.0	-0.9	
Transport	2.75	2.82	2.85	2.89	2.82	2.78	2.73	2.70	2.65	0.3	-0.1	-0.3	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	25.1	24.7	26.1	26.8	27.5					
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.4	5.1	7.0	8.6	10.3					
Gross Electricity generation by source (in GWh)														
			60150	62969	66002	72492	78344	83032	85871		0.9	1.7	0.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids			4642	5863	6114	7640	10275	13692	15752		2.8	5.3	4.4	
Oil (including refinery gas)			1220	1452	4028	4165	2931	3017	2858		12.7	-3.1	-0.3	
Gas (including derived gases)			10541	14513	11443	18042	17231	16928	17206		0.8	4.2	0.0	
Biomass-waste			1845	3929	3448	3928	4884	6081	6774		6.5	3.5	3.3	
Hydro (pumping excluded)			41832	35868	37818	34856	38342	38342	38342		-1.0	0.1	0.0	
Wind			67	1328	3109	3772	4517	4720	4587		46.8	3.8	0.2	
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1	
Geothermal and other renewables			0	3	4	6	8	10	13			7.1	4.4	
Net Generation Capacity in MW_e			16771	17685	20805	22406	23554	24722	25155		2.2	1.2	0.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			10792	11287	12018	12985	14123	14552	15282		1.1	1.6	0.8	
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3	
Wind			77	817	1368	1677	2171	2274	2708		33.3	4.7	2.2	
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5978	6397	8787	9421	9431	10169	9873		3.9	0.7	0.5	
of which cogeneration units			3067	3657	3952	4662	5168	5269	5614		2.6	2.7	0.8	
Solids fired			1600	1587	1460	1460	1547	1602	1874		-0.9	0.6	1.9	
Gas fired			2916	3267	5187	6090	5983	6629	6166		5.9	1.4	0.3	
Oil fired			1167	1158	1675	1428	915	770	585		3.7	-5.9	-4.4	
Biomass-waste fired			295	384	464	443	984	1166	1246		4.6	7.8	2.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	1	1	1	2	2	3			5.2	3.7	
Avg. Load factor of net power capacity (%)			39.8	38.3	34.6	35.6	36.7	36.9	37.5					
Efficiency of gross thermal power generation (%)			40.0	40.5	52.9	51.5	52.0	54.3	56.3					
% of gross electricity from CHP			12.3	20.6	26.7	31.9	32.6	35.4	36.2					
Carbon free gross electricity generation (%)			72.7	65.3	67.3	58.8	61.1	59.5	58.3					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			72.7	65.3	67.3	58.8	61.1	59.5	58.3					
Transport sector														
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	131.3	139.3	147.2	154.4	160.1	1.9	1.4	1.2	0.8	
Public road transport	14.2	14.8	14.8	15.1	15.8	16.4	17.0	17.5	17.7	0.4	0.6	0.7	0.4	
Private cars and motorcycles	65.2	73.8	81.3	85.8	93.2	97.8	101.9	105.4	107.7	2.2	1.4	0.9	0.6	
Rail	11.5	12.7	11.8	12.3	13.2	14.3	15.2	16.1	16.8	0.3	1.1	1.4	1.0	
Aviation	4.1	5.4	6.6	7.3	8.9	10.9	13.0	15.4	17.7	5.0	3.1	3.8	3.1	
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.4	0.5	0.7	
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	59.2	63.7	68.2	72.8	76.8	4.7	0.9	1.4	1.2	
Trucks	20.3	26.5	35.1	37.0	39.4	42.1	45.0	47.9	50.5	5.6	1.1	1.3	1.2	
Rail	12.2	13.2	16.6	17.1	18.1	19.7	21.2	22.7	24.1	3.2	0.8	1.6	1.3	
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.2	3.9	-3.0	1.4	0.7	
Energy demand in transport (ktoe)	4603	5161	6038	7994	8635	9023	9356	9564	9679	2.7	3.6	0.8	0.3	
Public road transport	80	83	80	107	110	110	111	107	101	-0.1	3.3	0.1	-1.0	
Private cars and motorcycles	2499	2643	2865	3890	4195	4235	4250	4183	4038	1.4	3.9	0.1	-0.5	
Trucks	1350	1675	2167	3004	3187	3384	3585	3754	3936	4.8	3.9	1.2	0.9	
Rail	357	292	333	310	320	333	332	327	306	-0.7	-0.4	0.4	-0.8	
Aviation	310	461	586	675	814	950	1068	1183	1286	6.6	3.3	2.8	1.9	
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.2	0.6	

Source: PRIMES

Belgium: Baseline scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	12529	11336	13366	14064	15031	14391	12318	6251	4004	0.6	1.2	-2.0	-10.6	
Solids	1085	269	191	57	24	20	18	15	13	-16.0	-18.8	-3.0	-3.0	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	2083	2667	3233	3596	3991	0.3	10.7	4.5	2.1	
Hydro	23	29	39	25	30	31	31	30	30	5.6	-2.7	0.4	-0.6	
Biomass & Waste	702	694	706	1675	1830	2228	2619	2899	3254	0.0	10.0	3.7	2.2	
Wind	1	1	1	20	197	334	459	515	530	7.9	65.3	8.8	1.5	
Solar and others	1	1	1	3	25	73	121	151	176	2.1	37.6	17.1	3.8	
Geothermal	1	1	4	1	1	1	1	1	1	14.0	-9.1	-0.2	-0.2	
Net Imports	38857	43775	48651	48968	49819	51031	53562	57745	59346	2.3	0.2	0.7	1.0	
Solids	9492	9343	7566	5511	5066	5349	6502	9575	10821	-2.2	-3.9	2.5	5.2	
Oil	21468	23579	27331	28425	29325	29150	29248	29511	29647	2.4	0.7	0.0	0.1	
- Crude oil and Feedstocks	26116	25674	32658	30565	32185	32253	32415	32687	32825	2.3	-0.1	0.1	0.1	
- Oil products	-4648	-2096	-5328	-2141	-2859	-3103	-3167	-3176	-3178					
Natural gas	8217	10418	13278	14191	14491	15532	16833	17662	17861	4.9	0.9	1.5	0.6	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	57069	57343	57382	55077	54054	1.9	0.0	0.1	-0.6	
Solids	10244	8551	8200	5450	5090	5369	6520	9590	10834	-2.2	-4.7	2.5	5.2	
Oil	17730	19794	21949	20547	21545	21071	20749	20593	20350	2.2	-0.2	-0.4	-0.2	
Natural gas	8169	10611	13369	14113	14491	15532	16833	17662	17861	5.0	0.8	1.5	0.6	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2410	3065	3700	4114	4572	1.6	10.9	4.4	2.1	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	9.4	11.4	17.4	20.0					
Oil	37.5	39.2	38.4	37.4	37.8	36.7	36.2	37.4	37.6					
Natural gas	17.3	21.0	23.4	25.7	25.4	27.1	29.3	32.1	33.0					
Nuclear	22.7	20.5	21.7	22.3	22.6	20.4	15.8	4.8	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.2	5.3	6.4	7.5	8.5					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	93850	101082	108939	114781	117748	1.6	1.3	1.5	0.8	
Self consumption and grid losses	7382	7778	7813	8244	7963	8634	9442	11206	11677	0.6	0.2	1.7	2.1	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	7177	8484	11007	15317	17137	1.3	-0.4	4.4	4.5	
Solids	3875	3764	3025	1889	1956	2339	3622	6816	8163	-2.4	-4.3	6.4	8.5	
Oil (including refinery gas)	318	232	172	411	33	89	80	91	98	-6.0	-15.2	9.3	2.0	
Gas (including derived gases)	1983	2721	3790	4612	3985	4735	5867	6793	6900	6.7	0.5	3.9	1.6	
Biomass & Waste	368	465	466	1388	1203	1321	1437	1618	1975	2.4	10.0	1.8	3.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38535	38333	38357	38329	38401	1.5	-0.6	0.0	0.0	
Refineries	29036	28632	37085	35792	35210	34902	34812	34789	34822	2.5	-0.5	-0.1	0.0	
Biofuels and hydrogen production	0	0	0	0	225	502	787	937	1054			13.4	3.0	
District heating	10	5	41	27	71	48	41	45	43	15.2	5.6	-5.3	0.4	
Derived gases, cokeries etc.	6109	4320	3612	3173	3029	2881	2717	2559	2481	-5.1	-1.7	-1.1	-0.9	
Energy Branch Consumption	2310	2273	2370	2127	1934	1915	1923	2006	2011	0.3	-2.0	-0.1	0.4	
Non-Energy Uses	2739	3289	5814	4583	4266	4054	4029	3999	3959	7.8	-3.0	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	38013	38938	39613	39803	39870	1.7	0.3	0.4	0.1	
by sector														
Industry	11886	12110	13636	11605	11797	11896	11908	11882	11884	1.4	-1.4	0.1	0.0	
- energy intensive industries	9285	9192	10043	8751	8851	8901	8845	8762	8672	0.8	-1.3	0.0	-0.2	
- other industrial sectors	2600	2918	3593	2854	2946	2995	3062	3120	3212	3.3	-2.0	0.4	0.5	
Residential	8337	9295	9465	9914	10147	10347	10463	10394	10322	1.3	0.7	0.3	-0.1	
Tertiary	3370	4604	4158	5005	5412	5579	5711	5750	5745	2.1	2.7	0.5	0.1	
Transport	7704	8480	9672	9880	10657	11116	11532	11778	11919	2.3	1.0	0.8	0.3	
by fuel														
Solids	3787	3306	3378	2080	1843	1826	1785	1762	1680	-1.1	-5.9	-0.3	-0.6	
Oil	14734	16248	16047	16443	16837	16420	16221	16197	16035	0.9	0.5	-0.4	-0.1	
Gas	7249	8517	10010	10009	10375	10751	10775	10502	10539	3.3	0.4	0.4	-0.2	
Electricity	4986	5885	6667	6894	7698	8255	8774	9105	9282	2.9	1.4	1.3	0.6	
Heat (from CHP and District Heating)	213	220	490	427	360	438	471	502	533	8.7	-3.1	2.7	1.3	
Renewable energy forms	326	312	338	549	900	1247	1585	1730	1795	0.3	10.3	5.8	1.3	
Other	0	0	0	0	1	1	3	5	6			14.2	6.7	
RES in Gross Final Energy Consumption ^(A)			495	909	1887	2473	3174	3549	4024		14.3	5.3	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	143.2	146.2	152.5	167.0	172.0	0.4	-0.4	0.6	1.2	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	106.0	108.8	115.6	129.4	134.1	0.8	-0.8	0.9	1.5	
Power generation/District heating	21.8	23.1	22.5	20.6	18.2	21.6	29.2	44.0	49.6	0.3	-2.1	4.8	5.4	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.9	3.8	3.7	3.7	0.3	-3.7	0.1	-0.4	
Industry	30.2	28.7	30.5	22.8	22.2	21.3	20.6	20.0	19.7	0.1	-3.1	-0.8	-0.4	
Residential	18.7	20.1	20.0	20.3	19.8	19.5	19.0	18.4	18.0	0.7	-0.1	-0.4	-0.5	
Tertiary	7.5	10.4	8.2	10.5	10.8	10.7	10.6	10.5	10.3	0.8	2.8	-0.1	-0.3	
Transport	22.6	24.9	28.6	29.4	31.1	31.8	32.4	32.8	32.9	2.4	0.8	0.4	0.2	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.3	10.3	10.3	10.1	0.9	-0.2	0.3	-0.2	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	27.1	26.6	27.4	27.7	-1.4	1.6	-0.2	0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	100.7	102.8	107.2	117.4	120.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	169.9	153.5	140.2	123.9	113.1	-0.4	-1.9	-1.9	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.86	1.90	2.01	2.35	2.48	-1.1	-0.8	0.8	2.1
Import Dependency %	75.7	80.5	77.8	78.3	76.8	78.0	81.3	90.2	93.7				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	35.3	39.2	42.9	45.1	46.5		1.5	2.0	0.8
as % of GDP			10.9	10.6	10.5	10.5	10.5	10.1	9.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	72.1	67.1	62.4	58.2	-0.2	-2.4	-1.5	-1.4
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	91.1	84.6	78.8	72.6	67.6	-0.9	-0.9	-1.4	-1.5
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	104.8	96.7	89.8	82.9	77.2	0.2	0.5	-1.5	-1.5
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.7	44.5	43.2	40.9	38.7	0.1	-0.3	-0.6	-1.1
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.9	47.8	47.9	48.6	49.0	-0.7	0.1	0.0	0.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.18	0.20	0.25	0.36	0.40	-1.7	-3.2	3.2	4.6
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.21	2.14	2.08	2.05	2.03	-0.7	-0.7	-0.6	-0.3
Industry	2.54	2.37	2.24	1.97	1.88	1.79	1.73	1.69	1.65	-1.3	-1.7	-0.9	-0.4
Residential	2.24	2.16	2.11	2.05	1.95	1.88	1.81	1.77	1.74	-0.6	-0.8	-0.8	-0.4
Tertiary	2.23	2.26	1.96	2.09	1.99	1.92	1.86	1.82	1.80	-1.3	0.1	-0.7	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.86	2.81	2.78	2.76	0.1	-0.1	-0.4	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	4.9	6.2	7.8	8.7	9.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.1	4.5	6.9	8.1	9.0				
Gross Electricity generation by source (in GWh)													
			82639	85694	93850	101082	108939	114781	117748		1.3	1.5	0.8
Nuclear energy			48148	47586	50094	45361	35148	10232	0	0.4	-3.5		
Solids			12953	8552	8605	10394	17500	39135	47228	-4.0	7.4	10.4	
Oil (including refinery gas)			865	1871	153	1137	1031	917	867	-15.9	21.0	-1.7	
Gas (including derived gases)			18968	23608	26436	33122	41791	49260	52266	3.4	4.7	2.3	
Biomass-waste			1231	3561	5907	6785	7698	8795	10717	17.0	2.7	3.4	
Hydro (pumping excluded)			459	288	350	357	366	346	346	-2.7	0.4	-0.6	
Wind			15	227	2287	3887	5334	5986	6164	65.3	8.8	1.5	
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	18082	18886	20599	21849	22108		2.3	1.3	0.7
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0	0.1	-3.5		
<u>Renewable energy</u>			319	467	1237	1927	2625	2973	3083	14.5	7.8	1.6	
Hydro (pumping excluded)			306	298	300	303	304	304	304	-0.2	0.1	0.0	
Wind			13	167	913	1572	2228	2528	2571	53.0	9.3	1.4	
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10972	11687	13878	17683	19026	2.8	2.4	3.2	
of which cogeneration units			1863	2324	3201	4535	5208	5213	5352	5.6	5.0	0.3	
Solids fired			1680	1392	1258	1474	2168	4909	5656	-2.8	5.6	10.1	
Gas fired			5522	6360	7962	8376	9658	10999	11669	3.7	2.0	1.9	
Oil fired			615	641	591	549	523	240	252	-0.4	-1.2	-7.1	
Biomass-waste fired			515	551	1161	1287	1528	1536	1450	8.5	2.8	-0.5	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	57.2	59.1	58.4	57.3	58.1				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.2	52.1	53.1	55.1	55.7				
% of gross electricity from CHP			7.3	7.2	18.0	23.6	25.1	26.6	27.0				
Carbon free gross electricity generation (%)			60.3	60.3	62.5	55.8	44.6	22.2	14.8				
- nuclear			58.3	55.5	53.4	44.9	32.3	8.9	0.0				
- renewable energy forms			2.1	4.8	9.1	10.9	12.4	13.3	14.8				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	113.7	126.3	139.3	153.2	166.2	175.9	184.2	192.0	198.7	2.0	1.8	1.0	0.8
Private cars and motorcycles	10.9	13.1	13.3	17.6	18.5	18.9	19.3	19.6	19.7	2.0	3.4	0.4	0.2
Rail	90.1	98.6	107.7	114.4	122.2	127.4	131.3	135.3	138.3	1.8	1.3	0.7	0.5
Aviation	7.3	7.6	8.6	10.1	11.6	12.8	14.0	15.0	16.2	1.7	3.0	1.9	1.5
Inland navigation	4.6	6.4	9.3	10.8	13.5	16.5	19.2	21.8	24.1	7.2	3.8	3.6	2.3
Freight transport activity (Gtkm)	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.1	0.3	0.3
Trucks	48.0	58.6	65.9	60.5	63.8	68.6	74.7	80.8	86.3	3.2	-0.3	1.6	1.4
Rail	34.2	45.6	51.0	43.8	46.3	50.4	55.9	61.6	66.8	4.1	-1.0	1.9	1.8
Inland navigation	8.4	7.3	7.7	8.1	8.5	9.0	9.4	9.6	9.8	-0.9	1.1	0.9	0.4
Energy demand in transport (ktoe)	5.4	5.7	7.2	8.6	9.0	9.2	9.4	9.6	9.7	2.8	2.2	0.5	0.3
Public road transport	7704	8480	9672	9880	10657	11116	11532	11778	11919	2.3	1.0	0.8	0.3
Private cars and motorcycles	165	164	170	173	181	178	176	172	162	0.3	0.6	-0.3	-0.8
Trucks	4075	4502	4794	5442	5772	5787	5746	5522	5265	1.6	1.9	0.0	-0.9
Rail	2205	2420	2858	2581	2721	2938	3237	3590	3917	2.6	-0.5	1.8	1.9
Aviation	177	202	183	185	193	195	193	183	161	0.4	0.5	0.0	-1.8
Inland navigation	952	945	1530	1281	1565	1788	1946	2079	2185	4.9	0.2	2.2	1.2
	129	247	136	217	226	230	234	232	229	0.5	5.2	0.3	-0.2

Source: PRIMES

Bulgaria: Baseline scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
Annual % Change															
Primary Production	9136	10192	9845	10611	9685	10079	11971	12704	13023	0.8	-0.2	2.1	0.8		
Solids	5121	5287	4310	4178	4636	4979	4867	3561	3567	-1.7	0.7	0.5	-3.1		
Oil	60	43	42	30	34	36	40	41	41	-3.5	-2.3	1.7	0.3		
Natural gas	11	40	12	384	237	198	169	143	122	1.3	34.4	-3.3	-3.2		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Renewable energy sources	161	370	792	1207	1258	1328	1422	1607	1942	17.2	4.7	1.2	3.2		
Hydro	161	151	230	373	250	285	295	317	341	3.6	0.9	1.7	1.5		
Biomass & Waste	0	219	562	801	924	950	1019	1166	1444		5.1	1.0	3.5		
Wind	0	0	0	0	33	36	42	54	78			2.4	6.3		
Solar and others	0	0	0	0	4	14	26	36	49			19.4	6.7		
Geothermal	0	0	0	33	46	42	39	34	29			-1.6	-2.8		
Net Imports	17823	13475	8681	9416	10437	10240	11159	12171	12755	-6.9	1.9	0.7	1.3		
Solids	3527	2424	2258	2550	2774	2713	2784	2821	2842	-4.4	2.1	0.0	0.2		
Oil	8540	6511	4081	5086	5351	5675	6351	6863	7034	-7.1	2.7	1.7	1.0		
- Crude oil and Feedstocks	8247	8003	5346	6328	7162	7585	8450	9106	9331	-4.2	3.0	1.7	1.0		
- Oil products	292	-1492	-1265	-1242	-1811	-1909	-2099	-2242	-2297						
Natural gas	5430	4563	2742	2458	2549	2135	2710	3235	3692	-6.6	-0.7	0.6	3.1		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Gross Inland Consumption	27964	23305	18610	19885	19987	20165	22962	24696	25592	-4.0	0.7	1.4	1.1		
Solids	8706	7673	6417	6892	7410	7692	7651	6383	6409	-3.0	1.4	0.3	-1.8		
Oil	9593	6245	4181	4847	5250	5557	6222	6725	6889	-8.0	2.3	1.7	1.0		
Natural gas	5395	4584	2932	2804	2785	2333	2879	3378	3814	-5.9	-0.5	0.3	2.9		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Renewable energy forms	161	363	788	1181	1228	1297	1389	1570	1896	17.2	4.5	1.2	3.2		
as % in Gross Inland Consumption															
Solids	31.1	32.9	34.5	34.7	37.1	38.1	33.3	25.8	25.0						
Oil	34.3	26.8	22.5	24.4	26.3	27.6	27.1	27.2	26.9						
Natural gas	19.3	19.7	15.8	14.1	13.9	11.6	12.5	13.7	14.9						
Nuclear	13.5	19.1	25.2	24.2	17.6	17.5	23.8	29.8	28.7						
Renewable energy forms	0.6	1.6	4.2	5.9	6.1	6.4	6.1	6.4	7.4						
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	40822	46123	56774	62205	66708	-0.4	0.0	3.4	1.6		
Self consumption and grid losses	8456	8102	7245	7081	6378	6922	7583	7824	8256	-1.5	-1.3	1.7	0.9		
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	6571	6257	6600	5620	6067	-4.6	0.4	0.0	-0.8		
Solids	6800	6734	5245	5675	5854	6075	6232	4980	5039	-2.6	1.1	0.6	-2.1		
Oil (including refinery gas)	951	613	160	149	0	0	0	21	12	-16.3					
Gas (including derived gases)	2352	1835	884	697	684	182	363	580	815	-9.3	-2.5	-6.1	8.4		
Biomass & Waste	0	0	3	2	32	0	5	40	202		25.6	-16.6	44.1		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	13079	11635	7612	8839	8830	9193	9994	10641	10895	-5.3	1.5	1.2	0.9		
Refineries	8341	8023	5406	6586	7394	7814	8680	9322	9525	-4.2	3.2	1.6	0.9		
Biofuels and hydrogen production	0	0	0	0	32	65	91	173	291			10.9	12.3		
District heating	2779	1544	324	370	493	505	524	525	509	-19.3	4.3	0.6	-0.3		
Derived gases, cokeries etc.	1960	2069	1882	1883	912	810	699	622	570	-0.4	-7.0	-2.6	-2.0		
Energy Branch Consumption	1359	1458	1146	1279	1491	1462	1581	1673	1727	-1.7	2.7	0.6	0.9		
Non-Energy Uses	1427	1236	1261	1059	1000	1062	1195	1300	1371	-1.2	-2.3	1.8	1.4		
Final Energy Demand	16138	11575	8861	9682	10482	11533	12852	14120	15101	-5.8	1.7	2.1	1.6		
by sector															
Industry	8966	6032	3637	3673	3633	3868	4335	4800	5282	-8.6	0.0	1.8	2.0		
- energy intensive industries	5579	4837	2814	2809	2797	2953	3254	3530	3808	-6.6	-0.1	1.5	1.6		
- other industrial sectors	3387	1195	823	864	835	915	1081	1270	1474	-13.2	0.1	2.6	3.2		
Residential	2264	2378	2363	2268	2353	2490	2727	2925	3101	0.4	0.0	1.5	1.3		
Tertiary	2389	1189	1044	1181	1359	1497	1609	1725	1784	-7.9	2.7	1.7	1.0		
Transport	2518	1976	1817	2560	3137	3678	4181	4669	4934	-3.2	5.6	2.9	1.7		
by fuel															
Solids	1477	1280	860	936	1131	1104	1063	1072	1058	-5.3	2.8	-0.6	-0.1		
Oil	4967	2893	2981	3599	4276	4623	5260	5739	5931	-5.0	3.7	2.1	1.2		
Gas	2066	1787	1231	1025	824	1031	1140	1324	1496	-5.0	-3.9	3.3	2.8		
Electricity	3085	2639	2358	2383	2624	2985	3419	3782	4074	-2.7	1.1	2.7	1.8		
Heat (from CHP and District Heating)	4543	2798	877	939	730	859	979	1117	1361	-15.2	-1.8	3.0	3.4		
Renewable energy forms	0	178	555	800	896	930	990	1084	1178		4.9	1.0	1.8		
Other	0	0	0	0	0	1	1	2	2			16.1	3.7		
RES in Gross Final Energy Consumption ^(A)			786	1182	1215	1280	1366	1526	1809		4.5	1.2	2.9		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	66.4	66.0	68.4	62.0	61.1	-5.4	0.5	0.3	-1.1		
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	48.3	49.3	52.3	49.6	51.2	-5.3	1.4	0.8	-0.2		
Power generation/District heating	44.8	38.2	24.9	26.2	27.0	26.7	27.8	23.1	23.9	-5.7	0.8	0.3	-1.5		
Energy Branch	1.6	1.4	1.3	1.6	1.9	1.8	1.6	1.7	1.7	-2.1	3.8	-1.3	0.4		
Industry	11.2	9.3	8.3	7.6	8.0	7.8	8.4	9.0	9.4	-2.9	-0.5	0.5	1.1		
Residential	3.0	2.2	1.2	1.2	1.2	1.1	1.0	1.0	1.1	-8.9	0.2	-1.6	0.3		
Tertiary	4.7	1.4	1.2	1.1	1.2	1.4	1.4	1.5	1.5	-13.0	0.5	1.5	0.6		
Transport	7.1	5.6	5.2	7.4	9.1	10.6	12.0	13.2	13.7	-3.0	5.7	2.8	1.3		
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.8	5.4	6.1	7.0	-4.2	0.0	2.2	2.6		
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3		
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	60.7	60.3	62.5	56.7	55.8						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	715.9	548.3	465.9	378.9	301.4	-2.3	-4.2	-4.2	-4.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.42	2.45	2.28	2.01	2.00	-1.3	0.6	-0.6	-1.3
Import Dependency %	63.6	57.2	46.5	47.1	51.9	50.4	48.2	48.9	49.5				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	8.1	9.7	11.6	13.7	15.9		3.2	3.7	3.3
as % of GDP			34.7	28.7	28.9	26.3	23.5	21.0	18.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.5	44.4	35.8	29.0	23.8	-3.0	-5.4	-4.6	-4.0
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	58.8	47.7	39.5	32.4	26.7	1.5	-5.2	-3.9	-3.9
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	80.2	67.1	54.3	44.6	35.8	-4.0	-2.2	-3.8	-4.1
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.7	30.7	29.9	28.0	2.5	1.9	-0.5	-0.9
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.4	61.7	60.2	60.2	60.0	2.1	-1.4	-0.7	0.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.49	0.43	0.37	0.28	0.27	0.2	0.7	-2.7	-3.2
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.86	1.81	1.78	1.75	1.70	1.1	0.3	-0.4	-0.4
Industry	1.25	1.55	2.29	2.06	2.19	2.01	1.94	1.87	1.78	6.2	-0.4	-1.2	-0.8
Residential	1.33	0.92	0.50	0.53	0.51	0.44	0.38	0.35	0.34	-9.3	0.2	-3.0	-0.9
Tertiary	1.98	1.16	1.13	0.91	0.91	0.94	0.89	0.87	0.85	-5.5	-2.1	-0.2	-0.4
Transport	2.81	2.84	2.87	2.91	2.89	2.87	2.87	2.83	2.78	0.2	0.1	-0.1	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	10.9	10.4	10.0	10.2	11.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.1	1.9	2.3	4.0	6.4				
Gross Electricity generation by source (in GWh)													
			40639	43965	40822	46123	56774	62205	66708		0.0	3.4	1.6
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	19498	26385	26327	21160	23969		1.5	3.0	-0.9
Oil (including refinery gas)			590	825	0	0	0	95	29				
Gas (including derived gases)			2368	1963	4191	2094	4022	5473	6251		5.9	-0.4	4.5
Biomass-waste			10	70	185	185	245	439	848		34.3	2.8	13.2
Hydro (pumping excluded)			2673	4336	2909	3313	3436	3687	3968		0.9	1.7	1.5
Wind			0	2	387	422	492	633	911			2.4	6.3
Solar			0	0	2	5	9	19	33			17.5	13.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	10022	11075	10505	11690	12559		-0.8	0.5	1.8
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2462	2514	2583	2728	3086		2.5	0.5	1.8
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	283	308	358	458	657			2.4	6.2
Solar			0	0	2	4	8	15	27			17.5	13.5
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5675	6650	5053	5145	5657		0.3	-1.2	1.1
of which cogeneration units			2163	2183	1016	1564	1636	1940	2530		-7.3	4.9	4.5
Solids fired			4536	4527	4398	5542	4072	4057	3865		-0.3	-0.8	-0.5
Gas fired			603	625	887	744	678	950	1414		3.9	-2.6	7.6
Oil fired			355	355	359	334	262	61	192		0.1	-3.1	-3.1
Biomass-waste fired			11	11	30	31	40	76	186		11.0	2.8	16.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	42.7	43.8	57.4	56.9	56.8				
Efficiency of gross thermal power generation (%)			27.0	27.7	31.2	39.4	39.9	41.6	44.1				
% of gross electricity from CHP			12.0	14.3	10.8	18.3	18.3	19.3	22.2				
Carbon free gross electricity generation (%)			51.3	52.4	42.0	38.3	46.5	57.0	54.7				
- nuclear			44.7	42.4	33.4	29.7	39.2	49.4	46.0				
- renewable energy forms			6.6	10.0	8.5	8.5	7.4	7.7	8.6				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	45.0	52.3	60.4	68.5	75.5	-1.7	2.9	3.0	2.3
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8	-6.1	-2.8	-0.8	0.1
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	49.0	54.3	11.2	6.6	3.7	2.5
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0	-7.8	-3.3	3.4	3.7
Aviation	0.8	0.9	0.9	1.6	2.5	3.6	4.7	5.7	6.4	0.6	10.8	6.4	3.2
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-23.0	-2.4	-0.7	0.4
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.2	32.8	38.7	43.5	46.9	-7.9	7.9	4.0	1.9
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.6	33.3	35.9	-6.1	11.9	4.1	2.0
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4	-8.9	-0.1	3.5	1.9
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.6	-15.1	12.0	3.9	1.5
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3137	3678	4181	4669	4934	-3.2	5.6	2.9	1.7
Public road transport	318	152	158	97	82	72	67	65	62	-6.8	-6.4	-1.9	-0.8
Private cars and motorcycles	231	175	639	928	1096	1241	1363	1490	1497	10.7	5.5	2.2	0.9
Trucks	1459	1223	842	1274	1629	1952	2250	2538	2749	-5.4	6.8	3.3	2.0
Rail	216	144	77	60	61	71	80	81	69	-9.8	-2.4	2.8	-1.5
Aviation	276	276	101	200	268	338	417	491	553	-9.6	10.3	4.5	2.9
Inland navigation	18	6	1	2	2	3	3	3	3	-25.5	8.4	3.4	1.3

Source: PRIMES

Cyprus: Baseline scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	87	108	153	179	200	23.0	6.9	5.8	2.7	
Solids	0	0	0	0	1	1	2	3	4					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	86	107	151	176	196	23.0	6.9	5.8	2.6	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6	
Wind	0	0	0	0	7	9	41	55	64			19.1	4.6	
Solar and others	0	31	35	41	65	80	88	93	97		6.2	3.1	0.9	
Geothermal	0	0	0	0	0	0	0	0	0			-0.2	-1.9	
Net Imports	1554	2017	2537	2808	3147	3068	3154	3169	3214	5.0	2.2	0.0	0.2	
Solids	68	17	36	44	34	35	34	34	35	-6.3	-0.5	0.1	0.2	
Oil	1486	2000	2502	2764	2918	2506	2493	2293	2271	5.3	1.6	-1.6	-0.9	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-0.8	-0.5	
- Oil products	761	1207	1353	2764	2915	2504	2490	2291	2269	5.9	8.0	-1.6	-0.9	
Natural gas	0	0	0	0	195	518	602	760	805			11.9	2.9	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2899	2838	2966	3005	3069	4.7	2.0	0.2	0.3	
Solids	60	13	35	36	34	35	36	37	39	-5.3	-0.2	0.4	0.9	
Oil	1434	1914	2302	2374	2583	2168	2152	1950	1926	4.8	1.2	-1.8	-1.1	
Natural gas	0	0	0	0	195	518	602	760	805			11.9	2.9	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	87	117	176	258	299	23.0	6.9	7.4	5.4	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.2	1.2	1.2	1.2	1.3					
Oil	95.6	97.2	96.7	96.5	89.1	76.4	72.6	64.9	62.8					
Natural gas	0.0	0.0	0.0	0.0	6.7	18.2	20.3	25.3	26.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	3.0	4.1	5.9	8.6	9.7					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	5093	5716	6512	7180	7723	5.5	4.2	2.5	1.7	
Self consumption and grid losses	207	236	353	410	504	436	469	491	527	5.5	3.6	-0.7	1.2	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1219	1067	1097	1086	1126	5.7	3.3	-1.0	0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	1024	544	481	258	234	5.7	1.5	-7.3	-6.9	
Gas (including derived gases)	0	0	0	0	195	518	602	760	805			11.9	2.9	
Biomass & Waste	0	0	0	0	0	4	14	68	87			45.8	19.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	6	13	22	30	39	4.9	-40.6	13.0	6.0	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-0.8	-0.5	
Biofuels and hydrogen production	0	0	0	0	4	11	19	27	37			17.4	6.6	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	27	18	18	17	17	4.3	-6.6	-4.2	-0.5	
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6	
Final Energy Demand	1013	1306	1527	1691	1880	2025	2143	2226	2276	4.2	2.1	1.3	0.6	
by sector														
Industry	281	201	229	201	202	208	224	236	244	-2.0	-1.3	1.1	0.8	
- energy intensive industries	246	125	117	78	74	74	72	70	69	-7.2	-4.5	-0.3	-0.3	
- other industrial sectors	35	76	113	122	128	134	153	166	174	12.3	1.3	1.8	1.3	
Residential	102	172	215	234	259	274	285	291	294	7.8	1.9	1.0	0.3	
Tertiary	151	186	233	289	344	402	459	499	531	4.4	3.9	2.9	1.5	
Transport	479	747	850	967	1075	1140	1175	1199	1208	5.9	2.4	0.9	0.3	
by fuel														
Solids	76	13	35	36	34	35	36	37	39	-7.5	-0.2	0.4	0.9	
Oil	781	1068	1190	1263	1374	1434	1471	1484	1478	4.3	1.4	0.7	0.1	
Gas	0	0	0	0	0	0	0	0	0			6.7	3.7	
Electricity	151	191	258	340	394	453	519	575	618	5.5	4.3	2.8	1.8	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	78	102	117	130	141	23.0	5.8	4.1	1.8	
Other	0	0	0	0	0	0	0	0	0			14.6	2.8	
RES in Gross Final Energy Consumption ^(A)			44	51	86	113	164	213	241		6.8	6.7	3.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	9.1	8.4	8.6	8.2	8.1	3.1	1.5	-0.5	-0.6	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	8.0	7.4	7.5	7.2	7.2	4.3	1.8	-0.6	-0.4	
Power generation/District heating	1.6	2.1	2.8	3.5	3.7	3.0	2.9	2.6	2.6	5.7	2.8	-2.3	-1.1	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.6	-3.2	-2.2	1.0	1.0	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	3.9	-2.3	-2.8	-4.3	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	4.3	1.6	0.9	-0.6	
Transport	1.4	2.2	2.5	2.9	3.2	3.4	3.4	3.5	3.5	6.0	2.3	0.8	0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.1	1.1	1.0	0.9	-1.5	-0.8	0.0	-2.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	157.7	146.8	149.3	141.9	141.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Cyprus: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	177.3	145.1	127.0	112.0	102.4	0.2	-1.4	-3.3	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.75	2.60	2.52	2.39	2.35	-0.4	-0.2	-0.9	-0.7
Import Dependency %	100.1	99.1	98.8	100.7	97.3	96.6	95.4	94.7	94.1				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.3	2.6	2.7		5.2	2.4	1.6
as % of GDP			9.3	11.4	11.1	10.3	9.9	9.5	9.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.6	68.9	62.2	57.1	53.1	-3.1	-2.8	-1.9	-1.6
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.5	73.7	63.8	57.1	52.2	1.6	-1.8	-2.7	-2.0
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	104.0	100.9	95.8	90.4	85.7	-1.4	0.4	-0.8	-1.1
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.5	43.3	41.6	40.4	38.9	2.1	0.2	-0.7	-0.7
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	261.2	264.6	261.5	259.0	260.0	3.5	-0.7	0.0	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.52	0.45	0.36	0.34	0.2	-1.4	-4.7	-2.8
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.25	2.18	2.11	2.06	2.01	-0.8	-0.7	-0.6	-0.5
Industry	3.07	2.67	2.72	2.48	2.47	2.46	2.47	2.49	2.50	-1.2	-0.9	0.0	0.1
Residential	1.51	1.15	1.05	0.82	0.69	0.58	0.47	0.38	0.30	-3.6	-4.1	-3.7	-4.5
Tertiary	1.37	1.55	1.35	1.18	1.07	0.97	0.88	0.78	0.71	-0.1	-2.3	-2.0	-2.1
Transport	2.97	2.98	2.98	2.97	2.96	2.95	2.93	2.91	2.90	0.0	-0.1	-0.1	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	4.4	5.5	7.5	9.4	10.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.4	1.2	2.0	2.8	3.7				
Gross Electricity generation by source (in GWh)													
			3369	4377	5093	5716	6512	7180	7723		4.2	2.5	1.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	4250	2361	2114	1220	1132		2.3	-6.7	-6.1
Gas (including derived gases)			0	0	758	3225	3849	4984	5406			17.6	3.5
Biomass-waste			0	0	2	23	76	341	439			47.9	19.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	83	106	473	634	744			19.1	4.6
Solar			0	1	1	1	1	1	1			0.0	0.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			930	1155	1393	1381	1680	1901	2065		4.1	1.9	2.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	47	50	213	276	314		49.4	16.3	4.0
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	46	49	212	275	313			16.5	4.0
Solar			1	1	1	1	1	1	1		0.0	0.0	0.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			929	1154	1346	1331	1467	1625	1751		3.8	0.9	1.8
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	605	846	1062				5.8
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	3	16	48	70			55.8	16.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	39.2	45.5	42.9	42.0	41.6				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.4	45.2	47.3	51.8	53.3				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	1.7	2.3	8.4	13.6	15.3				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	1.7	2.3	8.4	13.6	15.3				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.5	16.9	18.1	19.0	19.7	3.5	3.4	1.6	0.8
Public road transport	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	3.1	1.8	1.5	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	5.0	5.2	2.5	4.0	1.0	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.8	10.8	11.7	12.4	12.8	4.0	3.4	1.8	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.7	2.7	1.2	0.9	0.6
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.7	2.7	1.2	0.9	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1075	1140	1175	1199	1208	5.9	2.4	0.9	0.3
Public road transport	8	14	16	16	17	18	19	19	19	6.4	1.0	1.1	-0.3
Private cars and motorcycles	117	145	177	288	325	338	341	343	333	4.2	6.3	0.5	-0.2
Trucks	201	321	368	364	385	409	420	429	442	6.2	0.5	0.9	0.5
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	348	374	395	408	414	6.6	1.8	1.3	0.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Czech Republic: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	38484	31733	29788	32779	28126	25620	24561	25269	21501	-2.5	-0.6	-1.3	-1.3	
Solids	34715	27481	25002	23520	17097	14063	12040	11001	10086	-3.2	-3.7	-3.4	-1.8	
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0	
Natural gas	201	198	169	154	159	167	169	171	179	-1.7	-0.6	0.6	0.6	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3	
Renewable energy sources	100	627	727	2142	3191	3598	4314	4911	5436	22.0	15.9	3.1	2.3	
Hydro	100	172	151	205	211	212	218	221	230	4.2	3.4	0.3	0.6	
Biomass & Waste	0	455	576	1933	2900	3229	3895	4444	4926		17.5	3.0	2.4	
Wind	0	0	0	2	50	90	103	121	137			7.5	2.9	
Solar and others	0	0	0	2	29	66	97	126	143			12.7	3.9	
Geothermal	0	0	0	0	0	0	0	0	0			1.3	1.2	
Net Imports	7630	8417	9297	12271	18840	21059	24654	26077	30296	2.0	7.3	2.7	2.1	
Solids	-5685	-5784	-4751	-3489	1886	2492	4973	6021	9581			10.2	6.8	
Oil	8589	7742	7428	9499	10771	11853	12772	13461	13956	-1.4	3.8	1.7	0.9	
- Crude oil and Feedstocks	7382	6798	5492	7539	8612	9431	10124	10643	11014	-2.9	4.6	1.6	0.8	
- Oil products	1207	944	1936	1960	2159	2422	2648	2818	2942	4.8	1.1	2.1	1.1	
Natural gas	4786	6424	7482	7535	7788	8197	8269	8367	8786	4.6	0.4	0.6	0.6	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Gross Inland Consumption	47380	40801	40307	44798	46966	46679	49215	51346	51798	-1.6	1.5	0.5	0.5	
Solids	29882	22556	21645	20099	18983	16554	17013	17022	19667	-3.2	-1.3	-1.1	1.5	
Oil	8964	7876	7790	9748	10971	12053	12972	13661	14156	-1.4	3.5	1.7	0.9	
Natural gas	5248	6552	7500	7703	7947	8364	8438	8537	8965	3.6	0.6	0.6	0.6	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Renewable energy forms	100	627	727	1955	3000	3386	4058	4620	5113	22.0	15.2	3.1	2.3	
as % in Gross Inland Consumption														
Solids	63.1	55.3	53.7	44.9	40.4	35.5	34.6	33.2	38.0					
Oil	18.9	19.3	19.3	21.8	23.4	25.8	26.4	26.6	27.3					
Natural gas	11.1	16.1	18.6	17.2	16.9	17.9	17.1	16.6	17.3					
Nuclear	6.9	7.7	8.7	14.2	15.9	16.3	15.9	17.5	10.8					
Renewable energy forms	0.2	1.5	1.8	4.4	6.4	7.3	8.2	9.0	9.9					
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	94016	99085	104386	116739	126471	1.6	2.6	1.1	1.9	
Self consumption and grid losses	8541	8837	10601	11632	12381	12508	13396	14846	16629	2.2	1.6	0.8	2.2	
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	15104	13023	13808	14476	17623	3.7	-0.5	-0.9	2.5	
Solids	9947	13571	14031	13955	13890	11682	12304	12524	15717	3.5	-0.1	-1.2	2.5	
Oil (including refinery gas)	741	311	203	126	80	28	28	1	0	-12.2	-8.9	-10.0		
Gas (including derived gases)	300	573	1270	1286	1032	1235	1087	1057	857	15.5	-2.1	0.5	-2.4	
Biomass & Waste	0	119	369	224	101	78	390	894	1049		-12.1	14.4	10.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	18634	14422	11312	13108	13317	13852	14620	15000	15315	-4.9	1.6	0.9	0.5	
Refineries	7946	7026	6047	7957	8869	9713	10425	10952	11334	-2.7	3.9	1.6	0.8	
Biofuels and hydrogen production	0	11	0	3	378	539	756	891	1001			7.2	2.8	
District heating	2138	1404	999	909	1039	838	775	630	537	-7.3	0.4	-2.9	-3.6	
Derived gases, cokeries etc.	8549	5982	4266	4239	3031	2762	2663	2527	2444	-6.7	-3.4	-1.3	-0.9	
Energy Branch Consumption	2124	1866	1919	1915	2262	2264	2343	2446	2551	-1.0	1.7	0.4	0.9	
Non-Energy Uses	1680	2132	1962	2419	2848	3204	3591	3894	4109	1.6	3.8	2.3	1.4	
Final Energy Demand	36267	25697	23905	25801	28144	29998	31644	32878	33892	-4.1	1.6	1.2	0.7	
by sector														
Industry	19215	12191	10031	9439	9955	10336	10805	11141	11420	-6.3	-0.1	0.8	0.6	
- energy intensive industries	8050	6719	6276	6588	6874	7070	7283	7422	7515	-2.5	0.9	0.6	0.3	
- other industrial sectors	11165	5472	3755	2851	3081	3265	3522	3719	3905	-10.3	-2.0	1.3	1.0	
Residential	8625	5796	5260	6063	6719	7039	7196	7340	7471	-4.8	2.5	0.7	0.4	
Tertiary	5622	4871	3893	3730	3914	4233	4559	4849	5172	-3.6	0.1	1.5	1.3	
Transport	2804	2840	4721	6569	7557	8390	9084	9547	9829	5.3	4.8	1.9	0.8	
by fuel														
Solids	17789	6457	5164	3619	3685	3451	3421	3409	2904	-11.6	-3.3	-0.7	-1.6	
Oil	6229	5018	5291	6913	7535	8357	8876	9284	9560	-1.6	3.6	1.7	0.7	
Gas	5146	6119	6419	6581	6636	7048	7197	7250	7868	2.2	0.3	0.8	0.9	
Electricity	4142	4129	4243	4750	5405	5977	6523	7085	7555	0.2	2.4	1.9	1.5	
Heat (from CHP and District Heating)	2959	3664	2624	2478	2452	2413	2566	2742	2540	-1.2	-0.7	0.5	-0.1	
Renewable energy forms	0	309	165	1460	2430	2751	3060	3101	3461		30.9	2.3	1.2	
Other	0	0	0	0	1	1	2	5	5			15.0	7.6	
RES in Gross Final Energy Consumption ^(A)			610	1832	2891	3246	3836	4304	4773		16.8	2.9	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	146.1	139.7	142.8	141.3	151.4	-3.1	-0.2	-0.2	0.6	
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	116.5	110.1	113.7	115.1	127.4	-2.8	0.0	-0.2	1.1	
Power generation/District heating	48.8	60.4	62.1	61.0	60.1	51.3	53.1	53.2	65.3	2.4	-0.3	-1.2	2.1	
Energy Branch	2.3	1.5	2.2	2.3	2.7	2.7	2.8	2.8	2.8	-0.5	2.1	0.1	0.0	
Industry	58.1	29.0	25.2	20.9	21.0	21.1	21.4	21.6	21.1	-8.0	-1.8	0.2	-0.1	
Residential	24.0	10.6	7.9	7.1	7.6	7.7	7.7	7.8	7.8	-10.5	-0.3	0.0	0.2	
Tertiary	14.1	9.2	5.9	4.5	3.9	3.8	3.9	3.8	3.9	-8.4	-4.0	-0.1	0.2	
Transport	7.5	7.7	13.4	19.1	21.2	23.3	24.9	25.9	26.4	6.0	4.6	1.6	0.6	
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.1	11.3	12.0	12.2	12.5	-3.8	-1.2	0.8	0.4	
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	71.6	68.5	70.0	69.2	74.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Czech Republic: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	377.1	314.4	276.2	251.9	228.1	-1.9	-2.5	-3.1	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.48	2.36	2.31	2.24	2.46	-1.2	-1.5	-0.7	0.6
Import Dependency %	16.1	20.6	23.1	27.4	40.1	45.1	50.1	50.8	58.5				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	20.0	23.6	27.2	30.4	32.7		2.7	3.1	1.9
as % of GDP			18.3	16.9	16.1	15.9	15.3	14.9	14.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.0	51.9	46.1	42.0	38.8	-7.3	-5.1	-2.4	-1.7
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	87.1	76.4	65.0	58.1	53.3	-5.8	-1.4	-2.9	-2.0
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	69.2	62.4	55.4	51.4	49.1	-7.4	-3.6	-2.2	-1.2
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.9	32.7	31.6	30.0	28.2	4.0	2.5	-0.4	-1.1
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.6	58.8	57.5	55.7	54.0	7.5	4.2	0.0	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.45	0.37	0.36	0.33	0.39	1.8	-2.1	-2.0	0.8
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.91	1.87	1.83	1.80	1.75	-2.6	-1.4	-0.4	-0.4
Industry	3.03	2.38	2.51	2.21	2.11	2.04	1.98	1.93	1.85	-1.8	-1.7	-0.6	-0.7
Residential	2.78	1.84	1.50	1.16	1.14	1.10	1.07	1.06	1.05	-6.0	-2.7	-0.7	-0.2
Tertiary	2.51	1.89	1.51	1.21	1.00	0.91	0.85	0.79	0.76	-5.0	-4.1	-1.6	-1.1
Transport	2.68	2.71	2.85	2.90	2.80	2.78	2.74	2.72	2.69	0.6	-0.2	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	9.7	10.3	11.6	12.5	13.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.6	5.9	7.7	8.6	9.5				
Gross Electricity generation by source (in GWh)													
			72898	81916	94016	99085	104386	116739	126471		2.6	1.1	1.9
Nuclear energy			13588	24724	28995	29433	30388	35583	22720		7.9	0.5	-2.9
Solids			50038	47938	53129	56280	59832	63999	87688		0.6	1.2	3.9
Oil (including refinery gas)			528	447	161	66	37	23	5		-11.2	-13.7	-18.6
Gas (including derived gases)			6087	5565	7667	8859	7967	8733	6928		2.3	0.4	-1.4
Biomass-waste			899	841	1025	926	2424	4411	4840		1.3	9.0	7.2
Hydro (pumping excluded)			1758	2380	2458	2466	2532	2564	2677		3.4	0.3	0.6
Wind			0	22	579	1052	1197	1410	1593			7.5	2.9
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	15774	17545	17632	18294	19448		2.7	1.1	1.0
<u>Nuclear energy</u>			1661	3504	3519	3534	3541	4141	2640		7.8	0.1	-2.9
<u>Renewable energy</u>			1148	1227	1632	1968	2082	2249	2395		3.6	2.5	1.4
Hydro (pumping excluded)			1142	1196	1244	1246	1251	1256	1262		0.9	0.1	0.1
Wind			7	30	386	716	820	971	1103		49.8	7.8	3.0
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	10623	12044	12008	11904	14413		1.4	1.2	1.8
of which cogeneration units			3030	3110	3387	4017	4571	5364	5593		1.1	3.0	2.0
Solids fired			7747	7661	8760	10277	10008	9365	11499		1.2	1.3	1.4
Gas fired			1208	1302	1514	1447	1482	1634	1910		2.3	-0.2	2.6
Oil fired			118	122	125	118	57	30	113		0.6	-7.5	7.0
Biomass-waste fired			165	165	225	203	461	875	892		3.1	7.5	6.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	63.3	60.5	63.5	68.4	69.5				
Efficiency of gross thermal power generation (%)			31.2	30.2	35.3	43.7	43.8	45.8	48.5				
% of gross electricity from CHP			21.1	16.7	21.2	26.6	28.0	29.4	26.4				
Carbon free gross electricity generation (%)			22.3	34.1	35.2	34.2	35.0	37.7	25.2				
- nuclear			18.6	30.2	30.8	29.7	29.1	30.5	18.0				
- renewable energy forms			3.6	4.0	4.3	4.5	5.9	7.2	7.2				
Transport sector													
Passenger transport activity (Gpkm)	92.9	95.4	101.3	105.1	116.4	130.1	146.9	162.2	174.8	0.9	1.4	2.4	1.8
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.0	17.0	17.7	-3.7	-0.8	0.7	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	91.4	104.5	116.1	125.6	3.7	1.8	2.6	1.9
Rail	20.6	15.7	15.4	15.6	15.9	16.6	17.5	18.4	19.0	-2.9	0.4	0.9	0.8
Aviation	1.9	2.1	2.5	3.5	5.0	6.7	8.8	10.7	12.5	2.8	7.1	5.9	3.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	64.2	53.9	55.6	59.3	64.7	70.4	77.2	84.0	90.6	-1.4	1.5	1.8	1.6
Trucks	26.3	31.3	37.3	43.4	51.5	58.4	64.9	71.2	77.3	3.6	3.3	2.3	1.8
Rail	38.0	22.6	17.5	14.8	12.9	11.9	12.1	12.8	13.3	-7.5	-3.0	-0.6	0.9
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.1
Energy demand in transport (ktoe)	2804	2840	4721	6569	7557	8390	9084	9547	9829	5.3	4.8	1.9	0.8
Public road transport	132	110	98	111	111	112	111	108	104	-2.9	1.3	-0.1	-0.6
Private cars and motorcycles	1271	1373	2257	2850	3192	3496	3768	3911	3905	5.9	3.5	1.7	0.4
Trucks	956	971	1868	2987	3536	3964	4267	4511	4750	6.9	6.6	1.9	1.1
Rail	272	200	295	271	236	214	207	198	180	0.8	-2.2	-1.3	-1.4
Aviation	174	185	197	346	481	603	731	819	889	1.3	9.3	4.3	2.0
Inland navigation	0	0	5	5	2	1	1	0	0		-11.0	-8.2	-5.2

Source: PRIMES

Denmark: Baseline scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	28760	24007	20214	20029	18564	10.6	0.4	-3.5	-0.8
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	9000	6546	5376	5770	5000	10.3	2.0	-5.0	-0.7
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3260	3461	3838	4258	4564	5.6	4.7	1.6	1.7
Hydro	2	3	3	2	3	3	3	3	3	1.1	-0.1	0.5	0.4
Biomass & Waste	1140	1423	1687	2313	2535	2682	2939	3169	3418	4.0	4.2	1.5	1.5
Wind	52	101	365	569	682	687	770	931	968	21.4	6.5	1.2	2.3
Solar and others	2	5	7	10	41	89	126	156	175	12.5	18.7	12.0	3.3
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-37.3	0.9	0.2
Net Imports	8605	7534	-7076	-10498	-7725	-2993	972	1059	2437				9.6
Solids	6216	7664	3784	3505	3707	4386	4753	4235	3954	-4.8	-0.2	2.5	-1.8
Oil	2711	1429	-8094	-9381	-7330	-4753	-1798	-999	87				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8506	-5946	-2976	-2075	-1006				
- Oil products	679	627	1512	1804	1176	1193	1178	1076	1093	8.3	-2.5	0.0	-0.7
Natural gas	-928	-1496	-2882	-5010	-4298	-3126	-2568	-2756	-2171				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	20186	20136	20282	20155	20040	1.0	0.3	0.0	-0.1
Solids	6088	6498	3987	3715	3707	4386	4753	4235	3954	-4.1	-0.7	2.5	-1.8
Oil	8144	9105	9043	8133	8321	8369	8297	8068	8126	1.1	-0.8	0.0	-0.2
Natural gas	1818	3170	4449	4399	4702	3420	2809	3015	2829	9.4	0.6	-5.0	0.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3557	3775	4182	4630	4965	5.9	5.3	1.6	1.7
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	18.4	21.8	23.4	21.0	19.7				
Oil	45.6	45.0	46.0	41.6	41.2	41.6	40.9	40.0	40.5				
Natural gas	10.2	15.7	22.6	22.5	23.3	17.0	13.8	15.0	14.1				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	17.6	18.7	20.6	23.0	24.8				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	40601	38873	39734	41349	42569	3.4	1.2	-0.2	0.7
Self consumption and grid losses	3290	4659	4046	3775	4007	4055	4340	4601	4829	2.1	-0.1	0.8	1.1
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	7046	6606	6569	6383	6346	2.7	-1.0	-0.7	-0.3
Solids	5541	6061	3667	3444	3477	4140	4507	3853	3442	-4.0	-0.5	2.6	-2.7
Oil (including refinery gas)	237	1008	1344	344	335	278	253	52	192	19.0	-13.0	-2.8	-2.7
Gas (including derived gases)	174	975	2112	2003	2091	1018	405	645	647	28.4	-0.1	-15.1	4.8
Biomass & Waste	65	378	699	1338	1143	1170	1404	1834	2064	26.9	5.0	2.1	3.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8903	9022	9076	8828	8868	-0.1	-0.1	0.2	-0.2
Refineries	8027	9958	8452	7821	7994	8054	8024	7925	7994	0.5	-0.6	0.0	0.0
Biofuels and hydrogen production	0	0	0	0	186	310	471	538	610				9.8
District heating	1005	761	515	509	723	657	582	364	264	-6.5	3.5	-2.2	-7.6
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1281	1074	974	980	942	4.7	1.0	-2.7	-0.3
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15910	16367	16664	16763	16794	0.8	0.9	0.5	0.1
by sector													
Industry	2711	3026	2935	2831	2927	3004	3040	3047	3099	0.8	0.0	0.4	0.2
- energy intensive industries	1076	1121	1243	1152	1178	1202	1204	1195	1191	1.5	-0.5	0.2	-0.1
- other industrial sectors	1636	1905	1692	1679	1748	1802	1837	1852	1908	0.3	0.3	0.5	0.4
Residential	3946	4468	4154	4398	4521	4590	4615	4623	4617	0.5	0.8	0.2	0.0
Tertiary	2822	2779	2801	2840	2927	2994	3030	3056	3035	-0.1	0.4	0.3	0.0
Transport	4012	4447	4720	5254	5535	5780	5979	6037	6043	1.6	1.6	0.8	0.1
by fuel													
Solids	396	405	290	236	230	245	246	381	513	-3.1	-2.3	0.7	7.6
Oil	7097	7132	6950	7204	7189	7312	7365	7376	7322	-0.2	0.3	0.2	-0.1
Gas	1159	1691	1667	1701	1828	1875	1887	1791	1656	3.7	0.9	0.3	-1.3
Electricity	2517	2655	2791	2882	3013	3147	3250	3334	3377	1.0	0.8	0.8	0.4
Heat (from CHP and District Heating)	1758	2242	2255	2408	2543	2517	2499	2366	2286	2.5	1.2	-0.2	-0.9
Renewable energy forms	566	595	657	892	1107	1270	1415	1511	1636	1.5	5.3	2.5	1.5
Other	0	0	0	0	0	1	1	3	3			13.1	8.2
RES in Gross Final Energy Consumption ^(A)			1919	2512	3160	3375	3650	3933	4222		5.1	1.5	1.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	65.9	65.6	65.5	62.3	60.4	0.1	-0.7	-0.1	-0.8
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	49.5	49.4	49.2	47.0	45.7	0.1	-0.6	-0.1	-0.7
Power generation/District heating	24.5	30.2	24.0	19.7	20.0	19.8	19.8	17.2	16.0	-0.2	-1.8	-0.1	-2.1
Energy Branch	1.5	2.0	2.4	2.5	2.5	2.1	1.8	1.7	1.7	4.9	0.6	-3.2	-0.6
Industry	5.4	6.0	5.4	5.0	4.9	5.0	5.0	5.1	5.2	-0.1	-0.8	0.1	0.5
Residential	4.9	4.9	3.9	3.5	3.4	3.3	3.3	3.4	3.5	-2.3	-1.4	-0.1	0.6
Tertiary	3.6	3.1	2.9	2.7	2.7	2.7	2.7	2.8	2.8	-2.1	-0.8	0.2	0.3
Transport	11.9	13.1	13.9	15.5	16.0	16.4	16.6	16.6	16.5	1.6	1.4	0.4	-0.1
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.9	2.8	2.8	2.7	5.4	-0.2	-0.5	-0.3
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	13.4	13.5	12.5	11.9	-0.7	-1.2	0.0	-1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	94.5	94.1	93.9	89.3	86.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	85.9	77.7	72.1	66.8	62.4	-1.6	-1.6	-1.7	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.45	2.45	2.43	2.33	2.28	-0.8	-0.8	-0.1	-0.6
Import Dependency %	45.7	34.5	-33.7	-51.6	-36.7	-14.2	4.6	5.0	11.6				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.8	19.6	21.5	22.8	23.8		1.5	1.9	1.0
as % of GDP			7.8	8.0	7.6	7.6	7.6	7.6	7.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.7	87.2	81.9	77.1	73.8	-1.1	-0.8	-1.2	-1.0
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	87.7	81.7	76.4	71.8	67.6	-1.4	-1.3	-1.4	-1.2
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	85.2	78.8	73.4	68.9	64.2	-2.7	-1.6	-1.5	-1.3
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.8	37.9	36.9	34.8	32.7	0.0	0.7	-0.5	-1.2
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	73.5	72.9	72.2	71.2	69.7	0.1	0.6	-0.2	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.26	0.26	0.27	0.24	0.22	-3.1	-2.9	0.3	-1.9
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.69	1.68	1.66	1.67	1.67	-0.7	-0.5	-0.2	0.1
Industry	2.00	1.98	1.83	1.76	1.68	1.67	1.63	1.68	1.69	-0.9	-0.8	-0.3	0.3
Residential	1.24	1.09	0.93	0.80	0.75	0.73	0.72	0.75	0.77	-2.8	-2.2	-0.3	0.6
Tertiary	1.27	1.12	1.04	0.94	0.92	0.90	0.91	0.92	0.93	-2.0	-1.2	-0.2	0.3
Transport	2.96	2.95	2.95	2.96	2.88	2.84	2.78	2.76	2.72	0.0	-0.2	-0.4	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	18.7	19.6	20.9	22.5	24.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.4	5.5	8.1	9.3	10.5				
Gross Electricity generation by source (in GWh)													
			36043	36269	40601	38873	39734	41349	42569		1.2	-0.2	0.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			14345	13553	15052	17443	18909	16209	15765		0.5	2.3	-1.8
Oil (including refinery gas)			5222	1525	1728	1565	1505	676	1363		-10.5	-1.4	-1.0
Gas (including derived gases)			9658	9549	11691	7662	4909	6048	4972		1.9	-8.3	0.1
Biomass-waste			2548	5006	4166	4176	5399	7527	9137		5.0	2.6	5.4
Hydro (pumping excluded)			30	23	30	30	31	32	32		-0.1	0.5	0.4
Wind			4240	6613	7928	7983	8957	10822	11258		6.5	1.2	2.3
Solar			0	0	6	13	24	34	42			15.8	5.8
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			11888	12794	12938	12712	11975	12799	12963		0.9	-0.8	0.8
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2311	3014	3665	3687	4023	4627	4657		4.7	0.9	1.5
Hydro (pumping excluded)			10	11	11	11	11	11	11		1.5	0.0	0.0
Wind			2300	3000	3638	3638	3944	4520	4526		4.7	0.8	1.4
Solar			2	3	16	37	68	97	120		24.9	15.8	5.8
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9577	9781	9273	9026	7952	8172	8306		-0.3	-1.5	0.4
of which cogeneration units			7504	8538	6576	6141	4723	4757	4131		-1.3	-3.3	-1.3
Solids fired			5528	5566	4819	4425	3541	3032	2425		-1.4	-3.0	-3.7
Gas fired			2328	2485	2584	2918	2640	3021	3366		1.0	0.2	2.5
Oil fired			1271	1236	1182	988	911	919	899		-0.7	-2.6	-0.1
Biomass-waste fired			450	494	688	694	860	1200	1617		4.3	2.3	6.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			32.7	30.4	33.8	33.0	35.8	34.9	35.5				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.8	40.2	40.2	41.0	42.3				
% of gross electricity from CHP			63.9	68.3	62.5	62.2	58.8	52.6	49.0				
Carbon free gross electricity generation (%)			18.9	32.1	29.9	31.4	36.3	44.5	48.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	29.9	31.4	36.3	44.5	48.1				
Transport sector													
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	87.0	91.6	95.6	99.4	102.6	1.1	1.1	0.9	0.7
Public road transport	6.4	7.3	7.4	7.4	7.4	7.5	7.6	7.8	8.0	1.4	0.0	0.3	0.5
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.6	59.6	61.2	62.8	64.1	0.8	1.0	0.6	0.5
Rail	5.1	4.9	5.5	6.2	6.6	7.2	7.6	8.0	8.3	0.9	1.8	1.4	0.8
Aviation	5.5	7.0	9.0	9.8	11.6	13.5	15.2	16.7	17.9	5.0	2.6	2.7	1.7
Inland navigation	5.2	4.7	3.9	3.7	3.8	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.4	31.7	34.0	36.2	38.5	2.4	0.7	1.5	1.3
Trucks	18.1	22.4	24.0	23.3	25.4	27.4	29.3	31.3	33.3	2.9	0.6	1.4	1.3
Rail	1.7	2.0	2.0	2.0	2.1	2.3	2.4	2.6	2.7	1.6	0.4	1.4	1.2
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.2	2.4	2.5	-2.4	2.4	1.6	1.3
Energy demand in transport (ktoe)	4012	4447	4720	5254	5535	5780	5979	6037	6043	1.6	1.6	0.8	0.1
Public road transport	57	76	78	83	80	79	78	76	72	3.1	0.3	-0.2	-0.8
Private cars and motorcycles	1628	1709	1788	2034	2076	2062	2026	1893	1771	0.9	1.5	-0.2	-1.3
Trucks	1374	1690	1816	1952	2066	2211	2355	2488	2639	2.8	1.3	1.3	1.1
Rail	113	117	103	106	107	108	105	95	48	-1.0	0.4	-0.2	-7.6
Aviation	690	675	820	944	1068	1178	1268	1333	1359	1.7	2.7	1.7	0.7
Inland navigation	150	181	115	136	138	142	147	152	155	-2.6	1.8	0.6	0.6

Source: PRIMES

Estonia: Baseline scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6249	3618	3332	4304	3309	3469	3447	3624	3631	-6.1	-0.1	0.4	0.5	
Solids	5798	3129	2830	3261	2515	2706	2607	2679	2474	-6.9	-1.2	0.4	-0.5	
Oil	0	0	2	331	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	450	489	500	712	793	763	840	945	1157	1.1	4.7	0.6	3.3	
Hydro	0	0	0	2	2	2	2	3	3		16.3	2.3	0.4	
Biomass & Waste	450	488	500	706	745	713	788	877	1073	1.0	4.1	0.6	3.1	
Wind	0	0	0	5	45	46	46	61	76		87.1	0.3	5.0	
Solar and others	0	0	0	0	1	2	4	5	6			10.3	5.1	
Geothermal	0	0	0	0	0	0	0	0	0			1.5	0.5	
Net Imports	4456	1987	1447	1463	2401	2602	2560	2557	2664	-10.6	5.2	0.6	0.4	
Solids	697	292	244	27	119	129	140	152	134	-10.0	-6.9	1.6	-0.4	
Oil	3139	1178	626	867	1556	1773	1845	1884	1953	-14.9	9.5	1.7	0.6	
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.6	0.5	
- Oil products	3139	1178	626	867	1555	1772	1844	1883	1951	-14.9	9.5	1.7	0.6	
Natural gas	1222	583	662	800	973	896	798	757	867	-5.9	3.9	-2.0	0.8	
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Gross Inland Consumption	10642	5630	4712	5627	5559	5899	5819	5984	6093	-7.8	1.7	0.5	0.5	
Solids	6703	3598	3119	3255	2634	2835	2746	2831	2608	-7.4	-1.7	0.4	-0.5	
Oil	2858	1032	510	1090	1405	1600	1657	1687	1750	-15.8	10.7	1.7	0.5	
Natural gas	1222	583	662	800	973	896	798	757	867	-5.9	3.9	-2.0	0.8	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Renewable energy forms	460	483	501	621	697	670	738	831	1018	0.9	3.4	0.6	3.3	
as % in Gross Inland Consumption														
Solids	63.0	63.9	66.2	57.8	47.4	48.1	47.2	47.3	42.8					
Oil	26.9	18.3	10.8	19.4	25.3	27.1	28.5	28.2	28.7					
Natural gas	11.5	10.3	14.1	14.2	17.5	15.2	13.7	12.7	14.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	8.6	10.6	11.0	12.5	11.4	12.7	13.9	16.7					
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	12064	12942	14621	15952	17088	-6.8	3.6	1.9	1.6	
Self consumption and grid losses	2615	1409	1247	1422	1585	1620	1954	2245	2432	-7.1	2.4	2.1	2.2	
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	3008	3073	2951	3049	3070	-8.0	2.1	-0.2	0.4	
Solids	5085	2499	2213	2297	2480	2648	2551	2624	2421	-8.0	1.1	0.3	-0.5	
Oil (including refinery gas)	210	80	12	10	23	42	42	44	49	-25.2	7.3	6.2	1.4	
Gas (including derived gases)	357	100	226	227	275	327	237	190	228	-4.5	2.0	-1.5	-0.4	
Biomass & Waste	2	2	2	5	229	56	120	191	371	-0.3	60.1	-6.2	11.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2285	1007	783	769	406	456	403	381	413	-10.2	-6.4	-0.1	0.2	
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.3	1.6	0.5	
Biofuels and hydrogen production	0	0	0	0	43	63	83	96	111			6.9	2.9	
District heating	1755	527	485	511	348	383	312	278	297	-12.1	-3.3	-1.1	-0.5	
Derived gases, cokeries etc.	529	479	297	257	14	9	6	5	4	-5.6	-26.4	-7.5	-4.1	
Energy Branch Consumption	295	148	179	209	219	220	241	258	266	-4.9	2.1	0.9	1.0	
Non-Energy Uses	69	225	219	230	224	217	218	218	217	12.2	0.3	-0.3	0.0	
Final Energy Demand	6392	2627	2445	2854	3276	3608	3851	4028	4155	-9.2	3.0	1.6	0.8	
by sector														
Industry	2742	794	531	654	770	859	932	1003	1055	-15.1	3.8	1.9	1.2	
- energy intensive industries	738	430	203	215	226	251	273	289	299	-12.1	1.1	1.9	0.9	
- other industrial sectors	2004	364	328	440	544	607	660	713	755	-16.6	5.2	1.9	1.4	
Residential	1482	1054	984	977	983	1019	1062	1088	1109	-4.0	0.0	0.8	0.4	
Tertiary	1330	289	353	498	630	714	773	823	847	-12.4	6.0	2.1	0.9	
Transport	839	490	577	725	893	1016	1084	1115	1145	-3.7	4.5	2.0	0.6	
by fuel														
Solids	1059	201	122	102	105	108	116	122	119	-19.5	-1.5	1.0	0.3	
Oil	1803	855	748	960	1191	1315	1373	1406	1487	-8.4	4.8	1.4	0.8	
Gas	439	202	134	207	294	292	320	356	379	-11.2	8.1	0.9	1.7	
Electricity	608	510	506	584	717	837	933	1019	1075	-1.8	3.5	2.7	1.4	
Heat (from CHP and District Heating)	2086	593	511	547	558	576	592	595	584	-13.1	0.9	0.6	-0.1	
Renewable energy forms	397	265	424	453	413	480	516	529	510	0.7	-0.3	2.3	-0.1	
Other	0	0	0	0	0	0	0	0	0			16.4	2.8	
RES in Gross Final Energy Consumption ^(A)			538	564	588	633	695	776	938		0.9	1.7	3.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	20.5	21.9	21.8	21.6	20.7	-9.1	1.7	0.6	-0.5	
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.8	18.1	17.7	18.0	17.6	-9.7	1.8	0.5	-0.1	
Power generation/District heating	27.9	12.3	10.9	11.2	11.9	12.8	12.1	12.3	11.5	-9.0	0.9	0.2	-0.5	
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.6	0.0	-0.5	
Industry	4.6	1.7	0.8	0.8	1.3	1.3	1.3	1.4	1.7	-16.0	4.6	0.7	2.1	
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.6	0.9	0.4	
Tertiary	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.7	0.7	-17.6	7.7	1.0	1.3	
Transport	2.4	1.4	1.7	2.1	2.5	2.9	3.0	3.1	3.1	-3.6	4.1	1.7	0.3	
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.3	1.4	1.5	-5.3	9.7	3.6	1.4	
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.7	2.8	2.1	1.7	-5.7	-0.3	0.2	-5.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	45.6	48.8	48.4	47.9	46.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Estonia: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	342.9	296.5	247.0	220.4	203.4	-7.1	-6.0	-3.2	-1.9	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.03	3.07	3.04	3.02	2.89	-2.1	0.1	0.0	-0.5	
Import Dependency %	41.2	34.8	30.0	25.5	42.1	42.9	42.6	41.4	42.3					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	2.8	3.3	3.6	3.9		3.8	3.1	1.8	
as % of GDP			22.2	16.8	14.8	14.2	13.8	13.3	13.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.6	51.5	47.2	43.9	41.7	-12.1	-5.5	-1.8	-1.2	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.1	40.2	35.7	32.0	29.7	-3.6	-7.2	-2.7	-1.8	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	84.9	78.7	71.9	66.4	61.7	-12.4	-1.6	-1.6	-1.5	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.4	29.2	28.2	27.1	26.2	0.2	-0.7	-0.4	-0.7	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.3	21.9	22.5	22.5	23.1	-7.9	1.2	1.0	0.3	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.60	0.61	0.54	0.52	0.47	0.5	-1.3	-1.1	-1.4	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.43	1.41	1.39	1.38	1.41	-3.1	1.4	-0.3	0.1	
Industry	1.67	2.20	1.51	1.28	1.63	1.47	1.45	1.42	1.58	-1.0	0.8	-1.2	0.9	
Residential	1.33	0.44	0.29	0.36	0.34	0.35	0.34	0.35	0.34	-14.2	1.6	0.1	0.0	
Tertiary	1.42	0.87	0.77	0.94	0.91	0.85	0.82	0.85	0.86	-5.9	1.7	-1.0	0.4	
Transport	2.89	2.90	2.92	2.94	2.83	2.81	2.77	2.74	2.70	0.1	-0.3	-0.2	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	16.7	16.5	17.0	18.1	21.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.2	5.4	6.8	7.7	8.7					
Gross Electricity generation by source (in GWh)														
			8511	10203	12064	12942	14621	15952	17088		3.6	1.9	1.6	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9413	9971	11777	12826	13102		2.1	2.3	1.1	
Oil (including refinery gas)			51	42	102	172	172	182	188		7.2	5.4	0.9	
Gas (including derived gases)			787	1000	1128	1951	1503	1297	1382		3.7	2.9	-0.8	
Biomass-waste			57	158	873	291	602	910	1507		31.4	-3.6	9.6	
Hydro (pumping excluded)			5	22	23	26	29	29	30		16.3	2.3	0.4	
Wind			1	54	526	531	539	707	879		87.1	0.3	5.0	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2704	2930	2614	2883	3087		-1.0	-0.3	1.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	208	210	213	269	308		59.3	0.2	3.8	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	201	203	205	261	300		72.3	0.2	3.9	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2497	2721	2401	2614	2779		-1.8	-0.4	1.5	
of which cogeneration units			477	513	462	533	696	831	876		-0.3	4.2	2.3	
Solids fired			2738	2672	2159	2157	1640	1506	1505		-2.3	-2.7	-0.9	
Gas fired			175	200	234	480	580	857	821		2.9	9.5	3.5	
Oil fired			65	65	66	42	78	88	109		0.2	1.6	3.4	
Biomass-waste fired			19	21	37	42	102	163	344		6.9	10.8	12.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	46.0	46.1	57.9	57.0	57.0					
Efficiency of gross thermal power generation (%)			29.8	34.3	32.9	34.7	41.0	42.9	45.3					
% of gross electricity from CHP			17.6	33.1	22.0	26.7	27.4	25.7	24.8					
Carbon free gross electricity generation (%)			0.7	2.3	11.8	6.6	8.0	10.3	14.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	11.8	6.6	8.0	10.3	14.1					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	17.0	17.9	18.7	19.1	-0.3	3.4	1.2	0.6	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.4	2.4	2.4	-5.1	-0.1	-0.7	-0.3	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.2	13.2	13.9	14.5	14.7	4.2	4.6	1.4	0.5	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.4	2.0	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.7	0.8	1.0	2.5	3.4	5.8	4.8	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.9	23.7	25.7	27.1	28.0	0.5	5.7	2.1	0.8	
Trucks	4.5	1.5	3.9	5.8	8.6	10.9	12.6	13.8	14.7	-1.4	8.2	3.9	1.5	
Rail	7.0	3.8	8.1	10.6	12.2	12.9	13.1	13.2	13.3	1.5	4.2	0.7	0.1	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	893	1016	1084	1115	1145	-3.7	4.5	2.0	0.6	
Public road transport	44	21	25	23	21	20	18	17	16	-5.5	-1.7	-1.2	-1.5	
Private cars and motorcycles	273	263	307	338	386	404	403	393	376	1.2	2.3	0.4	-0.7	
Trucks	414	139	167	263	371	464	528	565	619	-8.7	8.3	3.6	1.6	
Rail	65	44	51	48	54	56	51	44	26	-2.4	0.6	-0.7	-6.3	
Aviation	36	18	20	42	50	60	71	83	95	-5.9	9.9	3.6	2.9	
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.7	0.3	

Source: PRIMES

Finland: Baseline scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)								
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16670	19467	20573	21397	21271	2.4	1.1	2.1	0.3	
Solids	1581	2061	1207	2129	1643	1679	1753	1725	1705	-2.7	3.1	0.7	-0.3	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7780	1.5	0.4	4.0	-1.4	
Renewable energy sources	5273	6133	7959	8124	8974	8795	9827	10679	11786	4.2	1.2	0.9	1.8	
Hydro	934	1111	1261	1185	1188	1194	1202	1220	1234	3.0	-0.6	0.1	0.3	
Biomass & Waste	4338	5021	6691	6924	7724	7535	8533	9338	10389	4.4	1.4	1.0	2.0	
Wind	0	1	7	15	57	57	72	95	128		23.8	2.4	5.9	
Solar and others	0	0	1	1	5	9	19	26	34	3.8	25.5	13.6	5.9	
Geothermal	0	0	0	0	0	0	0	0	0			0.6	0.2	
Net Imports	18031	15542	18512	19163	19588	19213	18539	18103	17331	0.3	0.6	-0.5	-0.7	
Solids	4378	3774	3533	3338	3874	4154	4025	3919	3576	-2.1	0.9	0.4	-1.2	
Oil	10477	8205	10535	10844	10258	9651	9316	9187	9057	0.1	-0.3	-1.0	-0.3	
- Crude oil and Feedstocks	8890	8548	12115	11017	11884	11524	11321	11241	11162	3.1	-0.2	-0.5	-0.1	
- Oil products	1587	-343	-1580	-173	-1625	-1874	-2005	-2054	-2105					
Natural gas	2261	2839	3422	3598	4163	4323	4675	4558	4188	4.2	2.0	1.2	-1.1	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	35757	38179	38610	38996	38096	1.2	1.0	0.8	-0.1	
Solids	5327	5950	5087	4925	5516	5833	5778	5644	5282	-0.5	0.8	0.5	-0.9	
Oil	9939	8344	9195	10482	9757	9148	8813	8683	8551	-0.8	0.6	-1.0	-0.3	
Natural gas	2261	2839	3422	3598	4163	4323	4675	4558	4188	4.2	2.0	1.2	-1.1	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7780	1.5	0.4	4.0	-1.4	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	8887	8710	9730	10573	11669	3.8	1.1	0.9	1.8	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.4	15.3	15.0	14.5	13.9					
Oil	34.3	28.8	28.3	30.4	27.3	24.0	22.8	22.3	22.4					
Natural gas	7.8	9.8	10.5	10.4	11.6	11.3	12.1	11.7	11.0					
Nuclear	17.3	17.1	17.9	17.4	16.9	23.6	23.3	23.1	20.4					
Renewable energy forms	19.0	21.2	24.5	23.3	24.9	22.8	25.2	27.1	30.6					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	80830	89544	101005	105894	108268	2.6	1.5	2.3	0.7	
Self consumption and grid losses	5547	6510	5449	5710	6803	7712	8681	9927	10644	-0.2	2.2	2.5	2.1	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	7597	6998	8385	8900	9572	2.4	0.9	1.0	1.3	
Solids	3216	3882	3168	2974	3651	3995	3893	3808	3580	-0.1	1.4	0.6	-0.8	
Oil (including refinery gas)	294	257	131	107	96	0	0	0	0	-7.8	-3.0	-53.5	0.0	
Gas (including derived gases)	1015	1581	2106	2384	2626	2233	2733	2796	2487	7.6	2.2	0.4	-0.9	
Biomass & Waste	926	996	1518	2073	1223	771	1758	2296	3505	5.1	-2.1	3.7	7.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15755	15930	15716	15562	15204	2.4	0.3	0.0	-0.3	
Refineries	10689	12029	13200	13194	12318	11965	11767	11690	11610	2.1	-0.7	-0.5	-0.1	
Biofuels and hydrogen production	0	0	0	0	98	224	311	378	451			12.2	3.8	
District heating	573	548	803	954	2099	2567	2525	2468	2201	3.4	10.1	1.9	-1.4	
Derived gases, cokeries etc.	793	1451	1306	1325	1240	1174	1113	1025	942	5.1	-0.5	-1.1	-1.6	
Energy Branch Consumption	781	965	1285	1228	1245	1262	1295	1374	1393	5.1	-0.3	0.4	0.7	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26638	27273	27641	27934	27919	1.1	1.0	0.4	0.1	
by sector														
Industry	9618	9988	12053	11988	12691	12937	13075	13214	13162	2.3	0.5	0.3	0.1	
- energy intensive industries	7351	7628	9456	9067	9482	9590	9652	9742	9674	2.6	0.0	0.2	0.0	
- other industrial sectors	2267	2359	2596	2921	3209	3347	3423	3472	3489	1.4	2.1	0.6	0.2	
Residential	5321	5418	4536	4846	5103	5255	5329	5378	5376	-1.6	1.2	0.4	0.1	
Tertiary	2479	2484	3127	3471	3724	3846	3905	3954	3961	2.3	1.8	0.5	0.1	
Transport	4309	4151	4443	4816	5119	5235	5332	5388	5419	0.3	1.4	0.4	0.2	
by fuel														
Solids	1621	1277	1099	966	990	1010	1061	1082	1033	-3.8	-1.0	0.7	-0.3	
Oil	8100	7563	7507	7890	7469	7210	6997	6952	6899	-0.8	-0.1	-0.7	-0.1	
Gas	1501	1523	1328	1156	1441	1555	1317	1054	993	-1.2	0.8	-0.9	-2.8	
Electricity	5068	5608	6487	6959	7667	8128	8481	8718	8943	2.5	1.7	1.0	0.5	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3907	4291	4704	4810	4792	3.8	3.5	1.9	0.2	
Renewable energy forms	3522	3944	4957	4552	5164	5077	5081	5316	5257	3.5	0.4	-0.2	0.3	
Other	0	0	0	0	0	1	1	2	2			13.0	5.7	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8376	8238	9052	9776	10705	0.8	0.8	1.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	71.6	71.2	70.5	68.1	64.4	-0.3	0.2	-0.2	-0.9	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	56.9	56.6	56.1	55.0	52.3	-0.1	0.6	-0.1	-0.7	
Power generation/District heating	17.8	21.8	20.2	20.5	24.1	24.4	25.2	24.8	22.8	1.3	1.8	0.4	-1.0	
Energy Branch	1.4	1.7	2.7	2.5	2.4	2.3	2.2	2.2	2.1	7.0	-1.0	-1.0	-0.5	
Industry	14.1	12.4	12.5	11.8	10.7	10.5	9.7	8.8	8.1	-1.2	-1.5	-0.9	-1.8	
Residential	6.4	5.9	2.3	2.1	1.9	1.6	1.4	1.4	1.5	-9.6	-2.3	-3.0	0.7	
Tertiary	2.1	1.7	3.0	3.0	3.0	2.9	2.7	2.9	3.0	3.8	0.0	-1.0	0.9	
Transport	12.7	12.2	13.1	14.2	14.8	14.9	15.0	15.0	14.9	0.3	1.3	0.1	-0.1	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.8	3.8	3.8	3.7	0.1	-0.1	-0.2	-0.4	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	10.8	10.6	9.3	8.4	-1.2	-1.6	-0.2	-2.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	98.8	98.2	97.2	93.9	88.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Finland: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1	
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4	
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	195.2	188.4	174.5	162.6	149.4	-0.8	-1.8	-1.1	-1.5	
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.59	1.48	1.45	1.41	1.37	-1.3	-0.4	-0.9	-0.6	
Import Dependency %	61.1	53.1	55.8	54.7	54.0	49.7	47.4	45.8	44.9					
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	18.8	20.7	23.4	26.0	28.5		3.0	2.2	2.0	
as % of GDP			10.1	10.5	10.3	10.2	10.6	10.8	11.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.7	67.5	62.7	58.8	55.6	-2.9	-3.0	-1.6	-1.2	
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	84.3	79.6	74.9	70.4	66.5	-2.7	-1.7	-1.2	-1.2	
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	94.1	87.8	81.2	75.3	70.4	1.0	-0.6	-1.5	-1.4	
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.7	32.8	32.1	31.0	30.7	-0.3	0.3	-0.5	-0.4	
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.6	44.3	43.7	43.3	41.6	-1.7	0.5	-0.2	-0.5	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.18	0.17	0.16	0.15	0.14	-1.6	-0.4	-1.6	-1.4	
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.14	1.09	1.04	1.00	0.98	-2.3	-1.1	-0.9	-0.6	
Industry	1.46	1.24	1.03	0.98	0.84	0.81	0.74	0.66	0.62	-3.4	-2.1	-1.2	-1.8	
Residential	1.21	1.09	0.52	0.43	0.36	0.31	0.26	0.26	0.27	-8.1	-3.4	-3.4	0.6	
Tertiary	0.84	0.70	0.96	0.86	0.81	0.74	0.70	0.73	0.76	1.4	-1.7	-1.4	0.7	
Transport	2.94	2.93	2.94	2.94	2.90	2.84	2.81	2.78	2.74	0.0	-0.2	-0.3	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	30.4	29.1	31.6	33.7	36.9					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.8	4.0	5.4	6.6	7.8					
Gross Electricity generation by source (in GWh)														
			69976	70536	80830	89544	101005	105894	108268		1.5	2.3	0.7	
Nuclear energy			22475	23267	23470	36243	36243	36243	31821		0.4	4.4	-1.3	
Solids			10359	9486	14673	14502	15180	14669	14686		3.5	0.3	-0.3	
Oil (including refinery gas)			444	419	1602	433	329	349	99		13.7	-14.7	-11.3	
Gas (including derived gases)			10776	11400	13709	12279	16557	17645	16784		2.4	1.9	0.1	
Biomass-waste			11185	12010	12898	11532	17862	21668	29003		1.4	3.3	5.0	
Hydro (pumping excluded)			14657	13782	13814	13887	13979	14186	14348		-0.6	0.1	0.3	
Wind			78	170	658	658	837	1107	1491		23.8	2.4	5.9	
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			17044	17512	18357	18605	20139	20888	21415		0.7	0.9	0.6	
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	3691		0.0	4.6	-1.3	
<u>Renewable energy</u>			3057	3104	3331	3353	3447	3578	3756		0.9	0.3	0.9	
Hydro (pumping excluded)			3016	3018	3057	3072	3097	3116	3131		0.1	0.1	0.1	
Wind			38	82	267	267	327	427	580		21.5	2.1	5.9	
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			11300	11718	12335	11046	12485	13104	13969		0.9	0.1	1.1	
of which cogeneration units			7129	7583	7222	7214	9057	9629	10690		0.1	2.3	1.7	
Solids fired			5539	5687	5678	5048	3843	3476	2932		0.2	-3.8	-2.7	
Gas fired			2479	2444	2878	2992	4418	4990	5542		1.5	4.4	2.3	
Oil fired			1341	1340	1341	700	667	603	365		0.0	-6.7	-5.9	
Biomass-waste fired			1942	2247	2438	2306	3557	4034	5130		2.3	3.9	3.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.1	44.2	48.2	52.6	54.7	54.9	54.6					
Efficiency of gross thermal power generation (%)			40.7	38.0	48.5	47.6	51.2	52.5	54.4					
% of gross electricity from CHP			44.9	45.7	46.4	38.8	46.6	48.4	53.4					
Carbon free gross electricity generation (%)			69.2	69.8	62.9	69.6	68.3	69.2	70.8					
- nuclear			32.1	33.0	29.0	40.5	35.9	34.2	29.4					
- renewable energy forms			37.0	36.8	33.9	29.1	32.4	34.9	41.5					
Transport sector														
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	95.2	100.3	104.5	108.6	111.9	0.8	1.6	0.9	0.7	
Public road transport	8.5	8.0	7.7	7.4	7.5	7.6	7.9	8.1	8.2	-1.0	-0.3	0.5	0.4	
Private cars and motorcycles	51.9	50.8	56.6	63.4	69.1	72.2	74.4	76.4	77.4	0.9	2.0	0.8	0.4	
Rail	3.7	3.6	3.9	4.0	4.1	4.4	4.7	5.0	5.5	0.6	0.6	1.4	1.4	
Aviation	5.3	6.1	7.9	8.6	9.8	11.3	12.7	14.3	15.9	4.1	2.3	2.6	2.3	
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.8	4.8	4.9	-0.8	-0.5	0.1	0.3	
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.9	44.0	45.3	46.6	47.7	1.7	0.1	0.5	0.5	
Trucks	26.3	24.5	32.0	31.9	32.9	33.8	34.6	35.4	36.1	2.0	0.3	0.5	0.4	
Rail	8.4	9.6	10.1	9.7	9.8	10.0	10.5	11.0	11.5	1.9	-0.3	0.7	0.9	
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2	
Energy demand in transport (ktoe)	4309	4151	4443	4816	5119	5235	5332	5388	5419	0.3	1.4	0.4	0.2	
Public road transport	97	84	55	57	57	57	58	59	59	-5.4	0.4	0.2	0.2	
Private cars and motorcycles	1840	1867	1904	2137	2314	2328	2346	2322	2342	0.3	2.0	0.1	0.0	
Trucks	1699	1557	1715	1764	1821	1852	1882	1921	1912	0.1	0.6	0.3	0.2	
Rail	99	102	94	97	100	102	101	99	75	-0.6	0.7	0.1	-2.9	
Aviation	459	408	505	565	635	705	751	793	838	1.0	2.3	1.7	1.1	
Inland navigation	116	134	170	195	192	192	193	193	193	3.9	1.3	0.0	0.0	

Source: PRIMES

France: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	137950	144249	147268	148234	141804	1.8	0.5	0.7	-0.4	
Solids	7625	5359	2267	383	406	216	15	14	14	-11.4	-15.8	-27.9	-1.0	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	121348	113186	2.8	0.9	0.5	-0.8	
Renewable energy sources	15778	17903	18065	16695	20954	21759	24857	26872	28604	1.4	1.5	1.7	1.4	
Hydro	4635	6322	5822	4491	5578	5451	5567	6021	6110	2.3	-0.4	0.0	0.9	
Biomass & Waste	11014	11434	12087	11968	14370	14646	16747	18139	19518	0.9	1.7	1.5	1.5	
Wind	0	0	7	82	762	1149	1799	1842	2022		60.7	9.0	1.2	
Solar and others	19	15	26	24	114	378	605	732	821	2.8	16.1	18.1	3.1	
Geothermal	110	132	124	130	131	135	138	138	133	1.2	0.5	0.5	-0.3	
Net Imports	120027	116049	133463	143600	145708	147936	149962	149353	149580	1.1	0.9	0.3	0.0	
Solids	13004	9010	13201	13660	13712	13950	13305	8504	7463	0.2	0.4	-0.3	-5.6	
Oil	86558	85551	90452	94460	94392	96826	97525	98758	99714	0.4	0.4	0.3	0.2	
- Crude oil and Feedstocks	76007	78951	84375	84707	85753	87850	88448	89505	90324	1.0	0.2	0.3	0.2	
- Oil products	10551	6600	6077	9753	8639	8976	9076	9252	9389	-5.4	3.6	0.5	0.3	
Natural gas	24371	27493	35778	40720	42901	42328	43488	45124	44465	3.9	1.8	0.1	0.2	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	280748	289136	294066	294300	287975	1.3	0.8	0.5	-0.2	
Solids	19955	15287	15240	14428	14118	14166	13320	8518	7476	-2.7	-0.8	-0.6	-5.6	
Oil	87673	85826	88790	92086	91481	93777	94360	95471	96305	0.1	0.3	0.3	0.2	
Natural gas	26032	29577	35766	40996	42901	42328	43488	45124	44465	3.2	1.8	0.1	0.2	
Nuclear	81018	97308	107093	116474	116590	122274	122397	121348	113186	2.8	0.9	0.5	-0.8	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	20888	21691	24779	26789	28514	1.4	1.5	1.7	1.4	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	5.0	4.9	4.5	2.9	2.6					
Oil	38.7	35.8	34.3	33.4	32.6	32.4	32.1	32.4	33.4					
Natural gas	11.5	12.3	13.8	14.9	15.3	14.6	14.8	15.3	15.4					
Nuclear	35.8	40.6	41.4	42.3	41.5	42.3	41.6	41.2	39.3					
Renewable energy forms	7.0	7.5	7.0	6.0	7.4	7.5	8.4	9.1	9.9					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	611064	625050	637250	635064	631574	2.6	1.3	0.4	-0.1	
Self consumption and grid losses	48047	53203	56438	59733	62822	63733	64855	65218	69235	1.6	1.1	0.3	0.7	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	15276	12520	13133	9889	8580	1.7	1.5	-1.5	-4.2	
Solids	7334	5441	6231	6402	6624	6876	6441	1949	1288	-1.6	0.6	-0.3	-14.9	
Oil (including refinery gas)	1921	605	1272	1653	0	0	13	1	3	-4.0			-13.5	
Gas (including derived gases)	1423	1216	4062	6291	6664	4469	4311	4991	3095	11.1	5.1	-4.3	-3.3	
Biomass & Waste	439	1224	1565	1640	1989	1175	2368	2948	4193	13.6	2.4	1.8	5.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	96147	99190	100097	101646	102897	0.8	-0.1	0.4	0.3	
Refineries	79634	83057	90084	87693	87338	89482	90120	91228	92089	1.2	-0.3	0.3	0.2	
Biofuels and hydrogen production	0	155	328	434	2148	3238	4176	4988	5613		20.7	6.9	3.0	
District heating	1019	605	312	273	280	291	304	314	312	-11.1	-1.1	0.8	0.3	
Derived gases, cokeries etc.	8896	7079	6668	5837	6381	6179	5497	5116	4882	-2.8	-0.4	-1.5	-1.2	
Energy Branch Consumption	9230	10345	10689	10095	9603	8022	7743	7590	7765	1.5	-1.1	-2.1	0.0	
Non-Energy Uses	13272	16593	15672	15786	16414	17110	17689	18243	18731	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	163626	170499	174433	177684	179434	1.1	0.7	0.6	0.3	
by sector														
Industry	36205	36949	36579	35580	36066	37731	38648	39283	39793	0.1	-0.1	0.7	0.3	
- energy intensive industries	24279	21310	22143	20671	20662	21119	21213	21200	21150	-0.9	-0.7	0.3	0.0	
- other industrial sectors	11926	15639	14436	14909	15405	16612	17434	18083	18643	1.9	0.7	1.2	0.7	
Residential	36375	36198	42516	45491	47434	48036	48237	48473	48324	1.6	1.1	0.2	0.0	
Tertiary	21726	24164	21620	25696	28099	29540	30187	30553	30561	0.0	2.7	0.7	0.1	
Transport	41908	44125	51599	49756	52027	55192	57360	59374	60756	2.1	0.1	1.0	0.6	
by fuel														
Solids	9017	6905	5775	4685	4108	4045	4152	4076	3814	-4.4	-3.3	0.1	-0.8	
Oil	67377	67964	71964	71245	73693	76039	76347	77104	77172	0.7	0.2	0.4	0.1	
Gas	23400	27098	30880	33902	34188	35079	35861	36533	38073	2.8	1.0	0.5	0.6	
Electricity	25960	29456	33096	36330	39500	42082	43861	44967	45300	2.5	1.8	1.1	0.3	
Heat (from CHP and District Heating)	774	459	237	207	253	262	277	300	293	-11.1	0.6	0.9	0.6	
Renewable energy forms	9686	9553	10364	10153	11880	12984	13920	14686	14764	0.7	1.4	1.6	0.6	
Other	0	0	0	0	4	7	14	17	18			14.2	2.6	
RES in Gross Final Energy Consumption ^(A)			16928	15420	19553	20780	23332	25323	26909	1.5	1.8	1.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	550.0	555.7	555.7	533.7	523.2	-0.1	-0.2	0.1	-0.6	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	378.7	382.8	382.8	369.7	365.2	0.6	0.1	0.1	-0.5	
Power generation/District heating	40.1	27.6	39.6	46.7	43.1	38.9	36.9	20.7	13.7	-0.1	0.8	-1.5	-9.4	
Energy Branch	17.1	19.1	19.6	16.6	14.6	13.9	13.1	12.8	12.7	1.4	-2.9	-1.0	-0.4	
Industry	79.1	76.1	70.1	66.0	66.9	69.1	68.4	67.5	68.3	-1.2	-0.5	0.2	0.0	
Residential	55.2	52.2	61.5	64.8	65.0	63.9	63.4	63.0	63.0	1.1	0.6	-0.2	-0.1	
Tertiary	39.2	40.9	32.1	39.2	40.9	41.7	41.3	41.0	41.0	-2.0	2.5	0.1	-0.1	
Transport	122.1	129.0	150.6	145.2	148.3	155.3	159.7	164.0	166.6	2.1	-0.1	0.7	0.4	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.9	30.3	30.3	30.2	30.0	-1.8	0.0	-0.2	-0.1	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	142.7	142.6	133.9	127.9	-1.1	-1.1	0.2	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	97.4	98.4	98.4	94.5	92.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										France: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	146.1	132.7	120.8	109.8	99.1	-0.7	-1.1	-1.9	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.35	1.32	1.30	1.26	1.27	-0.8	-0.7	-0.4	-0.3
Import Dependency %	52.4	47.9	50.9	51.6	51.4	50.6	50.5	50.2	51.3				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	160.5	177.9	195.1	207.6	220.5		1.3	2.0	1.2
as % of GDP			8.9	8.6	8.3	8.2	8.0	7.7	7.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	82.5	76.1	69.6	64.1	60.0	-1.5	-1.9	-1.7	-1.5
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	90.7	83.0	76.0	70.4	65.5	-0.1	-1.0	-1.8	-1.5
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	107.2	99.3	90.8	83.3	76.7	-2.3	0.7	-1.6	-1.7
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	31.0	30.2	28.9	27.6	25.8	-0.2	-1.7	-0.7	-1.1
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.7	76.0	75.4	74.4	73.8	0.8	0.8	0.0	-0.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.07	0.06	0.06	0.03	0.02	-2.4	-0.5	-1.9	-9.4
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.96	1.94	1.91	1.89	1.89	-0.5	-0.5	-0.3	-0.1
Industry	2.18	2.06	1.92	1.85	1.86	1.83	1.77	1.72	1.72	-1.3	-0.3	-0.5	-0.3
Residential	1.52	1.44	1.45	1.43	1.37	1.33	1.31	1.31	1.30	-0.5	-0.5	-0.4	-0.1
Tertiary	1.81	1.69	1.48	1.53	1.45	1.41	1.37	1.35	1.34	-2.0	-0.2	-0.6	-0.2
Transport	2.91	2.92	2.92	2.92	2.85	2.81	2.78	2.76	2.74	0.0	-0.2	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	11.6	11.8	13.0	13.8	14.5				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.0	5.8	7.2	8.3	9.2				
Gross Electricity generation by source (in GWh)													
			536004	570542	611064	625050	637250	635064	631574		1.3	0.4	-0.1
Nuclear energy			415087	451448	451980	475395	475869	474707	477316		0.9	0.5	0.0
Solids			25644	27018	28518	31938	29967	10845	7329		1.1	0.5	-13.1
Oil (including refinery gas)			6896	7042	3183	1722	1640	1576	3483		-7.4	-6.4	7.8
Gas (including derived gases)			16214	26341	43648	33061	31962	39966	28201		10.4	-3.1	-1.2
Biomass-waste			4381	5496	9960	5624	11510	15776	19731		8.6	1.5	5.5
Hydro (pumping excluded)			67698	52224	64861	63387	64737	70009	71050		-0.4	0.0	0.9
Wind			77	959	8859	13361	20921	21424	23509		60.7	9.0	1.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	0	463	463	463	463				0.0
Net Generation Capacity in MW_e			111945	113154	117132	118179	118195	113391	115085		0.5	0.1	-0.3
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	55286	55372		0.0	0.3	-1.5
<u>Renewable energy</u>			25092	26102	29218	31384	33860	34278	35308		1.5	1.5	0.4
Hydro (pumping excluded)			25016	25313	25351	25405	25470	25607	25778		0.1	0.0	0.1
Wind			66	756	3559	5621	7943	8102	8748		49.0	8.4	1.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	240	240	240			0.0	0.0
<u>Thermal power</u>			24306	24482	25103	22228	19647	23827	24406		0.3	-2.4	2.2
of which cogeneration units			4205	5546	8530	7498	8017	10897	11509		7.3	-0.6	3.7
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	12093	11528	11342	14736	13499		10.6	-0.6	1.8
Oil fired			9128	8975	7345	5100	2160	2072	4182		-2.1	-11.5	6.8
Biomass-waste fired			860	1147	1392	1560	2372	3330	4270		4.9	5.5	6.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	57.1	58.1	59.3	61.7	60.1				
Efficiency of gross thermal power generation (%)			34.8	35.5	48.0	49.7	49.2	59.3	58.9				
% of gross electricity from CHP			3.1	2.9	6.7	6.3	6.5	8.8	8.1				
Carbon free gross electricity generation (%)			90.9	89.4	87.7	89.3	90.0	91.8	93.8				
- nuclear			77.4	79.1	74.0	76.1	74.7	74.7	75.6				
- renewable energy forms			13.5	10.3	13.7	13.3	15.3	17.0	18.2				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	1001.9	1070.0	1136.5	1205.6	1273.5	1.7	1.2	1.3	1.1
Public road transport	41.3	41.6	42.4	44.0	46.2	49.2	52.8	56.4	60.0	0.3	0.9	1.3	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	790.8	830.3	866.7	904.1	939.0	1.7	1.0	0.9	0.8
Rail	73.9	64.6	80.7	89.7	98.1	109.9	121.1	132.3	142.6	0.9	2.0	2.1	1.7
Aviation	26.1	34.1	46.0	53.1	63.0	76.9	91.9	108.6	127.4	5.8	3.2	3.8	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.8	3.8	4.0	4.3	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	276.6	301.0	325.1	351.2	377.9	2.4	0.3	1.6	1.5
Trucks	153.5	178.2	204.0	205.3	233.1	257.6	280.3	303.7	327.2	2.9	1.3	1.9	1.6
Rail	50.7	48.1	55.3	40.7	34.6	34.7	36.1	38.5	41.5	0.9	-4.6	0.4	1.4
Inland navigation	7.6	6.6	9.1	8.9	8.8	8.8	8.8	9.0	9.1	1.8	-0.3	0.0	0.3
Energy demand in transport (ktoe)	41908	44125	51599	49756	52027	55192	57360	59374	60756	2.1	0.1	1.0	0.6
Public road transport	384	403	417	424	421	437	456	460	453	0.8	0.1	0.8	-0.1
Private cars and motorcycles	23233	22171	24945	23052	23062	23360	23189	22924	21875	0.7	-0.8	0.1	-0.6
Trucks	12587	14909	17407	18419	19901	21871	23536	25204	27056	3.3	1.3	1.7	1.4
Rail	1150	1220	1373	1264	1154	1152	1108	1042	937	1.8	-1.7	-0.4	-1.7
Aviation	3839	4690	6683	6291	7191	8075	8767	9429	10113	5.7	0.7	2.0	1.4
Inland navigation	714	731	775	305	298	296	305	315	321	0.8	-9.1	0.2	0.5

Source: PRIMES

Germany: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	117148	109381	88015	78288	78236	-3.3	-1.3	-2.8	-1.2	
Solids	125210	78868	59628	56514	45309	44266	37998	37520	37052	-7.2	-2.7	-1.7	-0.3	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	21759	24448	28021	30769	32684	5.4	7.4	2.6	1.6	
Hydro	1498	1873	1869	1684	1696	1788	1800	1843	1889	2.2	-1.0	0.6	0.5	
Biomass & Waste	4797	5351	7877	12190	15473	17231	19078	20459	21690	5.1	7.0	2.1	1.3	
Wind	6	147	804	2341	3660	4177	5643	6766	7298	62.9	16.4	4.4	2.6	
Solar and others	11	41	96	365	772	1077	1306	1485	1587	24.3	23.2	5.4	2.0	
Geothermal	7	9	10	138	158	175	194	214	220	3.4	32.1	2.1	1.3	
Net Imports	164822	195060	204678	214351	215277	225276	239338	246757	245092	2.2	0.5	1.1	0.2	
Solids	2881	10931	21576	26781	31513	38702	48226	51939	49466	22.3	3.9	4.3	0.3	
Oil	120126	130810	125974	122228	115076	114225	114170	114915	112676	0.5	-0.9	-0.1	-0.1	
- Crude oil and Feedstocks	88505	101168	101801	113120	111457	111121	111297	112860	111854	1.4	0.9	0.0	0.0	
- Oil products	31621	29643	24173	9108	3619	3104	2873	2055	823	-2.7	-17.3	-2.3	-11.8	
Natural gas	41747	52904	56865	65734	68153	71412	75578	78468	81499	3.1	1.8	1.0	0.8	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	329870	332024	324637	322257	320476	-0.4	-0.3	-0.2	-0.1	
Solids	131510	92177	83727	82805	76822	82967	86224	89459	86518	-4.4	-0.9	1.2	0.0	
Oil	124248	133627	129918	123409	115381	114122	113655	112127	109825	0.4	-1.2	-0.2	-0.3	
Natural gas	54976	67298	71853	80856	81653	83412	86578	88468	89999	2.7	1.3	0.6	0.4	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	21759	24448	28021	30769	32684	5.4	7.4	2.6	1.6	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.3	25.0	26.6	27.8	27.0					
Oil	35.0	39.5	38.2	35.7	35.0	34.4	35.0	34.8	34.3					
Natural gas	15.5	19.9	21.1	23.4	24.8	25.1	26.7	27.5	28.1					
Nuclear	10.6	11.0	12.9	12.2	10.2	7.9	2.7	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	6.6	7.4	8.6	9.5	10.2					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	636953	664263	672778	687490	693818	0.4	1.2	0.5	0.3	
Self consumption and grid losses	65998	62673	74099	72965	73069	75704	76657	80444	80828	1.2	-0.1	0.5	0.5	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	81727	89104	98581	103690	100961	-0.9	-0.4	1.9	0.2	
Solids	75843	69147	68066	66172	61111	67737	71364	74889	71766	-1.1	-1.1	1.6	0.1	
Oil (including refinery gas)	2871	2083	1108	2038	2848	2131	2123	2170	1747	-9.1	9.9	-2.9	-1.9	
Gas (including derived gases)	12676	11982	12906	19233	13322	14262	19325	20072	20375	0.2	0.3	3.8	0.5	
Biomass & Waste	1824	2665	3174	5102	4435	4953	5733	6503	7011	5.7	3.4	2.6	2.0	
Geothermal heat	0	0	0	0	10	21	36	56	63			14.0	5.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	141712	141167	140166	139220	138593	-1.8	0.3	-0.1	-0.1	
Refineries	106658	116715	119856	127082	121868	121098	120604	119539	118058	1.2	0.2	-0.1	-0.2	
Biofuels and hydrogen production	0	31	222	1942	4173	5436	6436	7056	7538		34.1	4.4	1.6	
District heating	6389	3638	1435	873	2980	2898	2298	2726	3756	-13.9	7.6	-2.6	5.0	
Derived gases, cokeries etc.	51565	19819	15423	14625	12691	11735	10829	9899	9241	-11.4	-1.9	-1.6	-1.6	
Energy Branch Consumption	15384	14906	14242	15144	13597	13245	12715	12605	12415	-0.8	-0.5	-0.7	-0.2	
Non-Energy Uses	23249	22912	25272	24779	24738	24784	24783	24377	23961	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	223279	220163	215010	223580	228220	229460	231126	231866	-0.4	0.2	0.3	0.1	
by sector														
Industry	72116	61981	59715	56706	56510	56106	55006	54763	54608	-1.9	-0.6	-0.3	-0.1	
- energy intensive industries	49422	42778	40359	38652	38089	37447	36386	35720	35194	-2.0	-0.6	-0.5	-0.3	
- other industrial sectors	22693	19203	19356	18053	18421	18659	18619	19043	19414	-1.6	-0.5	0.1	0.4	
Residential	58400	62212	61905	65931	68107	69199	69910	70709	71617	0.6	1.0	0.3	0.2	
Tertiary	39361	35275	32547	33416	35103	36482	36515	36482	36276	-1.9	0.8	0.4	-0.1	
Transport	58494	62910	65997	61958	63860	66433	68029	69173	69365	1.2	-0.3	0.6	0.2	
by fuel														
Solids	38693	14917	10951	9639	9778	9760	9740	9515	8798	-11.9	-1.1	0.0	-1.0	
Oil	96422	104474	98052	87411	81797	81695	81530	81374	80768	0.2	-1.8	0.0	-0.1	
Gas	42724	52595	58030	61814	65839	66481	65173	65370	66132	3.1	1.3	-0.1	0.1	
Electricity	38391	38912	41496	44497	47627	50269	51625	52783	53320	0.8	1.4	0.8	0.3	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7965	8231	8633	8684	8762	-2.9	1.5	0.8	0.1	
Renewable energy forms	2991	2734	4804	7222	10570	11776	12742	13371	14057	4.9	8.2	1.9	1.0	
Other	0	0	0	0	5	8	18	29	29			14.8	4.9	
RES in Gross Final Energy Consumption ^(A)			8812	13195	19655	21872	25687	28056	29975		8.4	2.7	1.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	958.2	983.0	999.4	991.0	960.6	-1.7	-0.8	0.4	-0.4	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	764.1	790.5	810.8	825.6	813.1	-1.5	-0.7	0.6	0.0	
Power generation/District heating	375.1	328.9	316.2	325.0	296.8	323.3	348.0	365.2	356.3	-1.7	-0.6	1.6	0.2	
Energy Branch	26.2	27.7	27.1	28.9	24.1	23.3	22.8	21.8	21.2	0.3	-1.2	-0.5	-0.7	
Industry	170.5	130.6	118.3	105.6	98.8	94.8	89.0	86.2	82.7	-3.6	-1.8	-1.0	-0.7	
Residential	134.3	127.4	117.7	120.0	118.1	117.4	117.7	119.0	119.0	-1.3	0.0	-0.1	0.1	
Tertiary	84.7	64.1	53.1	51.1	51.3	52.0	50.7	49.5	49.0	-4.6	-0.3	-0.1	-0.3	
Transport	168.9	181.9	190.9	174.3	175.0	179.8	182.9	185.3	184.9	1.2	-0.9	0.4	0.1	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	74.4	76.0	77.1	77.0	76.7	-0.2	-1.1	0.4	-0.1	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	116.6	111.5	88.4	70.9	-3.7	-1.1	-0.7	-4.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	77.3	79.3	80.6	79.9	77.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Germany: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	133.5	122.4	110.9	103.4	97.8	-2.1	-1.6	-1.8	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.32	2.38	2.50	2.56	2.54	-1.1	-0.4	0.8	0.2
Import Dependency %	46.1	57.3	59.8	61.6	64.8	67.3	73.1	75.9	75.8				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	251.6	270.8	288.8	299.1	305.6		2.3	1.4	0.6
as % of GDP			9.2	10.5	10.2	10.0	9.9	9.6	9.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.1	71.6	64.6	60.1	56.7	-2.8	-2.3	-2.0	-1.3
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	99.8	93.4	88.0	83.9	80.8	-1.3	0.0	-1.3	-0.8
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	92.1	86.2	79.4	74.1	69.8	-4.3	-0.8	-1.5	-1.3
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.2	36.7	35.0	33.6	32.3	-1.2	-1.6	-0.9	-0.8
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	33.0	32.1	31.7	31.3	30.2	0.6	-2.3	-0.4	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.40	0.42	0.44	0.46	0.44	-1.4	-1.8	1.0	0.0
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	1.98	1.95	1.92	1.90	1.88	-1.1	-0.9	-0.3	-0.2
Industry	2.36	2.11	1.98	1.86	1.75	1.69	1.62	1.57	1.51	-1.8	-1.2	-0.8	-0.7
Residential	2.30	2.05	1.90	1.82	1.73	1.70	1.68	1.66	1.66	-1.9	-0.9	-0.3	-0.1
Tertiary	2.15	1.82	1.63	1.53	1.46	1.42	1.39	1.36	1.35	-2.7	-1.1	-0.5	-0.3
Transport	2.89	2.89	2.89	2.81	2.74	2.71	2.69	2.68	2.67	0.0	-0.5	-0.2	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	8.5	9.3	10.9	11.8	12.5				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	6.6	8.3	9.6	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			567219	613054	636953	664263	672778	687490	693818		1.2	0.5	0.3
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6	
Solids			286571	262420	310487	345954	367548	392310	389225		0.8	1.7	0.6
Oil (including refinery gas)			5476	23814	17866	15821	16435	17207	14949		12.6	-0.8	-0.9
Gas (including derived gases)			64676	96524	91956	101983	134486	139522	141676		3.6	3.9	0.5
Biomass-waste			9782	19186	21125	26426	29619	33793	36184		8.0	3.4	2.0
Hydro (pumping excluded)			21728	19577	19726	20790	20933	21435	21960		-1.0	0.6	0.5
Wind			9350	27224	42553	48573	65617	78673	84859		16.4	4.4	2.6
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0
Geothermal and other renewables			0	0	11	24	42	65	73			14.0	5.6
Net Generation Capacity in MW_e			112509	122874	138449	142767	151017	155562	152045		2.1	0.9	0.1
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5	
<u>Renewable energy</u>			9611	23545	30352	33062	40539	45834	44382		12.2	2.9	0.9
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2
Wind			6113	18428	23993	25707	32446	37177	35254		14.7	3.1	0.8
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	92490	97539	106372	109728	107664		1.3	1.4	0.1
of which cogeneration units			40073	37870	32996	34136	40829	39067	36200		-1.9	2.2	-1.2
Solids fired			47883	45326	49646	52958	53501	56441	52155		0.4	0.8	-0.3
Gas fired			24817	24439	30665	35726	43226	44589	46413		2.1	3.5	0.7
Oil fired			7114	6403	8205	5120	4377	3492	3338		1.4	-6.1	-2.7
Biomass-waste fired			1783	2481	3971	3731	5260	5194	5744		8.3	2.9	0.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	2	5	8	12	14			13.8	5.6
Avg. Load factor of net power capacity (%)			53.7	53.1	49.1	49.8	47.7	47.2	48.8				
Efficiency of gross thermal power generation (%)			37.0	37.4	46.5	47.3	47.8	48.3	49.6				
% of gross electricity from CHP			16.9	15.5	21.2	22.4	28.9	28.2	28.5				
Carbon free gross electricity generation (%)			37.1	37.6	34.0	30.2	22.9	20.1	21.3				
- nuclear			29.9	26.6	20.5	15.3	5.1	0.0	0.0				
- renewable energy forms			7.2	11.0	13.5	14.9	17.9	20.1	21.3				
Transport sector													
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1235.6	1336.2	1422.0	1497.8	1559.2	2.0	1.3	1.4	0.9
Public road transport	73.1	68.5	69.0	68.2	66.3	69.4	73.9	78.1	82.0	-0.6	-0.4	1.1	1.0
Private cars and motorcycles	702.1	838.2	858.2	911.1	988.9	1059.8	1111.8	1151.6	1180.1	2.0	1.4	1.2	0.6
Rail	76.1	85.4	90.0	90.2	92.7	99.5	108.4	121.7	135.8	1.7	0.3	1.6	2.3
Aviation	34.3	46.2	62.0	70.5	85.3	105.0	125.4	143.8	158.5	6.1	3.2	3.9	2.4
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-0.9	0.5	0.7
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	503.8	540.7	574.0	603.8	629.9	1.9	1.7	1.3	0.9
Trucks	196.4	237.8	280.7	310.1	336.3	361.3	387.8	411.7	433.2	3.6	1.8	1.4	1.1
Rail	101.7	69.5	77.5	89.7	100.9	108.9	111.7	113.6	114.7	-2.7	2.7	1.0	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.6	70.5	74.5	78.5	82.0	1.9	0.0	1.1	1.0
Energy demand in transport (ktoe)	58494	62910	65997	61958	63860	66433	68029	69173	69365	1.2	-0.3	0.6	0.2
Public road transport	656	611	612	529	475	474	489	499	516	-0.7	-2.5	0.3	0.5
Private cars and motorcycles	38247	40001	39981	36421	36595	36866	36347	35878	35272	0.4	-0.9	-0.1	-0.3
Trucks	11518	13643	15834	14528	14634	15258	16214	17107	17458	3.2	-0.8	1.0	0.7
Rail	2111	2126	1946	1858	1986	2037	1907	1711	1436	-0.8	0.2	-0.4	-2.8
Aviation	5307	5975	7345	8304	9843	11455	12715	13604	14297	3.3	3.0	2.6	1.2
Inland navigation	656	554	279	318	327	343	358	373	387	-8.2	1.6	0.9	0.8

Source: PRIMES

Greece: Baseline scenario											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	9152	9740	10010	10315	11031	9319	10304	10504	10340	0.9	1.0	-0.7	0.0		
Solids	7077	7911	8222	8538	8690	6529	7037	7039	6292	1.5	0.6	-2.1	-1.1		
Oil	832	459	280	100	98	100	100	0	0	-10.3	-9.9	0.2			
Natural gas	138	44	42	18	34	0	0	0	0	-11.2	-2.2				
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	1105	1326	1466	1659	2208	2691	3167	3466	4048	2.9	4.2	3.7	2.5		
Hydro	152	303	318	431	418	426	431	435	439	7.6	2.8	0.3	0.2		
Biomass & Waste	893	935	1010	1015	1392	1580	1820	2056	2206	1.2	3.3	2.7	1.9		
Wind	0	3	39	109	254	457	581	597	938	74.8	20.7	8.6	4.9		
Solar and others	56	82	99	102	142	213	274	316	350	5.8	3.7	6.8	2.5		
Geothermal	3	3	2	1	2	16	62	62	114	-4.7	4.3	38.1	6.4		
Net Imports	15415	18207	21982	23336	26109	28947	29870	30677	30787	3.6	1.7	1.4	0.3		
Solids	988	925	768	371	225	1074	1083	1225	1391	-2.5	-11.6	17.0	2.5		
Oil	14366	17214	19527	20307	21298	22392	22821	22906	22735	3.1	0.9	0.7	0.0		
- Crude oil and Feedstocks	14757	16955	20439	19352	20807	21822	22219	22309	22228	3.3	0.2	0.7	0.0		
- Oil products	-391	259	-912	955	491	570	602	597	507			2.1	-1.7		
Natural gas	0	0	1689	2332	4320	5241	5750	6352	6485		9.8	2.9	1.2		
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Gross Inland Consumption	22278	24174	28140	31240	34033	34946	36679	37544	37380	2.4	1.9	0.8	0.2		
Solids	8091	8783	9040	8952	8915	7603	8120	8264	7683	1.1	-0.1	-0.9	-0.6		
Oil	12883	13952	15929	17951	18290	19171	19425	19268	18989	2.1	1.4	0.6	-0.2		
Natural gas	138	44	1705	2354	4354	5241	5750	6352	6485	28.6	9.8	2.8	1.2		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Renewable energy forms	1105	1326	1466	1659	2208	2691	3167	3466	4048	2.9	4.2	3.7	2.5		
as % in Gross Inland Consumption															
Solids	36.3	36.3	32.1	28.7	26.2	21.8	22.1	22.0	20.6						
Oil	57.8	57.7	56.6	57.5	53.7	54.9	53.0	51.3	50.8						
Natural gas	0.6	0.2	6.1	7.5	12.8	15.0	15.7	16.9	17.3						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	5.0	5.5	5.2	5.3	6.5	7.7	8.6	9.2	10.8						
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	68877	74475	80002	84632	88151	4.4	2.6	1.5	1.0		
Self consumption and grid losses	5818	6451	8431	10125	10897	11335	12175	13144	13342	3.8	2.6	1.1	0.9		
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	13145	12529	13236	13696	13184	3.0	1.2	0.1	0.0		
Solids	6890	7810	8234	8693	8565	7249	7761	7900	7317	1.8	0.4	-1.0	-0.6		
Oil (including refinery gas)	1708	2075	2036	2053	1359	1556	1357	1066	985	1.8	-4.0	0.0	-3.2		
Gas (including derived gases)	18	14	1280	1605	3166	3635	3906	4391	4467	53.1	9.5	2.1	1.4		
Biomass & Waste	0	38	64	52	53	75	152	278	302		-1.8	11.1	7.1		
Geothermal heat	0	0	0	0	1	14	60	60	113			47.9	6.5		
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	16698	17913	22435	21508	21565	22746	23303	23443	23456	3.0	-0.4	0.8	0.1		
Refineries	16621	17860	22404	21415	21249	22259	22658	22653	22567	3.0	-0.5	0.6	0.0		
Biofuels and hydrogen production	0	0	0	0	243	420	585	734	837			9.2	3.6		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	77	52	30	93	73	67	60	56	52	-8.8	9.2	-1.9	-1.4		
Energy Branch Consumption	1196	1174	1637	1758	1673	1696	1734	1776	1746	3.2	0.2	0.4	0.1		
Non-Energy Uses	651	441	689	711	703	703	715	725	722	0.6	0.2	0.2	0.1		
Final Energy Demand	14509	15801	18513	20742	23034	24684	25899	26535	26760	2.5	2.2	1.2	0.3		
by sector															
Industry	3942	4107	4437	4132	4071	4203	4302	4318	4369	1.2	-0.9	0.6	0.2		
- energy intensive industries	2534	2489	2693	2526	2525	2619	2684	2693	2706	0.6	-0.6	0.6	0.1		
- other industrial sectors	1408	1618	1744	1607	1546	1584	1618	1625	1663	2.2	-1.2	0.5	0.3		
Residential	3048	3323	4470	5467	6370	6935	7342	7528	7571	3.9	3.6	1.4	0.3		
Tertiary	1711	1940	2410	3075	3480	3769	4000	4110	4182	3.5	3.7	1.4	0.4		
Transport	5808	6431	7196	8068	9113	9777	10255	10579	10657	2.2	2.4	1.2	0.4		
by fuel															
Solids	1053	1074	888	446	326	333	339	346	349	-1.7	-9.5	0.4	0.3		
Oil	10041	10799	12584	14219	15321	15924	16402	16536	16343	2.3	2.0	0.7	0.0		
Gas	15	14	257	585	843	1297	1483	1587	1646	33.0	12.6	5.8	1.1		
Electricity	2448	2931	3710	4377	5075	5487	5863	6154	6420	4.2	3.2	1.5	0.9		
Heat (from CHP and District Heating)	0	0	28	49	43	48	52	62	56		4.5	1.9	0.7		
Renewable energy forms	952	982	1046	1066	1425	1593	1758	1848	1962	0.9	3.1	2.1	1.1		
Other	0	0	0	0	1	1	2	3	3			16.3	2.6		
RES in Gross Final Energy Consumption ^(A)			1439	1626	2150	2575	2965	3208	3717	4.1	3.3	2.3			
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	132.9	132.2	136.6	137.5	134.1	2.0	0.6	0.3	-0.2		
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	100.2	99.3	103.3	104.7	101.7	2.3	1.2	0.3	-0.2		
Power generation/District heating	34.1	39.0	43.7	46.3	47.3	43.4	45.5	46.3	43.7	2.5	0.8	-0.4	-0.4		
Energy Branch	2.6	2.3	3.4	3.6	3.3	3.5	3.5	3.5	3.5	2.9	-0.4	0.6	0.0		
Industry	9.4	10.0	10.1	8.6	7.9	7.8	7.8	7.7	7.7	0.7	-2.5	-0.1	0.0		
Residential	4.6	4.7	7.4	9.6	11.2	12.3	12.9	13.0	12.6	4.9	4.2	1.5	-0.2		
Tertiary	3.3	3.2	3.4	4.2	4.3	4.5	4.7	4.6	4.6	0.1	2.4	1.0	-0.2		
Transport	17.2	19.0	21.2	23.8	26.3	27.8	28.9	29.5	29.5	2.1	2.2	0.9	0.2		
CO₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.3	9.8	10.0	10.0	1.2	0.8	1.0	0.2		
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	23.7	23.6	23.5	22.8	22.3	22.3	1.3	-1.6	-0.1	-0.5		
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	129.1	128.5	132.7	133.6	130.3						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Greece: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	158.1	139.5	129.1	118.9	109.5	0.0	-2.0	-2.0	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.95	2.84	2.82	2.79	2.72	-0.1	-0.7	-0.4	-0.3
Import Dependency %	62.1	65.7	69.3	68.5	70.3	75.6	74.4	74.5	74.9				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.1	25.6	28.7	31.1	32.5		3.7	2.6	1.3
as % of GDP			10.5	10.2	10.3	10.2	10.1	9.8	9.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.7	65.2	60.4	56.8	54.5	1.1	-3.4	-1.6	-1.0
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	100.5	95.3	89.8	83.5	78.1	1.6	0.1	-1.1	-1.4
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	99.1	92.5	86.7	80.0	75.1	1.2	-0.1	-1.3	-1.4
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	33.0	31.6	30.6	29.7	28.3	-2.0	-0.8	-0.8	-0.8
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	100.6	97.9	94.9	93.3	92.5	-1.1	-1.3	-0.6	-0.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.58	0.56	0.54	0.49	-1.9	-1.7	-1.9	-1.4
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.15	2.12	2.10	2.07	2.04	-0.4	-0.5	-0.3	-0.3
Industry	2.39	2.43	2.28	2.09	1.94	1.85	1.81	1.80	1.77	-0.5	-1.6	-0.7	-0.2
Residential	1.51	1.43	1.66	1.76	1.75	1.78	1.76	1.72	1.67	0.9	0.6	0.0	-0.5
Tertiary	1.96	1.65	1.40	1.36	1.23	1.20	1.17	1.13	1.10	-3.3	-1.3	-0.4	-0.7
Transport	2.96	2.96	2.95	2.95	2.88	2.85	2.82	2.79	2.77	0.0	-0.2	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	9.0	10.0	11.0	11.6	13.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.6	4.1	5.3	6.3	7.2				
Gross Electricity generation by source (in GWh)													
			53415	59416	68877	74475	80002	84632	88151		2.6	1.5	1.0
Nuclear energy			0	0	0	0	0	0	0				
Solids	33790	35982	35902	32348	34485	35295	33408			0.6	-0.4	-0.3	
Oil (including refinery gas)	8979	8858	6348	7894	6991	5690	5277			-3.4	1.0	-2.8	
Gas (including derived gases)	5960	8114	18493	23210	25332	29418	30788			12.0	3.2	2.0	
Biomass-waste	543	179	248	342	726	1298	1408			-7.6	11.4	6.8	
Hydro (pumping excluded)	3692	5016	4855	4950	5013	5057	5105			2.8	0.3	0.2	
Wind	451	1266	2957	5311	6752	6943	10906			20.7	8.6	4.9	
Solar		0	1	73	397	606	832	1075				23.6	5.9
Geothermal and other renewables		0	0	2	23	98	98	184				47.9	6.5
Net Generation Capacity in MW_e		11361	13277	15880	18753	19889	21131	23956		3.4	2.3	1.9	
<u>Nuclear energy</u>		0	0	0	0	0	0	0					
<u>Renewable energy</u>		3233	3744	4521	5722	6637	6951	8873		3.4	3.9	2.9	
Hydro (pumping excluded)		3043	3165	3235	3386	3461	3514	3549		0.6	0.7	0.3	
Wind		189	573	1226	2012	2683	2759	4448		20.6	8.1	5.2	
Solar		1	5	60	324	494	678	877		46.8	23.6	5.9	
Other renewables (tidal etc.)		0	0	0	0	0	0	0					
<u>Thermal power</u>		8128	9533	11359	13031	13252	14179	15083		3.4	1.6	1.3	
of which cogeneration units		340	381	477	744	847	966	951		3.4	5.9	1.2	
Solids fired		4505	4798	4796	4389	4389	4433	3897		0.6	-0.9	-1.2	
Gas fired		1134	1876	3344	5639	5929	6940	8878		11.4	5.9	4.1	
Oil fired		2487	2827	3145	2926	2774	2610	2033		2.4	-1.2	-3.1	
Biomass-waste fired		2	31	66	70	132	170	177		45.2	7.1	3.0	
Fuel Cells		0	0	0	0	0	0	0					
Geothermal heat		0	0	8	8	28	28	98			13.3	13.3	
Avg. Load factor of net power capacity (%)		49.7	47.4	46.5	42.9	43.5	43.2	39.9					
Efficiency of gross thermal power generation (%)		36.5	36.8	39.9	43.8	43.9	45.1	46.4					
% of gross electricity from CHP		1.2	1.5	3.0	4.7	5.2	5.8	5.5					
Carbon free gross electricity generation (%)		8.8	10.9	11.8	14.8	16.5	16.8	21.2					
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms		8.8	10.9	11.8	14.8	16.5	16.8	21.2					
Transport sector													
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	160.1	176.1	188.8	197.5	203.3	4.4	3.3	1.7	0.7
Public road transport	17.7	20.2	21.7	21.4	21.4	21.5	21.8	22.0	22.1	2.0	-0.2	0.2	0.1
Private cars and motorcycles	32.2	41.3	58.6	80.0	94.1	105.2	113.0	118.1	120.8	6.2	4.8	1.8	0.7
Rail	2.8	2.3	3.1	3.4	3.8	4.2	4.7	5.1	5.5	0.9	2.0	2.3	1.5
Aviation	15.5	19.9	24.1	27.7	32.0	36.2	40.1	43.0	45.6	4.5	2.9	2.3	1.3
Inland navigation	7.0	7.9	8.7	8.7	8.9	9.0	9.1	9.2	9.3	2.1	0.2	0.3	0.2
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	38.1	43.0	47.3	50.6	53.1	3.0	3.6	2.2	1.2
Trucks	12.5	14.6	17.5	22.0	26.0	29.6	32.8	35.6	37.8	3.4	4.0	2.4	1.4
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.0	1.1	1.2	-3.5	6.2	3.0	1.3
Inland navigation	6.6	7.1	8.7	10.1	11.4	12.6	13.5	13.9	14.1	2.8	2.7	1.7	0.5
Energy demand in transport (ktoe)	5808	6431	7196	8068	9113	9777	10255	10579	10657	2.2	2.4	1.2	0.4
Public road transport	154	175	175	153	149	142	142	139	131	1.3	-1.6	-0.5	-0.8
Private cars and motorcycles	1404	1704	2243	2913	3335	3492	3609	3666	3533	4.8	4.0	0.8	-0.2
Trucks	2345	2726	2902	3120	3610	3966	4220	4447	4643	2.2	2.2	1.6	1.0
Rail	75	57	60	58	63	68	76	77	72	-2.2	0.5	1.9	-0.5
Aviation	1264	1226	1325	1181	1289	1423	1506	1543	1574	0.5	-0.3	1.6	0.4
Inland navigation	566	544	491	643	668	687	702	707	704	-1.4	3.1	0.5	0.0

Source: PRIMES

Hungary: Baseline scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	14146	13456	11207	10514	10236	10090	10278	10221	10256	-2.3	-0.9	0.0	0.0		
Solids	3948	3095	2893	1748	1720	1725	1734	1738	1741	-3.1	-5.1	0.1	0.0		
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2		
Natural gas	3812	3788	2475	2331	2200	2000	1900	1800	1700	-4.2	-1.2	-1.5	-1.1		
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1		
Renewable energy sources	523	626	516	1212	1328	1503	1704	1811	2044	-0.1	9.9	2.5	1.8		
Hydro	15	14	15	17	16	16	17	17	17	0.0	0.4	0.4	0.4		
Biomass & Waste	422	526	415	1105	1201	1377	1534	1605	1785	-0.2	11.2	2.5	1.5		
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8		
Solar and others	0	0	0	2	13	21	74	105	148			19.3	7.1		
Geothermal	86	86	86	87	93	81	62	52	46	0.0	0.8	-3.9	-3.1		
Net Imports	14436	12629	14011	17558	18736	20670	22075	22849	23384	-0.3	2.9	1.7	0.6		
Solids	1686	1395	1081	1340	1200	1103	1198	1162	1321	-4.3	1.0	0.0	1.0		
Oil	6621	5496	5352	5875	6609	7583	7924	8127	8335	-2.1	2.1	1.8	0.5		
- Crude oil and Feedstocks	6475	5937	5866	6167	6679	7614	7939	8138	8342	-1.0	1.3	1.7	0.5		
- Oil products	146	-441	-514	-291	-71	-31	-15	-11	-7						
Natural gas	5170	5532	7283	9807	10389	11633	12651	13339	13541	3.5	3.6	2.0	0.7		
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7		
Gross Inland Consumption	28641	25864	25000	27920	28972	30760	32353	33070	33640	-1.4	1.5	1.1	0.4		
Solids	5969	4549	3967	3090	2920	2827	2931	2900	3062	-4.0	-3.0	0.0	0.4		
Oil	8734	7689	6907	7420	7809	8583	8924	9027	9135	-2.3	1.2	1.3	0.2		
Natural gas	8913	9175	9657	12094	12589	13633	14551	15139	15241	0.8	2.7	1.5	0.5		
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1		
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7		
Renewable energy forms	523	626	516	1212	1328	1503	1704	1811	2044	-0.1	9.9	2.5	1.8		
as % in Gross Inland Consumption															
Solids	20.8	17.6	15.9	11.1	10.1	9.2	9.1	8.8	9.1						
Oil	30.5	29.7	27.6	26.6	27.0	27.9	27.6	27.3	27.2						
Natural gas	31.1	35.5	38.6	43.3	43.5	44.3	45.0	45.8	45.3						
Nuclear	12.4	14.0	14.6	12.8	13.1	12.6	12.2	12.0	11.8						
Renewable energy forms	1.8	2.4	2.1	4.3	4.6	4.9	5.3	5.5	6.1						
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	40520	47085	52708	57136	60453	2.2	1.4	2.7	1.4		
Self consumption and grid losses	5478	6171	6295	5979	6039	6293	6788	7069	7163	1.4	-0.4	1.2	0.5		
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5289	6008	6604	6897	7306	1.9	-1.2	2.2	1.0		
Solids	2871	2977	2731	1924	1965	1971	2010	2007	2192	-0.5	-3.2	0.2	0.9		
Oil (including refinery gas)	440	1447	1052	122	4	163	142	15	15	9.1	-42.4	42.2	-19.9		
Gas (including derived gases)	1636	1634	2140	3078	3020	3567	4116	4556	4657	2.7	3.5	3.1	1.2		
Biomass & Waste	24	55	62	534	299	306	336	320	442	10.2	17.0	1.2	2.8		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	11679	10680	9226	9831	10430	11393	11854	12034	12087	-2.3	1.2	1.3	0.2		
Refineries	8831	8500	7588	8390	9064	9914	10233	10307	10375	-1.5	1.8	1.2	0.1		
Biofuels and hydrogen production	0	0	0	0	198	280	415	505	563			7.7	3.1		
District heating	1145	789	471	629	467	555	589	647	614	-8.5	-0.1	2.3	0.4		
Derived gases, cokeries etc.	1704	1392	1168	813	701	644	616	576	535	-3.7	-5.0	-1.3	-1.4		
Energy Branch Consumption	1402	1310	1162	1581	1642	1724	1791	1824	1843	-1.9	3.5	0.9	0.3		
Non-Energy Uses	1569	1609	1586	2282	2503	2660	2723	2754	2783	0.1	4.7	0.8	0.2		
Final Energy Demand	19258	15814	15998	16098	19732	20934	21984	22743	23133	-1.8	2.1	1.1	0.5		
by sector															
Industry	6523	3808	3489	3427	3486	3660	3869	4028	4201	-6.1	0.0	1.0	0.8		
- energy intensive industries	4160	2691	2563	2328	2277	2335	2445	2515	2598	-4.7	-1.2	0.7	0.6		
- other industrial sectors	2364	1116	926	1099	1209	1326	1424	1513	1603	-8.9	2.7	1.6	1.2		
Residential	6437	5911	5465	6411	7079	7278	7424	7525	7540	-1.6	2.6	0.5	0.2		
Tertiary	3273	3442	3792	4085	4470	4795	5081	5241	5295	1.5	1.7	1.3	0.4		
Transport	3024	2653	3252	4175	4697	5201	5610	5949	6098	0.7	3.7	1.8	0.8		
by fuel															
Solids	2502	965	793	692	598	555	527	527	511	-10.9	-2.8	-1.3	-0.3		
Oil	6009	4147	4173	4792	5131	5610	5919	6214	6312	-3.6	2.1	1.4	0.6		
Gas	5941	6370	6503	7852	8334	8630	9023	8997	9025	0.9	2.5	0.8	0.0		
Electricity	2811	2500	2658	2823	3228	3580	3969	4242	4485	-0.6	2.0	2.1	1.2		
Heat (from CHP and District Heating)	1570	1287	1440	1297	1469	1474	1337	1462	1424	-0.9	0.2	-0.9	0.6		
Renewable energy forms	425	545	430	642	971	1084	1207	1298	1374	0.1	8.5	2.2	1.3		
Other	0	0	0	0	0	1	2	2	2			16.3	3.6		
RES in Gross Final Energy Consumption ^(A)			482	869	1125	1280	1464	1672	1882		8.8	2.7	2.5		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	81.8	86.5	90.8	91.6	92.5	-2.1	0.6	1.1	0.2		
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	56.5	60.5	63.9	65.3	66.5	-2.0	0.5	1.2	0.4		
Power generation/District heating	20.5	23.0	21.0	17.3	16.6	18.4	20.0	20.8	21.7	0.2	-2.4	1.9	0.8		
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.6	2.7	2.7	2.7	-4.9	5.2	0.9	-0.3		
Industry	14.7	8.7	6.4	6.3	5.9	6.2	7.0	7.1	7.0	-7.9	-0.9	1.7	0.1		
Residential	13.7	9.9	9.0	10.5	11.4	11.2	10.9	10.6	10.5	-4.1	2.4	-0.4	-0.4		
Tertiary	5.6	5.5	6.2	6.7	7.0	7.4	7.8	8.0	8.0	1.1	1.2	1.1	0.3		
Transport	8.6	7.6	9.4	12.2	13.3	14.6	15.5	16.3	16.6	0.9	3.5	1.6	0.7		
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.7	3.9	4.1	-3.6	-0.4	1.7	0.9		
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	22.6	23.2	22.3	21.9	-2.2	1.0	0.5	-0.5		
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	85.9	90.9	95.4	96.2	97.2						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Hungary: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	276.6	244.9	219.4	194.7	175.6	-2.5	-2.3	-2.3	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.95	1.97	1.97	1.98	1.98	-0.7	-0.9	0.1	0.0
Import Dependency %	50.4	48.8	56.0	62.9	64.7	67.2	68.2	69.1	69.5				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.3	20.3	22.8	25.1	26.2		2.9	2.8	1.4
as % of GDP			18.2	16.1	16.5	16.2	15.4	14.8	13.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.8	63.9	59.4	54.8	52.0	-9.6	-3.4	-1.7	-1.3
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.8	69.6	60.7	53.6	47.8	-1.9	-2.1	-2.8	-2.4
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.9	72.0	65.0	58.2	51.9	1.6	-2.2	-2.0	-2.2
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	35.0	34.7	33.8	32.7	30.6	2.1	2.3	-0.4	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.4	39.2	38.3	37.6	37.1	0.5	0.8	-0.3	-0.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.27	0.27	0.28	0.27	0.27	-0.8	-3.5	0.2	-0.4
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.90	1.88	1.87	1.84	1.82	-1.3	-0.2	-0.2	-0.3
Industry	2.25	2.28	1.85	1.84	1.69	1.69	1.80	1.76	1.67	-2.0	-0.9	0.6	-0.8
Residential	2.13	1.68	1.64	1.64	1.61	1.54	1.47	1.40	1.40	-2.6	-0.2	-0.9	-0.5
Tertiary	1.70	1.59	1.64	1.64	1.56	1.55	1.53	1.53	1.52	-0.3	-0.5	-0.2	-0.1
Transport	2.84	2.85	2.90	2.92	2.82	2.80	2.76	2.74	2.72	0.2	-0.3	-0.2	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	5.6	6.0	6.5	7.2	7.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.8	4.8	6.6	7.7	8.4				
Gross Electricity generation by source (in GWh)													
			35185	35749	40520	47085	52708	57136	60453		1.4	2.7	1.4
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	6363	6825	8079	9027	10206		-2.7	2.4	2.4
Oil (including refinery gas)			4243	497	77	783	692	336	152		-33.0	24.6	-14.1
Gas (including derived gases)			8040	13021	17413	22488	26532	30031	31535		8.0	4.3	1.7
Biomass-waste			197	2348	1737	1724	1719	1740	2330		24.3	-0.1	3.1
Hydro (pumping excluded)			178	203	185	191	192	196	199		0.4	0.4	0.4
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	10359	10574	9932	10241	11044		2.9	-0.4	1.1
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	8493	8632	7827	7891	8366		3.5	-0.8	0.7
of which cogeneration units			1915	2391	2489	2824	2781	2557	2552		2.7	1.1	-0.9
Solids fired			1683	1592	1735	1356	901	1129	1182		0.3	-6.3	2.7
Gas fired			3516	4572	6089	6682	6368	6002	6332		5.6	0.4	-0.1
Oil fired			762	313	322	254	219	224	264		-8.3	-3.8	1.9
Biomass-waste fired			76	316	348	340	338	535	589		16.5	-0.3	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	42.3	48.6	58.0	61.0	59.9				
Efficiency of gross thermal power generation (%)			29.9	33.0	41.6	45.5	48.2	51.3	52.1				
% of gross electricity from CHP			24.5	28.3	31.6	27.5	23.2	27.0	25.7				
Carbon free gross electricity generation (%)			41.4	45.9	41.1	36.1	33.0	31.1	30.7				
- nuclear			40.3	38.7	36.2	31.8	29.0	26.9	25.5				
- renewable energy forms			1.1	7.2	4.9	4.3	4.0	4.1	5.2				
Transport sector													
Passenger transport activity (Gpkm)													
	82.0	75.2	80.0	80.3	86.9	95.4	105.2	114.8	124.2	-0.2	0.8	1.9	1.7
Public road transport	19.3	16.6	18.7	18.2	17.6	16.6	15.9	15.3	14.7	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	54.0	62.6	72.0	80.9	88.8	-0.1	1.5	2.9	2.1
Rail	13.9	10.9	12.3	12.2	12.0	12.0	11.9	11.8	12.2	-1.2	-0.2	-0.1	0.2
Aviation	1.6	1.9	2.4	2.7	3.3	4.2	5.4	6.8	8.4	4.3	3.1	5.1	4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	34.0	22.2	27.9	35.8	42.1	48.1	53.6	58.4	61.8	-1.9	4.2	2.5	1.4
Trucks	15.2	13.8	19.1	25.2	30.9	36.4	41.3	45.5	48.4	2.4	4.9	2.9	1.6
Rail	16.8	8.4	8.8	8.6	8.8	9.1	9.4	9.7	10.1	-6.3	0.0	0.7	0.7
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	2.9	3.2	3.3			2.0	1.3
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4697	5201	5610	5949	6098	0.7	3.7	1.8	0.8
Public road transport	160	124	149	167	156	140	126	113	102	-0.7	0.4	-2.1	-2.1
Private cars and motorcycles	1482	1462	1824	2321	2571	2813	3010	3155	3149	2.1	3.5	1.6	0.5
Trucks	938	695	886	1297	1551	1779	1955	2109	2230	-0.6	5.8	2.3	1.3
Rail	271	190	175	159	149	142	129	114	88	-4.3	-1.6	-1.4	-3.8
Aviation	164	182	219	230	269	326	388	456	527	2.9	2.1	3.7	3.1
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1

Source: PRIMES

Ireland: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	3353	4020	2175	1650	1962	2242	2436	2664	2673	-4.2	-1.0	2.2	0.9
Solids	1312	1606	959	789	757	743	728	716	672	-3.1	-2.3	-0.4	-0.8
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	498	568	575	583	500	-6.5	-6.3	1.5	-1.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	708	931	1133	1365	1501	4.4	10.6	4.8	2.9
Hydro	60	61	73	54	74	77	80	82	83	2.0	0.2	0.7	0.4
Biomass & Waste	108	102	164	250	370	469	587	685	783	4.3	8.5	4.7	2.9
Wind	0	1	21	96	252	349	415	536	568		28.2	5.1	3.2
Solar and others	0	0	0	0	12	36	51	61	67	14.8	51.1	15.8	2.7
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-8.4	-0.7	-0.8
Net Imports	7074	7604	12234	13620	15928	16363	16887	16848	16969	5.6	2.7	0.6	0.0
Solids	2064	1823	1789	1969	2055	2294	2651	2377	2148	-1.4	1.4	2.6	-2.1
Oil	5010	5698	7959	8466	10543	10203	10259	10413	10435	4.7	2.9	-0.3	0.2
- Crude oil and Feedstocks	2018	2260	3002	3297	3645	3558	3554	3583	3568	4.1	2.0	-0.3	0.0
- Oil products	2992	3438	4957	5168	6898	6645	6705	6830	6867	5.2	3.4	-0.3	0.2
Natural gas	0	85	2478	3010	3250	3709	3756	3808	4106		2.8	1.5	0.9
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	10225	10844	14319	15121	17771	18477	19188	19372	19500	3.4	2.2	0.8	0.2
Solids	3416	2775	2711	2685	2812	3037	3379	3093	2820	-2.3	0.4	1.9	-1.8
Oil	4768	5571	7906	8390	10423	10075	10125	10274	10293	5.2	2.8	-0.3	0.2
Natural gas	1873	2334	3436	3470	3748	4277	4331	4391	4606	6.3	0.9	1.5	0.6
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	708	1002	1259	1511	1669	4.4	10.6	5.9	2.9
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	15.8	16.4	17.6	16.0	14.5				
Oil	46.6	51.4	55.2	55.5	58.7	54.5	52.8	53.0	52.8				
Natural gas	18.3	21.5	24.0	22.9	21.1	23.2	22.6	22.7	23.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.0	5.4	6.6	7.8	8.6				
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	31679	34234	36744	37867	38723	5.2	3.0	1.5	0.5
Self consumption and grid losses	2263	2665	3458	3870	4126	4289	4580	4538	4531	4.3	1.8	1.0	-0.1
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	5223	5186	5379	5100	5039	4.7	0.9	0.3	-0.7
Solids	1839	2028	1925	1903	2177	2461	2881	2663	2447	0.5	1.2	2.8	-1.6
Oil (including refinery gas)	339	622	1019	774	933	226	16	0	0	11.6	-0.9	-33.2	
Gas (including derived gases)	841	1060	1825	2040	2035	2415	2379	2299	2393	8.1	1.1	1.6	0.1
Biomass & Waste	0	0	24	30	77	84	102	138	199		12.5	2.9	6.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	1939	2429	3481	3472	3859	3877	3997	4084	4113	6.0	1.0	0.4	0.3
Refineries	1742	2263	3310	3336	3645	3558	3554	3583	3568	6.6	1.0	-0.3	0.0
Biofuels and hydrogen production	0	0	0	1	132	254	396	469	523			11.6	2.8
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	197	167	171	135	82	66	47	32	22	-1.4	-7.0	-5.5	-7.2
Energy Branch Consumption	168	185	246	380	363	363	373	363	355	3.9	4.0	0.3	-0.5
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4
Final Energy Demand	7355	7903	10678	12346	13697	14491	15084	15498	15714	3.8	2.5	1.0	0.4
by sector													
Industry	1744	1851	2344	2484	2733	2889	3032	3173	3284	3.0	1.6	1.0	0.8
- energy intensive industries	869	879	1170	1231	1387	1486	1567	1635	1695	3.0	1.7	1.2	0.8
- other industrial sectors	875	972	1173	1253	1346	1403	1464	1538	1590	3.0	1.4	0.8	0.8
Residential	2404	2208	2509	2923	3139	3247	3311	3336	3342	0.4	2.3	0.5	0.1
Tertiary	1222	1502	1821	1958	2129	2285	2370	2438	2478	4.1	1.6	1.1	0.4
Transport	1985	2343	4005	4981	5696	6070	6371	6550	6610	7.3	3.6	1.1	0.4
by fuel													
Solids	1784	933	699	704	619	561	485	417	362	-9.0	-1.2	-2.4	-2.9
Oil	3874	4796	6894	7990	8733	9065	9303	9455	9471	5.9	2.4	0.6	0.2
Gas	568	796	1201	1337	1632	1775	1867	2008	2130	7.8	3.1	1.4	1.3
Electricity	1020	1277	1744	2094	2435	2647	2847	2956	3039	5.5	3.4	1.6	0.7
Heat (from CHP and District Heating)	0	0	0	0	1	1	1	1	1			3.8	0.4
Renewable energy forms	108	102	141	221	277	440	579	657	707	2.7	7.0	7.6	2.0
Other	0	0	0	0	0	1	3	3	4			18.4	3.7
RES in Gross Final Energy Consumption ^(A)			245	382	665	939	1163	1396	1516		10.5	5.7	2.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	78.6	79.2	80.6	80.5	80.1	2.1	1.2	0.3	-0.1
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	49.9	50.7	52.3	51.7	51.2	3.1	1.7	0.5	-0.2
Power generation/District heating	10.4	12.6	15.2	14.8	16.5	16.2	17.1	16.0	15.4	3.9	0.8	0.4	-1.1
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.6	0.6	0.6	4.0	5.9	0.6	0.1
Industry	4.0	3.9	4.8	5.2	5.7	6.0	6.2	6.4	6.5	1.8	1.8	0.8	0.5
Residential	7.5	6.0	6.1	6.6	6.8	6.8	6.7	6.6	6.4	-2.1	1.2	-0.2	-0.3
Tertiary	2.9	3.4	3.8	3.6	3.6	3.7	3.7	3.8	3.8	2.8	-0.5	0.2	0.5
Transport	5.9	6.9	11.9	14.8	16.6	17.5	18.0	18.4	18.4	7.3	3.4	0.8	0.2
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.2	5.7	6.3	6.8	7.3	2.1	5.6	2.0	1.5
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	22.7	22.1	21.9	21.6	0.6	-0.3	-0.6	-0.2
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	140.0	141.1	143.6	143.3	142.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Ireland: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	87.4	75.8	67.1	59.0	53.4	-3.6	-2.7	-2.6	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.81	2.75	2.72	2.67	2.63	-0.3	-0.5	-0.3	-0.4
Import Dependency %	69.1	69.4	84.5	89.5	89.0	87.9	87.4	86.3	86.4				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.0	15.3	16.6	17.4	17.9		3.5	1.7	0.8
as % of GDP			7.9	7.4	6.9	6.3	5.8	5.3	4.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.8	61.4	55.0	50.6	47.6	-4.0	-3.5	-2.4	-1.4
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	85.6	75.9	67.2	59.9	54.5	-4.7	-1.5	-2.4	-2.1
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	74.2	67.0	59.3	52.9	48.1	-2.4	-2.9	-2.2	-2.1
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.9	55.5	50.8	46.5	43.8	-0.2	-0.8	-1.6	-1.5
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	101.4	94.0	89.9	87.8	84.5	2.8	-1.5	-1.2	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.52	0.47	0.46	0.42	0.40	-1.3	-2.1	-1.1	-1.6
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.39	2.34	2.29	2.26	2.24	-1.0	-0.4	-0.4	-0.2
Industry	2.31	2.09	2.05	2.08	2.10	2.06	2.04	2.01	1.97	-1.2	0.3	-0.3	-0.3
Residential	3.11	2.71	2.42	2.27	2.18	2.10	2.01	1.96	1.93	-2.5	-1.0	-0.8	-0.4
Tertiary	2.34	2.28	2.07	1.83	1.68	1.61	1.55	1.55	1.55	-1.2	-2.1	-0.8	0.0
Transport	2.96	2.96	2.97	2.98	2.92	2.88	2.83	2.81	2.79	0.1	-0.2	-0.3	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	4.7	6.3	7.5	8.8	9.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	4.2	6.2	7.3	8.1				
Gross Electricity generation by source (in GWh)													
			23669	24992	31679	34234	36744	37867	38723		3.0	1.5	0.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10502	12221	14544	14175	13483		1.9	3.3	-0.8
Oil (including refinery gas)			4516	3390	4272	1042	55	0	0		-0.6	-35.3	
Gas (including derived gases)			9231	11197	12763	15626	15904	15879	16686		3.3	2.2	0.5
Biomass-waste			96	125	343	381	466	597	941		13.6	3.1	7.3
Hydro (pumping excluded)			846	631	865	898	931	959	969		0.2	0.7	0.4
Wind			244	1112	2930	4055	4827	6230	6607		28.2	5.1	3.2
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4627	6052	8278	8157	9003	9882	10291		6.0	0.8	1.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	1815	2139	2707	2852		17.3	2.4	2.9
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	1546	1850	2394	2510		28.5	2.5	3.1
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			4284	5338	6588	6342	6864	7175	7439		4.4	0.4	0.8
of which cogeneration units			108	561	557	607	526	822	910		17.8	-0.6	5.6
Solids fired			1282	1367	1361	1597	1774	2229	2475		0.6	2.7	3.4
Gas fired			1974	2937	4116	4538	4882	4789	4833		7.6	1.7	-0.1
Oil fired			1010	995	1006	92	81	24	7		0.0	-22.3	-21.7
Biomass-waste fired			18	39	105	115	127	134	124		19.2	1.9	-0.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	41.3	45.6	44.4	41.9	41.3				
Efficiency of gross thermal power generation (%)			40.5	42.1	45.9	48.5	49.5	51.7	53.1				
% of gross electricity from CHP			1.1	0.9	5.4	7.2	7.8	6.9	7.9				
Carbon free gross electricity generation (%)			5.0	7.5	13.1	15.6	17.0	20.6	22.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	13.1	15.6	17.0	20.6	22.1				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.6	63.0	71.7	79.3	84.7	5.5	3.8	2.8	1.7
Public road transport	3.9	5.2	6.1	6.7	7.2	7.5	7.9	8.2	8.5	4.7	1.6	1.0	0.7
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.8	36.8	41.9	45.8	47.9	5.3	4.2	2.8	1.4
Rail	1.2	1.3	1.4	1.8	2.3	2.8	3.3	3.9	4.5	1.3	5.3	3.4	3.3
Aviation	3.2	5.1	7.9	9.6	11.9	14.5	17.2	19.8	22.2	9.5	4.2	3.7	2.6
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.9	27.4	30.3	32.6	34.2	8.5	6.0	2.4	1.2
Trucks	5.1	5.5	12.3	17.9	22.9	26.3	29.0	31.2	32.7	9.2	6.4	2.4	1.2
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4	-1.8	-3.7	1.5	1.0
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.1	9.3	1.9	2.8	2.2
Energy demand in transport (ktoe)	1985	2343	4005	4981	5696	6070	6371	6550	6610	7.3	3.6	1.1	0.4
Public road transport	58	76	99	101	97	92	90	91	95	5.5	-0.3	-0.7	0.6
Private cars and motorcycles	993	1146	1695	1915	2113	2185	2223	2156	2101	5.5	2.2	0.5	-0.6
Trucks	495	653	1532	2066	2398	2546	2691	2831	2874	12.0	4.6	1.2	0.7
Rail	48	50	42	44	50	50	38	38	27	-1.4	1.8	-2.5	-3.4
Aviation	365	390	613	836	1019	1175	1305	1409	1487	5.3	5.2	2.5	1.3
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.9

Source: PRIMES

Italy: Baseline scenario				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	25537	29408	27099	28044	31023	32047	31838	33150	34360	0.6	1.4	0.3	0.8	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	6124	6347	6000	5800	5500	0.1	2.5	-0.2	-0.9	
Natural gas	14030	16347	13622	9886	11023	10000	8000	8000	8000	-0.3	-2.1	-3.2	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	13875	15700	17838	19350	20860	2.9	4.8	2.5	1.6	
Hydro	2719	3249	3812	3101	3243	3146	3100	3069	3068	3.4	-1.6	-0.5	-0.1	
Biomass & Waste	849	1215	1716	3505	5158	6215	7604	8631	9642	7.3	11.6	4.0	2.4	
Wind	0	1	48	202	464	858	1199	1279	1180	73.3	25.4	10.0	-0.2	
Solar and others	5	8	12	23	89	546	945	1176	1321	9.2	21.9	26.7	3.4	
Geothermal	2971	3167	3103	4791	4920	4935	4990	5195	5648	0.4	4.7	0.1	1.2	
Net Imports	132060	134651	152953	160475	170615	182117	193013	197772	200928	1.5	1.1	1.2	0.4	
Solids	13792	12987	13188	16366	16943	19809	20743	20839	21158	-0.4	2.5	2.0	0.2	
Oil	89885	89684	88458	79421	81211	84360	86192	86599	86312	-0.2	-0.9	0.6	0.0	
- Crude oil and Feedstocks	84284	82558	90244	94404	93612	97038	98990	99407	99404	0.7	0.4	0.6	0.0	
- Oil products	5602	7126	-1786	-14983	-12401	-12678	-12799	-12808	-13092					
Natural gas	25311	28530	47008	59840	67755	72897	80874	85065	88024	6.4	3.7	1.8	0.9	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	198099	210520	221171	227218	231584	1.2	1.4	1.1	0.5	
Solids	14621	12272	12659	16477	16943	19809	20743	20839	21158	-1.4	3.0	2.0	0.2	
Oil	89860	93248	88947	83169	83796	87062	88512	88695	88108	-0.1	-0.6	0.5	0.0	
Natural gas	39001	44652	57940	70651	78779	82897	88874	93065	96024	4.0	3.1	1.2	0.8	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	14789	16801	19185	20879	22568	3.3	4.9	2.6	1.6	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.6	9.4	9.4	9.2	9.1					
Oil	58.7	57.8	51.6	44.5	42.3	41.4	40.0	39.0	38.0					
Natural gas	25.5	27.7	33.6	37.8	39.8	39.4	40.2	41.0	41.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	7.5	8.0	8.7	9.2	9.7					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	341751	393400	437758	471938	496200	2.4	2.4	2.5	1.3	
Self consumption and grid losses	30076	32312	36552	38396	36471	42574	47192	51045	53186	2.0	0.0	2.6	1.2	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	54165	60146	65445	68495	70760	1.7	1.3	1.9	0.8	
Solids	7017	5287	5836	10001	10423	12981	13679	13757	14313	-1.8	6.0	2.8	0.5	
Oil (including refinery gas)	21528	25009	18955	9642	6984	6876	6219	5492	5078	-1.3	-9.5	-1.2	-2.0	
Gas (including derived gases)	8971	10234	19665	26402	29793	32834	37592	40555	41461	8.2	4.2	2.4	1.0	
Biomass & Waste	39	94	419	2270	2252	2692	3116	3626	4368	26.8	18.3	3.3	3.4	
Geothermal heat	2770	2954	2890	4578	4713	4763	4840	5065	5540	0.4	5.0	0.3	1.4	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	108604	113079	116117	116855	116812	0.3	0.6	0.7	0.1	
Refineries	91545	92283	96749	102214	101858	105554	107180	107311	106932	0.6	0.5	0.5	0.0	
Biofuels and hydrogen production	0	0	0	162	1868	2647	3913	4665	5276			7.7	3.0	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	4879	4878	5024	4880	4604	-2.8	-1.7	0.3	-0.9	
Energy Branch Consumption	7045	7362	7289	8620	8089	8453	8672	8743	8682	0.3	1.0	0.7	0.0	
Non-Energy Uses	9896	13633	10838	11007	11333	11915	12386	12478	12465	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	145970	155074	162631	167950	171973	1.4	1.7	1.1	0.6	
by sector														
Industry	36221	36430	39489	40729	43241	44901	46745	48588	50260	0.9	0.9	0.8	0.7	
- energy intensive industries	25218	24737	24840	25798	27150	28059	29096	29881	30547	-0.2	0.9	0.7	0.5	
- other industrial sectors	11002	11692	14648	14931	16091	16842	17649	18707	19713	2.9	0.9	0.9	1.1	
Residential	26284	26673	28331	31849	35433	37348	38790	39405	39798	0.8	2.3	0.9	0.3	
Tertiary	11252	12970	14171	17898	20633	22932	24447	25333	25842	2.3	3.8	1.7	0.6	
Transport	33404	37636	41263	43604	46662	49892	52649	54625	56072	2.1	1.2	1.2	0.6	
by fuel														
Solids	4209	4012	3681	4220	4437	4697	4930	4998	4871	-1.3	1.9	1.1	-0.1	
Oil	53623	53099	56147	58196	61131	63932	65630	66591	66584	0.5	0.9	0.7	0.1	
Gas	29813	34652	37984	43747	47209	48133	49132	50197	52071	2.5	2.2	0.4	0.6	
Electricity	18408	20442	23435	25828	29409	33461	36767	39251	41140	2.4	2.3	2.3	1.1	
Heat (from CHP and District Heating)	0	0	0	0	15	22	25	25	27			5.3	0.7	
Renewable energy forms	1107	1505	2007	2089	3765	4823	6137	6869	7261	6.1	6.5	5.0	1.7	
Other	0	0	0	0	3	5	10	18	20			13.7	6.7	
RES in Gross Final Energy Consumption ^(A)			6472	7301	9399	11757	13626	14883	15869		3.8	3.8	1.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	596.3	624.4	644.7	654.9	661.3	0.7	0.9	0.8	0.3	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	469.1	498.1	518.5	528.8	535.2	0.9	1.1	1.0	0.3	
Power generation/District heating	118.9	126.1	130.7	133.8	135.1	151.9	163.6	168.5	171.3	1.0	0.3	1.9	0.5	
Energy Branch	16.6	17.0	16.6	20.2	18.7	19.2	19.5	19.4	19.1	0.1	1.2	0.4	-0.2	
Industry	79.6	75.4	77.5	81.6	86.0	87.0	89.3	91.1	92.6	-0.3	1.0	0.4	0.4	
Residential	55.6	52.8	54.7	61.3	68.0	70.2	71.4	71.5	71.8	-0.2	2.2	0.5	0.0	
Tertiary	19.1	21.2	22.0	27.2	29.4	30.1	29.8	29.3	28.9	1.4	2.9	0.1	-0.3	
Transport	97.1	108.9	119.7	126.8	131.9	139.7	144.9	149.0	151.6	2.1	1.0	0.9	0.5	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	38.5	39.5	40.4	41.2	-1.6	2.2	0.5	0.4	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	87.8	86.6	85.8	84.8	0.8	-0.2	-0.3	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	117.6	123.1	127.1	129.1	130.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Italy: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	128.5	123.5	118.6	112.3	106.8	-0.4	0.2	-0.8	-1.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.37	2.37	2.34	2.33	2.31	-0.3	-0.3	-0.1	-0.1	
Import Dependency %	84.8	82.3	87.3	84.4	84.6	85.0	85.8	85.6	85.4					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	166.5	189.3	210.4	224.5	234.5		2.0	2.4	1.1	
as % of GDP			9.9	10.3	10.8	11.1	11.3	11.1	10.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.4	100.5	94.9	89.8	85.9	-0.3	0.7	-1.2	-1.0	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	112.7	108.2	103.3	97.2	92.0	-0.9	1.2	-0.9	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	127.3	127.8	124.3	118.7	112.9	0.4	2.4	-0.2	-1.0	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	31.0	31.7	32.3	32.3	32.3	-0.5	0.0	0.4	0.0	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	55.1	56.2	56.7	57.3	57.5	-1.1	1.5	0.3	0.2	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.39	0.39	0.37	0.36	0.34	-1.4	-2.0	-0.6	-0.8	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.16	2.11	2.06	2.03	2.01	-0.5	-0.3	-0.5	-0.3	
Industry	2.20	2.07	1.96	2.00	1.99	1.94	1.91	1.88	1.84	-1.1	0.1	-0.4	-0.4	
Residential	2.11	1.98	1.93	1.93	1.92	1.88	1.84	1.82	1.80	-0.9	-0.1	-0.4	-0.2	
Tertiary	1.70	1.63	1.55	1.52	1.42	1.31	1.22	1.16	1.12	-0.9	-0.9	-1.5	-0.9	
Transport	2.91	2.89	2.90	2.91	2.83	2.80	2.75	2.73	2.70	0.0	-0.3	-0.3	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	6.3	7.4	8.2	8.6	9.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	3.8	5.2	7.3	8.4	9.4					
Gross Electricity generation by source (in GWh)														
			270016	296786	341751	393400	437758	471938	496200		2.4	2.5	1.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	49967	66064	69653	75503	78735		6.9	3.4	1.2	
Oil (including refinery gas)			82354	43300	34851	33924	30110	28598	29817		-8.2	-1.5	-0.1	
Gas (including derived gases)			109707	154992	196159	226074	264644	289883	305919		6.0	3.0	1.5	
Biomass-waste			2685	7485	9904	12641	14614	17843	21852		13.9	4.0	4.1	
Hydro (pumping excluded)			44328	36061	37714	36583	36048	35682	35678		-1.6	-0.5	-0.1	
Wind			563	2344	5398	9980	13943	14872	13726		25.4	10.0	-0.2	
Solar			18	31	84	378	808	1250	1913		16.6	25.5	9.0	
Geothermal and other renewables			4682	7417	7674	7756	7939	8306	8560		5.1	0.3	0.8	
Net Generation Capacity in MW_e			69851	76966	100395	98495	103754	109871	118462		3.7	0.3	1.3	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17234	20002	22334	23249	23146		1.7	2.6	0.4	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3005	5520	7469	7974	7210		21.5	9.5	-0.4	
Solar			26	38	93	344	697	1106	1721		13.6	22.3	9.5	
Other renewables (tidal etc.)			0	0	0	0	30	31	76				9.8	
<u>Thermal power</u>			55264	61156	83161	78493	81420	86621	95316		4.2	-0.2	1.6	
of which cogeneration units			9682	10847	11369	14913	17384	18439	18753		1.6	4.3	0.8	
Solids fired			9621	9715	11851	9931	9894	9156	9817		2.1	-1.8	-0.1	
Gas fired			27466	33995	53620	56913	61790	67879	74929		6.9	1.4	1.9	
Oil fired			16795	15253	15327	7890	5852	5617	5932		-0.9	-9.2	0.1	
Biomass-waste fired			597	1223	1392	2789	2913	2998	3533		8.8	7.7	1.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	971	971	971	971	1105		2.1	0.0	1.3	
Avg. Load factor of net power capacity (%)			41.7	41.7	37.5	43.9	46.5	47.4	46.3					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.4	49.5	50.8	52.7	54.1					
% of gross electricity from CHP			11.6	8.1	16.3	20.8	23.4	23.7	23.2					
Carbon free gross electricity generation (%)			19.4	18.0	17.8	17.1	16.8	16.5	16.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	17.8	17.1	16.8	16.5	16.5					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	1003.3	1038.5	1078.3	1115.2	1146.2	3.0	0.3	0.7	0.6	
Public road transport	84.0	87.1	93.6	101.3	105.5	108.3	110.4	111.6	111.8	1.1	1.2	0.5	0.1	
Private cars and motorcycles	561.6	660.7	779.1	777.9	788.8	808.8	832.8	855.4	874.5	3.3	0.1	0.5	0.5	
Rail	48.9	49.1	52.7	52.3	51.0	52.0	54.9	59.1	63.3	0.8	-0.3	0.7	1.4	
Aviation	21.3	27.9	38.2	43.1	52.1	63.4	74.2	83.0	90.4	6.0	3.2	3.6	2.0	
Inland navigation	6.4	6.1	5.9	5.8	5.9	5.9	6.0	6.2	6.3	-0.8	0.0	0.2	0.4	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	282.3	302.0	314.6	324.7	331.0	2.5	1.7	1.1	0.5	
Trucks	130.9	174.4	184.7	211.8	233.8	251.6	261.5	269.1	273.0	3.5	2.4	1.1	0.4	
Rail	19.4	21.7	22.8	20.1	20.6	22.3	23.9	25.7	27.4	1.7	-1.0	1.5	1.4	
Inland navigation	35.8	35.4	30.2	28.1	27.9	28.2	29.2	30.0	30.6	-1.7	-0.8	0.4	0.5	
Energy demand in transport (ktoe)	33404	37636	41263	43604	46662	49892	52649	54625	56072	2.1	1.2	1.2	0.6	
Public road transport	684	599	656	701	746	776	796	800	778	-0.4	1.3	0.7	-0.2	
Private cars and motorcycles	20584	23615	25521	24557	25363	26355	27530	28042	28542	2.2	-0.1	0.8	0.4	
Trucks	9137	9737	10559	13327	14841	16225	17060	17871	18321	1.5	3.5	1.4	0.7	
Rail	738	819	834	907	906	920	898	882	868	1.2	0.8	-0.1	-0.3	
Aviation	1872	2418	3491	3863	4559	5368	6112	6772	7305	6.4	2.7	3.0	1.8	
Inland navigation	389	448	202	248	247	248	252	256	258	-6.3	2.0	0.2	0.2	

Source: PRIMES

Latvia: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	1245	1639	1576	2304	2563	2859	3138	3188	3375	2.4	5.0	2.0	0.7	
Solids	182	234	49	6	4	4	4	3	3	-12.3	-22.6	-0.6	-1.8	
Oil	1	0	0	7	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1062	1405	1527	2291	2560	2855	3134	3184	3372	3.7	5.3	2.0	0.7	
Hydro	387	253	242	286	261	244	261	262	260	-4.6	0.7	0.0	-0.1	
Biomass & Waste	675	1153	1284	2001	2268	2539	2777	2803	2983	6.6	5.9	2.0	0.7	
Wind	0	0	0	4	30	70	92	114	122		56.4	11.8	2.8	
Solar and others	0	0	0	0	0	2	4	5	7			23.4	7.2	
Geothermal	0	0	0	0	0	0	0	0	0			2.5	0.2	
Net Imports	7440	3358	2253	2783	3252	3878	4277	4783	4961	-11.3	3.7	2.8	1.5	
Solids	627	170	62	76	79	72	83	85	88	-20.7	2.4	0.5	0.6	
Oil	3944	2086	1096	1662	2057	2443	2657	2945	3031	-12.0	6.5	2.6	1.3	
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.4	3.1	1.0	
- Oil products	3942	2084	1003	1658	2055	2441	2655	2943	3029	-12.8	7.4	2.6	1.3	
Natural gas	2561	999	1113	1434	1594	1909	2109	2248	2387	-8.0	3.7	2.8	1.2	
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Gross Inland Consumption	8059	4854	4007	4720	5490	6344	6965	7470	7800	-6.7	3.2	2.4	1.1	
Solids	867	456	252	83	82	76	86	88	91	-11.6	-10.6	0.5	0.5	
Oil	3458	1885	1155	1376	1732	2051	2207	2445	2495	-10.4	4.1	2.5	1.2	
Natural gas	2380	1010	1092	1358	1594	1909	2109	2248	2387	-7.5	3.9	2.8	1.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Renewable energy forms	1045	1309	1354	1718	1910	2127	2339	2381	2517	2.6	3.5	2.0	0.7	
as % in Gross Inland Consumption														
Solids	10.8	9.4	6.3	1.8	1.5	1.2	1.2	1.2	1.2					
Oil	42.9	38.8	28.8	29.2	31.5	32.3	31.7	32.7	32.0					
Natural gas	29.5	20.8	27.3	28.8	29.0	30.1	30.3	30.1	30.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	13.0	27.0	33.8	36.4	34.8	33.5	33.6	31.9	32.3					
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6706	8235	9232	9826	11009	-4.6	5.0	3.2	1.8	
Self consumption and grid losses	1248	732	720	783	513	637	740	816	912	-5.4	-3.3	3.7	2.1	
Fuel Inputs to Thermal Power Generation	926	722	607	591	643	877	981	1011	1180	-4.1	0.6	4.3	1.9	
Solids	59	194	142	0	0	0	0	0	0	9.2				
Oil (including refinery gas)	177	242	77	13	44	42	41	0	0	-8.0	-5.5	-0.5		
Gas (including derived gases)	690	286	388	541	573	745	857	905	1023	-5.6	4.0	4.1	1.8	
Biomass & Waste	0	0	0	37	27	90	83	107	157			12.1	6.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2601	941	645	591	719	767	824	884	903	-13.0	1.1	1.4	0.9	
Refineries	1	1	1	1	1	2	2	2	2	0.0	2.2	3.1	1.0	
Biofuels and hydrogen production	0	0	0	3	49	77	126	162	190			9.9	4.2	
District heating	2573	930	643	587	668	688	696	720	711	-12.9	0.4	0.4	0.2	
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3				
Energy Branch Consumption	130	149	151	102	112	130	140	149	155	1.5	-2.9	2.3	1.0	
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1	
Final Energy Demand	6445	3880	3332	4046	4854	5589	6151	6640	6910	-6.4	3.8	2.4	1.2	
by sector														
Industry	1972	701	614	827	1088	1350	1563	1783	1932	-11.0	5.9	3.7	2.1	
- energy intensive industries	707	305	219	282	448	533	568	599	617	-11.1	7.4	2.4	0.8	
- other industrial sectors	1265	396	396	545	640	817	995	1184	1315	-11.0	4.9	4.5	2.8	
Residential	1632	1663	1368	1476	1586	1676	1751	1823	1845	-1.7	1.5	1.0	0.5	
Tertiary	1747	804	606	744	892	1012	1075	1125	1150	-10.0	3.9	1.9	0.7	
Transport	1094	712	744	999	1287	1551	1761	1908	1983	-3.8	5.6	3.2	1.2	
by fuel														
Solids	330	126	58	73	78	71	74	80	83	-16.0	3.0	-0.5	1.1	
Oil	2047	1119	1003	1220	1521	1768	1927	2238	2282	-6.9	4.2	2.4	1.7	
Gas	672	366	329	508	596	729	807	1036	1062	-6.9	6.1	3.1	2.8	
Electricity	768	470	443	537	702	832	952	1080	1175	-5.3	4.7	3.1	2.1	
Heat (from CHP and District Heating)	2013	905	590	598	628	693	735	775	799	-11.5	0.6	1.6	0.8	
Renewable energy forms	616	894	909	1111	1329	1497	1655	1429	1508	4.0	3.9	2.2	-0.9	
Other	0	0	0	0	0	0	1	1	1			18.3	5.0	
RES in Gross Final Energy Consumption ^(A)			1305	1787	1833	2028	2229	2209	2334		3.5	2.0	0.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	13.8	16.1	17.7	18.1	18.2	-9.3	3.0	2.5	0.3	
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.9	10.6	11.5	12.6	13.0	-9.7	2.6	2.6	1.2	
Power generation/District heating	10.0	4.5	2.8	2.1	2.5	3.1	3.3	2.8	3.0	-12.0	-1.2	3.0	-0.8	
Energy Branch	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	5.0	-0.4	2.0	1.1	
Industry	2.5	1.3	0.9	1.0	1.4	1.6	1.7	2.8	2.8	-9.7	4.1	2.0	5.4	
Residential	1.2	0.5	0.3	0.5	0.6	0.7	0.8	0.9	1.0	-13.7	7.7	2.5	2.5	
Tertiary	2.1	0.8	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-12.8	1.4	0.4	-0.3	
Transport	3.2	2.1	2.2	2.9	3.7	4.4	4.9	5.2	5.3	-3.7	5.4	2.9	0.8	
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	1.0	1.2	1.4	1.5	-8.5	11.4	5.5	2.5	
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	4.5	5.0	4.1	3.6	-8.3	3.0	1.9	-3.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	50.9	59.3	65.4	66.7	67.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Latvia: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4	
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1	
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	290.8	249.7	218.9	195.3	179.9	-3.4	-4.5	-2.8	-1.9	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.63	1.67	1.65	1.68	1.67	-3.1	-0.6	0.2	0.1	
Import Dependency %	87.3	67.1	56.1	55.9	55.9	57.6	57.7	60.0	59.5					
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.3	4.1	4.8	5.4	5.8		6.2	4.0	1.9	
as % of GDP			20.5	18.8	17.2	16.0	15.1	14.1	13.4					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	81.0	72.9	66.5	62.6	59.8	-3.7	-2.1	-2.0	-1.0	
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	52.4	41.5	34.8	30.3	27.2	1.7	-6.3	-4.0	-2.4	
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	67.7	56.9	48.2	41.8	37.5	-10.7	-3.8	-3.3	-2.5	
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.4	32.3	30.8	29.1	27.8	1.4	-0.5	-0.8	-1.0	
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.6	18.4	18.9	18.9	18.8	-2.5	0.2	0.7	0.0	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.16	0.17	0.17	0.14	0.14	-3.0	-3.0	0.9	-1.8	
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.29	1.30	1.29	1.43	1.40	-1.8	0.9	0.0	0.8	
Industry	1.28	1.88	1.48	1.26	1.25	1.16	1.06	1.57	1.46	1.5	-1.7	-1.6	3.2	
Residential	0.75	0.31	0.21	0.33	0.37	0.40	0.43	0.48	0.53	-12.1	6.1	1.5	2.0	
Tertiary	1.21	1.02	0.89	0.85	0.69	0.64	0.60	0.57	0.54	-3.0	-2.5	-1.4	-1.0	
Transport	2.90	2.89	2.92	2.94	2.85	2.83	2.77	2.71	2.66	0.1	-0.2	-0.3	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	36.6	35.2	35.3	32.5	33.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.5	4.5	6.6	7.9	9.0					
Gross Electricity generation by source (in GWh)														
			4135	4904	6706	8235	9232	9826	11009		5.0	3.2	1.8	
Nuclear energy			0	0	0	0	0	0	0					
Solids			91	0	0	0	0	0	0					
Oil (including refinery gas)			117	0	164	161	159	0	0		3.4	-0.3		
Gas (including derived gases)			1104	1490	3046	3982	4543	4936	5792		10.7	4.1	2.5	
Biomass-waste			0	43	110	439	414	514	770			14.2	6.4	
Hydro (pumping excluded)			2818	3324	3034	2840	3039	3042	3022		0.7	0.0	-0.1	
Wind			4	47	351	812	1074	1329	1418		56.4	11.8	2.8	
Solar			0	0	0	2	3	5	7			21.7	7.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2062	2144	2763	3052	3090	3028	3221		3.0	1.1	0.4	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1519	1578	1730	1971	2089	2205	2253		1.3	1.9	0.8	
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0	
Wind			2	24	171	404	516	625	665		56.0	11.7	2.6	
Solar			0	0	1	4	7	11	14			21.4	7.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			543	565	1033	1082	1001	822	968		6.6	-0.3	-0.3	
of which cogeneration units			542	564	602	564	758	729	743		1.1	2.3	-0.2	
Solids fired			29	2	2	2	2	0	0		-23.3	1.1		
Gas fired			414	502	949	957	875	740	853		8.7	-0.8	-0.3	
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0	
Biomass-waste fired			2	16	22	62	62	67	100		24.9	11.1	4.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			20.4	23.5	27.2	30.2	33.4	36.4	38.3					
Efficiency of gross thermal power generation (%)			18.6	22.3	44.4	44.9	44.8	46.4	47.8					
% of gross electricity from CHP			24.0	11.8	46.5	42.3	37.8	44.1	41.0					
Carbon free gross electricity generation (%)			68.3	69.6	52.1	49.7	49.1	49.8	47.4					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			68.3	69.6	52.1	49.7	49.1	49.8	47.4					
Transport sector														
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.7	22.9	25.5	27.9	29.4	-3.6	4.8	2.6	1.4	
Public road transport	5.9	1.8	2.3	2.8	3.0	3.1	3.2	3.2	3.2	-8.7	2.6	0.5	0.1	
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.8	17.6	19.9	21.9	23.2	4.2	5.5	3.0	1.6	
Rail	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.2	-15.5	3.1	2.7	1.5	
Aviation	0.1	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	2.3	6.3	4.9	2.5	
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4				
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.8	44.2	51.7	58.0	62.0	-3.1	7.1	3.7	1.8	
Trucks	5.9	1.8	4.8	8.4	12.3	16.8	21.0	25.2	28.4	-2.0	9.9	5.5	3.1	
Rail	18.5	9.8	13.3	17.9	23.5	27.5	30.6	32.8	33.5	-3.3	5.9	2.7	0.9	
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1094	712	744	999	1287	1551	1761	1908	1983	-3.8	5.6	3.2	1.2	
Public road transport	111	41	23	25	26	25	25	24	24	-14.6	1.2	-0.3	-0.6	
Private cars and motorcycles	317	284	373	451	547	614	654	676	679	1.7	3.9	1.8	0.4	
Trucks	370	240	241	371	517	683	844	993	1107	-4.2	7.9	5.0	2.8	
Rail	188	90	75	93	119	134	135	107	64	-8.7	4.6	1.3	-7.2	
Aviation	73	26	27	59	78	95	103	109	110	-9.6	11.4	2.8	0.6	
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7				

Source: PRIMES

Lithuania: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1113	1311	4325	4594	5082	-3.9	-10.1	14.5	1.6	
Solids	42	43	35	39	9	7	5	4	4	-1.7	-12.3	-5.4	-3.4	
Oil	12	130	347	239	238	263	279	281	284	40.0	-3.7	1.6	0.2	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Renewable energy sources	321	501	656	777	865	1040	1240	1464	1902	7.4	2.8	3.7	4.4	
Hydro	36	32	29	39	33	36	36	36	37	-2.0	1.3	0.7	0.4	
Biomass & Waste	285	469	627	735	819	980	1175	1395	1813	8.2	2.7	3.7	4.4	
Wind	0	0	0	0	11	24	27	29	47			8.9	5.9	
Solar and others	0	0	0	0	0	1	2	4	5			17.7	7.1	
Geothermal	0	0	0	3	0	0	0	0	0			2.1	1.0	
Net Imports	11666	5643	4327	5096	6882	7808	6819	7262	7463	-9.4	4.8	-0.1	0.9	
Solids	758	157	84	190	345	339	308	310	318	-19.8	15.2	-1.1	0.3	
Oil	7260	3686	2299	2677	2872	3147	3332	3348	3381	-10.9	2.2	1.5	0.1	
- Crude oil and Feedstocks	9531	3609	4827	9054	10061	11058	11719	11797	11918	-6.6	7.6	1.5	0.2	
- Oil products	-2271	77	-2528	-6377	-7189	-7911	-8387	-8449	-8537					
Natural gas	4678	2029	2065	2492	3663	4418	3628	4053	4231	-7.9	5.9	-0.1	1.6	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7826	8929	10939	11643	12332	-7.9	1.0	3.4	1.2	
Solids	831	285	121	215	355	346	313	314	321	-17.5	11.4	-1.2	0.3	
Oil	6878	3080	2190	2746	2941	3220	3407	3417	3452	-10.8	3.0	1.5	0.1	
Natural gas	4678	2029	2064	2476	3663	4418	3628	4053	4231	-7.9	5.9	-0.1	1.6	
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	843	1015	1210	1427	1855	7.3	2.7	3.7	4.4	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	4.5	3.9	2.9	2.7	2.6					
Oil	42.8	35.4	30.9	31.9	37.6	36.1	31.1	29.3	28.0					
Natural gas	29.1	23.3	29.1	28.8	46.8	49.5	33.2	34.8	34.3					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	25.6	24.4	23.4					
Renewable energy forms	2.0	5.7	9.2	8.8	10.8	11.4	11.1	12.3	15.0					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	12023	15128	21673	23388	25257	-9.0	0.8	6.1	1.5	
Self consumption and grid losses	3486	2241	1906	1788	936	1154	1723	1911	2104	-5.9	-6.9	6.3	2.0	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2417	2969	1814	2091	2334	-10.0	10.2	-2.8	2.6	
Solids	0	0	0	0	168	168	138	138	143			-2.0	0.4	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.2			
Gas (including derived gases)	1543	433	716	1044	2215	2763	1635	1875	2025	-7.4	12.0	-3.0	2.2	
Biomass & Waste	0	0	0	5	32	37	41	78	165			2.5	14.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10661	11694	12694	12708	12769	-6.6	6.4	1.8	0.1	
Refineries	9561	3392	5086	9418	10232	11283	11978	12068	12197	-6.1	7.2	1.6	0.2	
Biofuels and hydrogen production	0	0	0	3	13	49	128	154	169			25.3	2.9	
District heating	1823	1079	657	522	412	360	586	484	401	-9.7	-4.6	3.6	-3.7	
Derived gases, cokeries etc.	24	18	12	8	4	3	2	2	2	-7.0	-10.3	-7.4	-1.3	
Energy Branch Consumption	991	601	655	915	781	879	973	1022	1065	-4.1	1.8	2.2	0.9	
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0	
Final Energy Demand	9696	4728	3820	4527	5149	5805	6297	6756	7215	-8.9	3.0	2.0	1.4	
by sector														
Industry	3334	1025	782	996	1132	1338	1508	1700	1917	-13.5	3.8	2.9	2.4	
- energy intensive industries	1678	482	362	436	532	627	703	785	879	-14.2	3.9	2.8	2.3	
- other industrial sectors	1656	543	420	560	600	711	805	916	1037	-12.8	3.6	3.0	2.6	
Residential	1854	1733	1402	1437	1524	1675	1820	1966	2120	-2.8	0.8	1.8	1.5	
Tertiary	2518	933	589	697	794	872	947	1007	1059	-13.5	3.0	1.8	1.1	
Transport	1990	1037	1048	1397	1698	1920	2022	2084	2119	-6.2	4.9	1.8	0.5	
by fuel														
Solids	760	241	96	197	173	167	166	169	172	-18.7	6.1	-0.4	0.3	
Oil	4055	1666	1348	1599	1996	2175	2244	2300	2346	-10.4	4.0	1.2	0.4	
Gas	1483	510	363	503	535	592	687	619	630	-13.1	4.0	2.5	-0.9	
Electricity	1048	670	606	749	904	1051	1191	1323	1459	-5.3	4.1	2.8	2.0	
Heat (from CHP and District Heating)	2078	1193	828	905	971	1032	1066	1090	1116	-8.8	1.6	0.9	0.5	
Renewable energy forms	272	448	579	574	570	788	942	1255	1492	7.9	-0.2	5.2	4.7	
Other	0	0	0	0	0	0	1	1	1			16.2	2.1	
RES in Gross Final Energy Consumption ^(A)			671	726	815	988	1166	1387	1723		2.0	3.6	4.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	22.5	24.7	23.5	22.4	21.5	-9.1	2.7	0.4	-0.9	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	16.1	18.2	16.4	17.1	17.3	-10.8	4.5	0.2	0.5	
Power generation/District heating	12.0	5.6	3.9	4.0	6.4	7.7	5.4	6.1	6.2	-10.5	4.9	-1.6	1.4	
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	2.1	2.1	2.0	-3.3	4.3	1.5	-0.6	
Industry	6.1	1.7	1.1	1.3	1.7	1.7	1.9	1.7	1.7	-15.9	4.6	1.3	-1.2	
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.6	2.5	2.9	
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	1.7	-0.2	0.1	
Transport	5.8	3.0	3.1	4.1	4.9	5.5	5.6	5.7	5.8	-6.2	4.9	1.3	0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.5	7.1	5.3	4.2	-5.7	-0.6	0.8	-5.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	50.2	54.9	52.3	49.9	48.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Lithuania: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	278.6	247.8	244.9	213.9	190.8	-5.1	-5.7	-1.3	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	2.05	2.04	1.50	1.47	1.40	-3.2	3.4	-3.1	-0.7
Import Dependency %	72.2	63.8	60.3	58.3	86.1	85.6	61.2	61.2	59.5				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.4	5.5	6.5	7.4	8.1		5.1	3.8	2.2
as % of GDP			19.0	15.2	15.8	15.3	14.5	13.5	12.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.7	56.9	51.0	47.3	44.9	-9.4	-4.4	-2.2	-1.3
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.4	47.2	41.9	37.5	34.4	0.0	-5.9	-2.6	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	76.0	66.0	57.9	50.2	44.4	-13.8	-2.7	-2.7	-2.6
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.3	25.3	24.7	24.5	0.4	-2.6	-0.6	-0.3
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.4	16.8	16.1	15.9	-7.6	-2.1	-0.4	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.24	0.26	0.15	0.16	0.15	-2.7	4.2	-4.9	0.5
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.52	1.46	1.41	1.32	1.26	-3.5	1.1	-0.7	-1.1
Industry	1.83	1.70	1.38	1.35	1.49	1.26	1.27	1.01	0.88	-2.8	0.8	-1.6	-3.6
Residential	1.26	0.47	0.41	0.46	0.40	0.40	0.42	0.45	0.48	-10.8	-0.2	0.7	1.4
Tertiary	1.80	1.66	0.85	0.83	0.75	0.67	0.61	0.58	0.56	-7.2	-1.3	-1.9	-1.0
Transport	2.93	2.91	2.93	2.92	2.91	2.88	2.78	2.74	2.72	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	15.1	16.3	17.7	19.7	23.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.8	2.6	6.5	7.7	8.4				
Gross Electricity generation by source (in GWh)													
			11118	14410	12023	15128	21673	23388	25257		0.8	6.1	1.5
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3
Solids			0	0	886	886	741	743	768			-1.8	0.4
Oil (including refinery gas)			603	379	4	1	0	0	0		-40.0	-37.8	
Gas (including derived gases)			1759	3226	10465	13373	7614	8911	9886		19.5	-3.1	2.6
Biomass-waste			0	19	148	173	193	376	814			2.7	15.5
Hydro (pumping excluded)			339	451	387	414	415	423	431		1.3	0.7	0.4
Wind			0	0	132	282	311	333	550			8.9	5.9
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3634	3742	5311	4732	4304		-2.8	3.9	-2.1
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0
<u>Renewable energy</u>			98	115	214	325	373	402	494		8.2	5.7	2.9
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	98	204	225	241	326			8.7	3.8
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3419	3418	3422	2815	2295		3.4	0.0	-3.9
of which cogeneration units			2442	2498	2514	2219	2477	2175	1980		0.3	-0.2	-2.2
Solids fired			0	0	103	103	103	103	103			0.0	0.0
Gas fired			1838	1877	2690	2702	2702	2387	2078		3.9	0.0	-2.6
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	
Biomass-waste fired			0	5	22	25	28	50	114			2.7	14.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	36.5	44.6	44.5	53.9	64.1				
Efficiency of gross thermal power generation (%)			22.3	25.6	40.9	41.8	40.5	41.2	42.3				
% of gross electricity from CHP			18.5	22.7	69.1	66.6	34.7	36.6	38.4				
Carbon free gross electricity generation (%)			78.8	75.0	5.6	5.7	61.5	58.7	57.8				
- nuclear			75.7	71.7	0.0	0.0	57.2	53.9	50.7				
- renewable energy forms			3.0	3.3	5.6	5.7	4.2	4.8	7.1				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.5	45.3	47.4	49.2	-0.8	7.0	1.6	0.8
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.8	5.0	5.0	-10.0	4.6	1.1	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.6	36.8	39.1	40.8	42.2	5.6	7.6	1.5	0.8
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.7
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.9	5.6	5.3	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.5	46.1	52.4	56.6	57.5	-4.6	8.4	3.4	0.9
Trucks	7.3	5.2	7.8	15.9	21.5	26.5	30.3	32.9	33.4	0.6	10.7	3.5	1.0
Rail	19.3	7.2	8.9	12.5	16.0	19.5	22.1	23.7	24.1	-7.4	6.0	3.3	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
1990	1037	1048	1397	1698	1920	2022	2084	2119	-6.2	4.9	1.8	0.5	
Public road transport	164	50	25	30	34	35	35	35	35	-17.1	3.0	0.4	-0.1
Private cars and motorcycles	396	485	630	823	941	1001	1012	1025	1049	4.8	4.1	0.7	0.4
Trucks	1159	374	288	414	558	685	758	800	809	-13.0	6.8	3.1	0.7
Rail	132	86	75	79	100	118	122	116	105	-5.5	2.9	2.0	-1.5
Aviation	135	41	27	46	61	75	89	102	114	-14.9	8.6	3.9	2.5
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6

Source: PRIMES

Luxembourg: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	149	179	222	251	273	1.9	10.1	4.1	2.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	149	179	222	251	273	1.9	10.1	4.1	2.1	
Hydro	6	7	10	8	9	9	9	9	10	5.8	-1.2	0.2	0.2	
Biomass & Waste	41	39	44	59	89	111	139	162	184	0.7	7.3	4.6	2.8	
Wind	0	0	2	5	11	12	18	18	14		16.9	4.8	-2.3	
Solar and others	0	0	0	2	40	47	56	61	66			3.5	1.7	
Geothermal	0	0	0	0	0	0	0	0	0			1.4	0.2	
Net Imports	3520	3257	3620	4606	4961	5281	5411	5479	5506	0.3	3.2	0.9	0.2	
Solids	1134	514	125	82	54	50	47	36	30	-19.8	-8.1	-1.5	-4.4	
Oil	1620	1756	2332	3066	3356	3475	3476	3480	3448	3.7	3.7	0.4	-0.1	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3356	3475	3476	3480	3448	3.7	3.7	0.4	-0.1	
Natural gas	430	557	670	1179	1161	1312	1405	1423	1428	4.6	5.6	1.9	0.2	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	5110	5460	5633	5730	5779	0.2	3.5	1.0	0.3	
Solids	1134	514	125	82	54	50	47	36	30	-19.8	-8.1	-1.5	-4.4	
Oil	1609	1788	2283	3084	3356	3475	3476	3480	3448	3.6	3.9	0.4	-0.1	
Natural gas	430	557	670	1179	1161	1312	1405	1423	1428	4.6	5.6	1.9	0.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	187	280	374	428	474	1.9	12.7	7.2	2.4	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.8	0.6	0.5					
Oil	45.2	53.6	62.9	65.6	65.7	63.6	61.7	60.7	59.7					
Natural gas	12.1	16.7	18.5	25.1	22.7	24.0	24.9	24.8	24.7					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	3.7	5.1	6.6	7.5	8.2					
Gross Electricity Generation in GWh_e	627	498	433	3344	2867	3564	4110	4061	3937	-3.6	20.8	3.7	-0.4	
Self consumption and grid losses	410	497	439	448	202	238	246	256	268	0.7	-7.5	2.0	0.8	
Fuel Inputs to Thermal Power Generation	190	132	75	568	479	588	653	640	628	-8.8	20.3	3.1	-0.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	0	0	0	0	0					
Gas (including derived gases)	162	106	47	525	434	543	608	589	565	-11.6	24.8	3.4	-0.7	
Biomass & Waste	25	24	28	43	45	45	45	51	63	1.0	4.8	0.0	3.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	67	152	232	275	311			13.3	2.9	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	67	152	232	275	311			13.3	2.9	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	7	9	9	9	9	-1.8	-11.8	1.9	-0.3	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4875	5161	5299	5404	5456	0.6	3.2	0.8	0.3	
by sector														
Industry	1729	1196	958	937	985	1071	1127	1188	1245	-5.7	0.3	1.4	1.0	
- energy intensive industries	1525	900	501	470	479	504	507	511	507	-10.5	-0.5	0.6	0.0	
- other industrial sectors	204	296	457	467	506	566	620	678	737	8.4	1.0	2.1	1.7	
Residential	519	563	596	649	696	706	713	721	722	1.4	1.6	0.2	0.1	
Tertiary	74	99	118	130	143	155	165	171	172	4.7	2.0	1.4	0.4	
Transport	1007	1307	1877	2708	3051	3229	3294	3324	3318	6.4	5.0	0.8	0.1	
by fuel														
Solids	756	369	125	82	54	50	47	36	30	-16.5	-8.0	-1.5	-4.4	
Oil	1581	1752	2266	3065	3330	3447	3445	3447	3413	3.7	3.9	0.3	-0.1	
Gas	622	585	623	678	726	769	797	833	861	0.0	1.6	0.9	0.8	
Electricity	355	430	491	529	582	629	663	690	716	3.3	1.7	1.3	0.8	
Heat (from CHP and District Heating)	0	14	27	55	74	81	88	98	106		10.7	1.6	1.9	
Renewable energy forms	15	15	16	16	108	184	258	297	329	0.4	21.0	9.1	2.5	
Other	0	0	0	0	0	1	1	2	3			14.9	7.8	
RES in Gross Final Energy Consumption ^(A)			34	48	167	245	325	370	408		17.2	6.9	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.5	15.2	15.4	15.4	15.3	-2.1	3.4	0.6	-0.1	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	13.0	13.7	13.9	13.9	13.8	-1.8	3.9	0.7	-0.1	
Power generation/District heating	0.7	0.4	0.1	1.2	1.0	1.3	1.4	1.4	1.3	-17.0	24.8	3.4	-0.7	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.7	1.8	-11.5	-1.1	0.9	0.7	
Residential	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.1	-0.1	-0.1	-0.1	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.5	2.3	0.0	
Transport	3.0	3.9	5.6	8.1	9.0	9.4	9.4	9.3	9.3	6.5	4.9	0.4	-0.1	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-7.6	-0.6	0.1	-0.2	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.8	0.8	0.8	2.4	0.6	0.1	0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	112.9	118.6	120.1	120.2	119.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	139.7	124.7	109.9	97.3	87.4	-5.9	-0.3	-2.4	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.54	2.50	2.46	2.42	2.38	-2.0	0.4	-0.3	-0.3
Import Dependency %	99.0	97.7	99.8	98.0	97.1	96.7	96.1	95.6	95.3				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.0	4.5	4.9	5.2	5.4		4.3	2.0	1.0
as % of GDP			10.4	11.4	11.0	10.3	9.6	8.8	8.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	87.2	80.7	73.6	68.2	64.3	-9.0	-1.4	-1.7	-1.3
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	84.6	74.0	65.5	58.7	53.1	-2.2	-1.7	-2.5	-2.1
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	83.5	75.5	68.5	61.9	55.5	-0.5	-1.8	-2.0	-2.1
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	167.3	161.2	152.5	141.9	129.5	1.8	1.1	-0.9	-1.6
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	144.4	141.2	134.7	129.0	124.5	0.0	4.5	-0.7	-0.8
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.27	0.28	0.27	0.26	0.25	-18.4	6.0	0.2	-0.7
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.46	2.40	2.35	2.32	2.28	-1.9	0.0	-0.4	-0.3
Industry	3.28	2.58	1.74	1.63	1.51	1.48	1.45	1.43	1.41	-6.1	-1.4	-0.4	-0.3
Residential	2.45	2.39	2.37	2.21	2.01	1.98	1.95	1.92	1.91	-0.3	-1.7	-0.3	-0.2
Tertiary	0.21	0.34	0.65	0.48	0.46	0.46	0.50	0.50	0.48	12.0	-3.4	0.9	-0.4
Transport	2.95	2.96	2.97	3.00	2.96	2.90	2.84	2.81	2.79	0.1	-0.1	-0.4	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	3.4	4.7	6.1	6.8	7.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.1	4.6	7.0	8.2	9.1				
Gross Electricity generation by source (in GWh)													
			433	3344	2867	3564	4110	4061	3937		20.8	3.7	-0.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	0	0	0	0	0				
Gas (including derived gases)			222	3083	2431	3114	3584	3506	3377		27.0	4.0	-0.6
Biomass-waste			63	97	181	187	187	210	260		11.1	0.4	3.4
Hydro (pumping excluded)			120	93	106	108	109	110	112		-1.2	0.2	0.2
Wind			27	53	129	135	206	209	163		16.9	4.8	-2.3
Solar			0	18	20	21	23	25	26			1.7	1.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	895	964	1084	1134	1092		12.5	1.9	0.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	251	258	289	294	273		4.1	1.4	-0.6
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	71	75	104	107	85		21.6	3.9	-2.0
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	644	707	795	840	820		19.5	2.1	0.3
of which cogeneration units			61	112	242	254	288	275	295		14.7	1.8	0.2
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	552	616	723	765	742		20.3	2.7	0.3
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	85	85	68	71	74		19.1	-2.2	0.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	35.6	41.1	42.2	39.9	40.1				
Efficiency of gross thermal power generation (%)			32.7	48.1	46.9	48.3	49.7	50.0	49.8				
% of gross electricity from CHP			53.7	11.8	33.2	29.6	29.0	32.9	35.1				
Carbon free gross electricity generation (%)			48.5	7.8	15.2	12.6	12.8	13.7	14.2				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	15.2	12.6	12.8	13.7	14.2				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.1	9.7	10.2	10.7	11.1	3.5	2.1	1.1	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.0	2.6	3.7	0.7	0.9
Private cars and motorcycles	4.2	4.9	5.8	6.4	7.0	7.4	7.7	8.0	8.3	3.4	1.9	1.0	0.8
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.8	-2.1	0.6	1.8
Aviation	0.4	0.5	0.7	0.8	1.0	1.2	1.3	1.4	1.4	5.8	3.9	2.8	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.6	11.8	12.9	14.0	15.1	8.0	2.5	2.0	1.6
Trucks	3.2	5.5	7.6	8.8	10.2	11.5	12.6	13.8	14.9	9.0	3.0	2.2	1.6
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.2	0.2	0.3	-5.7	-3.0	-0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	3051	3229	3294	3324	3318	6.4	5.0	0.8	0.1
Public road transport	18	18	24	29	31	31	30	29	28	2.9	2.8	-0.4	-0.6
Private cars and motorcycles	500	609	760	916	984	986	953	908	862	4.3	2.6	-0.3	-1.0
Trucks	345	482	757	1323	1519	1656	1734	1809	1878	8.2	7.2	1.3	0.8
Rail	13	9	15	9	8	7	6	5	5	2.0	-6.1	-3.3	-2.2
Aviation	131	189	320	431	509	549	571	572	545	9.3	4.7	1.2	-0.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Malta: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	0	0	0	0	2	7	16	23	25			23.8	4.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	0	0	0	0	2	7	16	23	25			23.8	4.4	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	0	0	0	0	0	0	0	0	0					
Wind	0	0	0	0	0	0	2	5	5				7.6	
Solar and others	0	0	0	0	2	7	14	18	20			22.1	3.8	
Geothermal	0	0	0	0	0	0	0	0	0			0.7	-1.7	
Net Imports	611	890	818	953	989	910	905	843	859	3.0	1.9	-0.9	-0.5	
Solids	0	0	0	0	0	0	0	0	0					
Oil	611	890	818	953	930	776	703	514	513	3.0	1.3	-2.8	-3.1	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	611	890	818	953	930	776	703	514	513	3.0	1.3	-2.8	-3.1	
Natural gas	0	0	0	0	59	57	106	217	220			6.2	7.6	
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Gross Inland Consumption	581	808	769	953	991	918	921	865	884	2.8	2.6	-0.7	-0.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil	581	808	769	953	930	776	703	514	513	2.8	1.9	-2.8	-3.1	
Natural gas	0	0	0	0	59	57	106	217	220			6.2	7.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Renewable energy forms	0	0	0	0	3	11	27	39	43			26.9	4.6	
as % in Gross Inland Consumption														
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Oil	100.0	100.0	100.0	100.0	93.8	84.6	76.3	59.4	58.1					
Natural gas	0.0	0.0	0.0	0.0	5.9	6.2	11.5	25.1	24.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.0	0.0	0.0	0.0	0.3	1.2	3.0	4.5	4.8					
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	2217	1573	1638	1700	1714	5.7	1.5	-3.0	0.5	
Self consumption and grid losses	190	373	350	438	193	148	149	151	160	6.3	-5.8	-2.6	0.8	
Fuel Inputs to Thermal Power Generation	321	463	494	580	559	373	328	250	251	4.4	1.2	-5.2	-2.6	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	321	463	494	580	500	315	215	22	20	4.4	0.1	-8.1	-21.3	
Gas (including derived gases)	0	0	0	0	58	57	106	217	220			6.2	7.6	
Biomass & Waste	0	0	0	0	0	1	7	11	11				5.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	0	0	0	0	1	3	4	5	6			22.8	4.9	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	0	0	3	4	5	6			23.5	4.9	
District heating	0	0	0	0	0	0	0	0	0			1.5	-3.1	
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	8	19	10	12	9	5	4	3	3	2.5	-0.4	-8.9	-1.8	
Non-Energy Uses	6	0	0	0	0	0	0	0	0					
Final Energy Demand	332	451	408	528	606	667	718	743	760	2.1	4.0	1.7	0.6	
by sector														
Industry	0	42	43	46	50	55	62	68	74		1.4	2.1	1.9	
- energy intensive industries	0	0	0	0	0	0	0	0	0					
- other industrial sectors	0	42	43	46	50	55	62	68	74		1.4	2.1	1.9	
Residential	55	73	76	89	102	114	124	130	134	3.2	3.0	2.0	0.7	
Tertiary	56	32	52	66	76	87	93	98	100	-0.7	3.9	2.0	0.7	
Transport	221	304	237	328	378	410	439	447	452	0.7	4.8	1.5	0.3	
by fuel														
Solids	0	0	0	0	0	0	0	0	0					
Oil	254	342	274	373	429	461	488	493	493	0.8	4.6	1.3	0.1	
Gas	0	0	0	0	0	0	0	0	0			3.8	2.7	
Electricity	78	108	135	155	174	196	213	228	241	5.6	2.6	2.0	1.3	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			1.5	-3.0	
Renewable energy forms	0	0	0	0	2	10	17	22	26			22.0	4.0	
Other	0	0	0	0	0	0	0	0	0			14.1	3.1	
RES in Gross Final Energy Consumption ^(A)			0	0	2	10	22	32	35			25.1	4.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.5	3.0	2.9	2.6	2.6	2.9	2.3	-1.9	-1.0	
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	3.0	2.5	2.4	2.0	2.0	3.0	2.4	-2.3	-1.5	
Power generation/District heating	1.0	1.5	1.6	1.9	1.7	1.1	0.9	0.6	0.6	4.4	1.0	-6.0	-4.8	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.8	3.6	0.3	-1.4	
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			4.6	-0.4	
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.3	1.3	1.3	0.7	4.8	1.4	0.3	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	0.3	1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	166.0	143.6	136.8	122.1	123.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Malta: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5	
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8	
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	192.1	150.4	124.3	100.2	90.6	-1.9	1.2	-4.3	-3.1	
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.05	2.75	2.60	2.36	2.32	0.1	-0.2	-1.6	-1.1	
Import Dependency %	100.0	104.5	100.8	100.0	99.8	99.2	98.2	97.4	97.2					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.8	0.9	1.0		6.0	2.1	1.6	
as % of GDP			8.3	12.2	12.9	11.8	11.1	10.5	9.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	88.2	84.2	79.9	76.0	73.0		-1.3	-1.0	-0.9	
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	115.6	108.7	96.8	86.3	78.6	-1.6	1.5	-1.8	-2.1	
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	134.8	128.5	111.4	100.0	90.7	-5.9	3.0	-1.9	-2.0	
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.1	57.4	56.7	53.9	51.6	-3.8	2.3	-0.2	-0.9	
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	167.4	166.3	161.0	155.0	151.0	2.5	4.9	-0.4	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.79	0.73	0.57	0.34	0.34	-1.3	-0.5	-3.1	-5.2	
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.11	2.06	2.03	1.98	1.94	-1.3	0.7	-0.4	-0.4	
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.07	0.98	0.90	0.81	0.73	-4.9	0.6	-1.7	-2.1	
Tertiary	0.00	0.00	0.50	0.49	0.54	0.49	0.42	0.41	0.40		0.6	-2.4	-0.5	
Transport	2.97	2.96	2.98	3.00	3.00	2.98	2.98	2.97	2.96	0.0	0.1	-0.1	0.0	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.4	1.5	3.1	4.2	4.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.8	1.0	1.2	1.6					
Gross Electricity generation by source (in GWh)														
			1917	2240	2217	1573	1638	1700	1714		1.5	-3.0	0.5	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1832	1193	858	121	109		-0.5	-7.3	-18.7	
Gas (including derived gases)			0	0	385	375	716	1465	1489			6.4	7.6	
Biomass-waste			0	0	0	6	38	62	62				5.0	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	0	26	53	55				7.6	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	538	543	555	603	639		1.3	0.3	1.4	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	0	10	20	21				7.6	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	0	10	20	21				7.6	
Solar			0	0	0	0	0	0	0					
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	538	543	545	583	618		1.3	0.1	1.3	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	51	51	274	282	318			18.2	1.5	
Oil fired			472	483	487	491	266	293	293		0.3	-5.9	1.0	
Biomass-waste fired			0	0	0	1	5	7	7				5.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	44.7	31.9	32.8	31.5	30.0					
Efficiency of gross thermal power generation (%)			33.4	33.2	34.1	36.3	42.3	56.6	56.8					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	0.4	3.9	6.8	6.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	0.4	3.9	6.8	6.8					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.7	6.3	6.8	7.2	5.2	2.4	2.2	1.5	
Public road transport	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	5.9	1.6	1.5	1.3	
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	2.0	2.1	2.1	2.2	4.4	2.4	1.2	0.6	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.6	4.0	4.3	5.6	2.5	2.9	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.1	0.3	0.0	
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.1	0.3	0.0	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	378	410	439	447	452	0.7	4.8	1.5	0.3	
Public road transport	5	11	10	12	14	15	16	17	16	5.8	3.8	1.6	0.1	
Private cars and motorcycles	87	160	89	142	175	191	209	214	218	0.2	7.0	1.8	0.4	
Trucks	57	59	52	84	84	85	84	81	79	-0.8	4.9	-0.1	-0.6	
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	104	119	130	135	139	1.8	1.9	2.3	0.7	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Netherlands: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	60478	65988	57172	61834	56867	56206	53968	45499	38663	-0.6	-0.1	-0.5	-3.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0				
Natural gas	54613	60456	51904	56265	53300	51980	49180	40100	32670	-0.5	0.3	-0.8	-4.0	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Renewable energy sources	956	933	1831	2242	2545	3203	3763	4365	4948	6.7	3.3	4.0	2.8	
Hydro	7	8	12	8	8	9	9	9	9	5.3	-3.6	0.0	0.0	
Biomass & Waste	942	894	1739	2035	2092	2385	2845	3265	3740	6.3	1.9	3.1	2.8	
Wind	5	27	71	178	360	626	641	748	812	30.9	17.6	5.9	2.4	
Solar and others	2	4	9	22	84	184	268	343	387	15.5	25.1	12.3	3.7	
Geothermal	0	0	0	0	0	0	0	0	0			0.2	0.1	
Net Imports	17443	16359	34331	36912	43749	49481	54652	64913	73316	7.0	2.5	2.3	3.0	
Solids	9574	8921	8222	8313	7718	10254	11630	10394	12636	-1.5	-0.6	4.2	0.8	
Oil	30876	32829	41673	47392	50250	51218	52176	53351	54028	3.0	1.9	0.4	0.3	
- Crude oil and Feedstocks	47956	59277	60955	61302	66081	67165	68190	69511	70227	2.4	0.8	0.3	0.3	
- Oil products	-17080	-26448	-19282	-13910	-15831	-15948	-16015	-16159	-16199					
Natural gas	-23799	-26370	-17191	-20941	-16148	-13405	-10552	-510	5019					
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Gross Inland Consumption	67059	73374	75712	80963	83012	87352	89540	90642	91651	1.2	0.9	0.8	0.2	
Solids	9206	9098	8035	8190	7718	10254	11630	10394	12636	-1.4	-0.4	4.2	0.8	
Oil	24415	27242	28496	32027	32645	32883	33096	33580	33700	1.6	1.4	0.1	0.2	
Natural gas	30810	34085	34711	35324	37152	38575	38628	39590	37689	1.2	0.7	0.4	-0.2	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Renewable energy forms	956	933	1831	2817	3137	3876	4567	5287	6004	6.7	5.5	3.8	2.8	
as % in Gross Inland Consumption														
Solids	13.7	12.4	10.6	10.1	9.3	11.7	13.0	11.5	13.8					
Oil	36.4	37.1	37.6	39.6	39.3	37.6	37.0	37.0	36.8					
Natural gas	45.9	46.5	45.8	43.6	44.8	44.2	43.1	43.7	41.1					
Nuclear	1.3	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.1					
Renewable energy forms	1.4	1.3	2.4	3.5	3.8	4.4	5.1	5.8	6.6					
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	116461	138471	151535	158379	168110	2.2	2.7	2.7	1.0	
Self consumption and grid losses	5554	6853	7752	8521	9693	11550	12529	14002	15435	3.4	2.3	2.6	2.1	
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	19335	22184	24409	24349	25317	2.2	0.6	2.4	0.4	
Solids	5698	5900	5114	4958	4482	7022	8506	7394	9726	-1.1	-1.3	6.6	1.3	
Oil (including refinery gas)	702	876	618	640	0	0	0	4	0	-1.3	-57.3	-21.4	-1.0	
Gas (including derived gases)	7651	9466	11071	11913	13101	13481	13900	14571	12821	3.8	1.7	0.6	-0.8	
Biomass & Waste	570	601	1430	2052	1752	1681	2002	2382	2770	9.6	2.1	1.3	3.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	72281	83698	85058	89914	88286	89399	90027	91046	91411	1.6	0.4	0.2	0.2	
Refineries	68767	80009	82188	86416	84401	85203	85667	86669	86945	1.8	0.3	0.1	0.1	
Biofuels and hydrogen production	0	0	0	0	315	716	1129	1328	1480			13.6	2.7	
District heating	0	0	0	436	551	519	462	428	435			-1.8	-0.6	
Derived gases, cokeries etc.	3514	3689	2870	3062	3020	2961	2769	2622	2552	-2.0	0.5	-0.9	-0.8	
Energy Branch Consumption	5410	6247	5484	6580	6526	6701	6762	6854	6901	0.1	1.8	0.4	0.2	
Non-Energy Uses	9495	9406	9579	12301	13244	13717	13799	13844	13819	0.1	3.3	0.4	0.0	
Final Energy Demand	42924	47670	50125	51588	53843	56289	57622	58781	59663	1.6	0.7	0.7	0.3	
by sector														
Industry	12643	12714	13812	14597	15458	16415	16717	17081	17271	0.9	1.1	0.8	0.3	
- energy intensive industries	9577	8701	9885	10367	11010	11722	11947	12184	12288	0.3	1.1	0.8	0.3	
- other industrial sectors	3066	4012	3927	4231	4448	4692	4770	4897	4983	2.5	1.3	0.7	0.4	
Residential	9932	11124	10286	10335	10362	10623	10795	10946	11061	0.4	0.1	0.4	0.2	
Tertiary	9993	11429	12207	11587	11927	12294	12429	12477	12521	2.0	-0.2	0.4	0.1	
Transport	10356	12404	13820	15068	16095	16957	17680	18277	18809	2.9	1.5	0.9	0.6	
by fuel														
Solids	1755	1461	1352	1515	1504	1551	1580	1548	1496	-2.6	1.1	0.5	-0.5	
Oil	12790	14685	16469	17366	18168	18740	19094	19736	20036	2.6	1.0	0.5	0.5	
Gas	21244	22515	21008	20335	20446	20643	19811	19797	19550	-0.1	-0.3	-0.3	-0.1	
Electricity	6322	7143	8421	8986	10039	11166	12053	12673	13207	2.9	1.8	1.8	0.9	
Heat (from CHP and District Heating)	439	1568	2558	2981	2929	3021	3505	3233	3433	19.3	1.4	1.8	-0.2	
Renewable energy forms	374	298	317	405	754	1166	1574	1787	1933	-1.6	9.0	7.6	2.1	
Other	0	0	0	0	1	2	4	7	7			13.1	6.8	
RES in Gross Final Energy Consumption ^(A)			940	1828	2721	3452	4101	4752	5371		11.2	4.2	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	226.8	233.3	241.5	236.2	238.9	0.1	0.4	0.6	-0.1	
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	173.4	186.5	192.8	191.6	196.6	0.9	0.4	1.1	0.2	
Power generation/District heating	43.3	49.1	48.9	51.1	50.4	61.2	68.2	65.4	70.3	1.2	0.3	3.1	0.3	
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.6	14.7	14.6	14.6	-0.4	1.0	0.1	0.0	
Industry	27.0	25.1	24.8	25.4	26.4	27.6	26.3	27.1	26.5	-0.8	0.6	-0.1	0.1	
Residential	19.2	20.6	18.9	17.8	17.3	17.2	16.9	16.7	16.5	-0.2	-0.9	-0.2	-0.2	
Tertiary	18.9	20.7	19.5	18.1	18.0	17.7	17.3	17.0	16.7	0.3	-0.8	-0.4	-0.4	
Transport	30.1	36.2	40.5	44.4	46.7	48.3	49.5	50.8	52.0	3.0	1.4	0.6	0.5	
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.7	11.9	12.2	12.4	-1.5	2.1	0.5	0.3	
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	35.1	36.7	32.4	29.9	-2.2	-0.2	-1.4	-2.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	104.8	107.8	111.5	109.1	110.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Int. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	143.2	135.5	127.4	119.2	112.9	-2.0	-1.0	-1.2	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.09	2.14	2.15	2.11	2.15	-0.4	-0.5	0.3	0.0
Import Dependency %	22.4	19.3	38.6	37.8	43.5	46.8	50.3	58.8	65.5				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	59.2	65.7	71.8	76.4	79.7		3.0	1.9	1.0
as % of GDP			9.2	10.4	10.2	10.2	10.2	10.0	9.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	101.0	98.6	94.4	90.9	87.6	-1.1	0.1	-0.7	-0.7
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	85.0	79.0	74.1	69.9	66.7	-2.9	-1.6	-1.4	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	77.6	71.7	66.6	61.8	58.1	-1.5	-2.5	-1.5	-1.4
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.8	46.7	44.6	42.4	41.1	1.7	0.4	-0.9	-0.8
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.8	37.8	36.7	35.9	34.2	0.8	-0.2	-0.5	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.32	0.34	0.34	0.32	0.33	-3.4	-2.1	0.7	-0.3
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.01	1.97	1.91	1.90	1.87	-0.7	-0.3	-0.5	-0.2
Industry	2.14	1.97	1.80	1.74	1.71	1.68	1.57	1.59	1.53	-1.7	-0.5	-0.8	-0.2
Residential	1.93	1.85	1.84	1.72	1.67	1.62	1.56	1.53	1.50	-0.5	-1.0	-0.6	-0.5
Tertiary	1.89	1.81	1.60	1.56	1.51	1.44	1.39	1.36	1.33	-1.7	-0.6	-0.8	-0.5
Transport	2.91	2.92	2.93	2.95	2.90	2.85	2.80	2.78	2.76	0.1	-0.1	-0.4	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	4.9	6.0	6.9	7.9	8.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	4.9	7.5	8.6	9.5				
Gross Electricity generation by source (in GWh)													
			89599	100202	116461	138471	151535	158379	168110		2.7	2.7	1.0
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	18053	32923	39484	37638	55952		-2.0	8.1	3.5
Oil (including refinery gas)			3769	1651	1244	388	375	183	111		-10.5	-11.3	-11.5
Gas (including derived gases)			55039	64687	81893	86684	90925	96246	85106		4.1	1.1	-0.7
Biomass-waste			3772	6720	6929	6941	8885	10314	11928		6.3	2.5	3.0
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.6	0.0	0.0
Wind			829	2067	4189	7274	7457	8701	9445		17.6	5.9	2.4
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e													
			20113	19871	26285	29633	32033	34117	35928		2.7	2.0	1.2
<u>Nuclear energy</u>			501	501	501	501	501	541	547		0.0	0.0	0.9
<u>Renewable energy</u>			495	1653	3042	3197	3432	4114	4606		19.9	1.2	3.0
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	2860	2860	2872	3289	3439		20.4	0.0	1.8
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			19116	17718	22742	25935	28100	29462	30775		1.8	2.1	0.9
of which cogeneration units			9089	9231	10128	10798	12151	11964	11838		1.1	1.8	-0.3
Solids fired			4171	4171	4171	5923	5325	5359	7473		0.0	2.5	3.4
Gas fired			13574	11700	16310	17815	20304	21679	20615		1.9	2.2	0.2
Oil fired			839	825	825	694	663	482	682		-0.2	-2.2	0.3
Biomass-waste fired			533	1022	1436	1504	1808	1941	2005		10.4	2.3	1.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	48.6	51.2	51.9	50.7	51.0				
Efficiency of gross thermal power generation (%)			39.9	41.3	48.1	49.2	49.2	51.0	52.0				
% of gross electricity from CHP			32.0	37.6	38.7	36.2	40.5	40.0	37.9				
Carbon free gross electricity generation (%)			9.7	12.9	13.1	13.3	13.7	15.4	16.0				
- nuclear			4.4	4.0	3.4	2.9	2.6	3.0	2.8				
- renewable energy forms			5.3	8.9	9.7	10.5	11.1	12.4	13.2				
Transport sector													
Passenger transport activity (Gpkm)													
	175.3	177.6	189.5	198.2	215.6	235.4	254.9	275.2	296.1	0.8	1.3	1.7	1.5
Public road transport	13.0	12.0	11.3	11.7	12.1	12.4	12.7	12.9	13.0	-1.4	0.7	0.5	0.3
Private cars and motorcycles	138.7	133.2	143.4	149.5	162.0	174.5	186.7	199.0	210.8	0.3	1.2	1.4	1.2
Rail	12.3	17.7	16.1	16.3	17.2	19.2	21.5	23.9	26.6	2.7	0.7	2.2	2.2
Aviation	9.8	13.5	17.8	19.7	23.5	28.2	33.0	38.5	44.7	6.2	2.8	3.5	3.1
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.7	1.0	1.1
Freight transport activity (Gtkm)													
	94.8	105.7	125.4	131.6	143.8	158.2	172.2	183.7	194.4	2.8	1.4	1.8	1.2
Trucks	56.1	67.1	79.6	84.2	93.0	102.1	111.7	120.6	128.1	3.6	1.6	1.8	1.4
Rail	3.1	3.1	4.5	5.2	5.9	6.7	7.3	7.9	8.4	3.9	2.7	2.2	1.3
Inland navigation	35.7	35.5	41.3	42.2	44.9	49.4	53.2	55.2	57.9	1.5	0.9	1.7	0.9
Energy demand in transport (ktoe)													
	10356	12404	13820	15068	16095	16957	17680	18277	18809	2.9	1.5	0.9	0.6
Public road transport	104	105	95	91	90	88	86	85	85	-0.9	-0.5	-0.5	-0.1
Private cars and motorcycles	5043	5525	5286	5999	6268	6370	6409	6402	6511	0.5	1.7	0.2	0.2
Trucks	2899	3325	4254	4933	5283	5647	5986	6266	6318	3.9	2.2	1.3	0.5
Rail	147	162	176	172	180	192	188	175	158	1.8	0.3	0.4	-1.7
Aviation	1608	2589	3343	3670	4057	4426	4760	5091	5468	7.6	2.0	1.6	1.4
Inland navigation	556	697	667	204	216	235	250	258	269	1.8	-10.6	1.5	0.7

Source: PRIMES

Poland: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68489	66624	65615	67146	68728	-2.1	-1.6	-0.4	0.5	
Solids	94459	91104	71298	68876	57160	53878	51527	47768	43917	-2.8	-2.2	-1.0	-1.6	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	3996	8367					
Renewable energy sources	2369	4763	4256	5016	7379	8946	10389	11931	13145	6.0	5.7	3.5	2.4	
Hydro	139	162	181	189	211	234	261	276	299	2.7	1.5	2.1	1.4	
Biomass & Waste	2230	4600	4072	4806	7027	8440	9704	11128	12243	6.2	5.6	3.3	2.4	
Wind	0	0	0	12	128	237	300	357	392		76.7	8.9	2.7	
Solar and others	0	0	0	0	4	24	113	158	198			38.9	5.8	
Geothermal	0	0	3	9	10	10	11	13	13		12.4	1.9	1.3	
Net Imports	2238	-152	10131	16954	32654	44880	51934	56586	59300	16.3	12.4	4.7	1.3	
Solids	-18913	-21202	-16309	-12482	-3446	1848	3704	4198	3893				0.5	
Oil	14468	15481	20381	21929	26139	30071	32772	34770	35820	3.5	2.5	2.3	0.9	
- Crude oil and Feedstocks	13085	13984	18827	18169	21685	24763	26839	28364	29144	3.7	1.4	2.2	0.8	
- Oil products	1383	1498	1554	3760	4454	5308	5933	6406	6676	1.2	11.1	2.9	1.2	
Natural gas	6773	5810	6607	8531	10911	13638	16093	18552	20606	-0.2	5.1	4.0	2.5	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	100775	111092	117108	123267	127548	-1.0	1.1	1.5	0.9	
Solids	75405	70500	56358	55184	53714	55726	55230	51966	47810	-2.9	-0.5	0.3	-1.4	
Oil	13399	16003	20759	22525	26520	30360	33030	34955	35939	4.5	2.5	2.2	0.8	
Natural gas	8938	8995	9960	12235	14111	16738	19093	21352	23306	1.1	3.5	3.1	2.0	
Nuclear	0	0	0	0	0	0	0	3996	8367					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7288	8837	10263	11788	12987	6.0	5.5	3.5	2.4	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	53.3	50.2	47.2	42.2	37.5					
Oil	13.4	16.0	22.9	24.0	26.3	27.3	28.2	28.4	28.2					
Natural gas	8.9	9.0	11.0	13.0	14.0	15.1	16.3	17.3	18.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	6.6					
Renewable energy forms	2.4	4.8	4.7	5.3	7.2	8.0	8.8	9.6	10.2					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	169039	185082	204192	221100	236467	0.6	1.7	1.9	1.5	
Self consumption and grid losses	21063	28189	27977	28574	29739	32400	34572	35803	37553	2.9	0.6	1.5	0.8	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	38639	41680	42052	39724	36785	-1.9	0.7	0.8	-1.3	
Solids	41138	35842	34793	35942	36071	38818	39139	36194	33002	-1.7	0.4	0.8	-1.7	
Oil (including refinery gas)	1236	405	228	179	29	32	31	121	25	-15.6	-18.7	0.7	-2.2	
Gas (including derived gases)	673	488	783	1483	1209	1567	1641	1823	2211	1.5	4.4	3.1	3.0	
Biomass & Waste	372	114	157	546	1330	1263	1241	1586	1546	-8.3	23.9	-0.7	2.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32645	35200	37443	39275	40172	-1.1	-0.4	1.4	0.7	
Refineries	13160	14929	19949	19591	22697	25765	27862	29348	30076	4.2	1.3	2.1	0.8	
Biofuels and hydrogen production	0	0	0	55	435	840	1411	1791	1982			12.5	3.5	
District heating	9949	5985	4320	3639	3492	3417	3573	3932	4205	-8.0	-2.1	0.2	1.6	
Derived gases, cokeries etc.	14746	12045	9635	8541	6020	5177	4597	4204	3910	-4.2	-4.6	-2.7	-1.6	
Energy Branch Consumption	6809	7655	7401	7680	9499	10204	10629	11079	11288	0.8	2.5	1.1	0.6	
Non-Energy Uses	4193	3646	4218	4354	5164	6288	7279	8210	8965	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	63712	71246	77448	82174	85467	-0.7	1.3	2.0	1.0	
by sector														
Industry	25252	22720	18883	16373	17763	20118	22387	24195	25487	-2.9	-0.6	2.3	1.3	
- energy intensive industries	16252	15428	13374	11149	11638	12822	13996	14950	15742	-1.9	-1.4	1.9	1.2	
- other industrial sectors	9000	7292	5509	5225	6125	7297	8391	9245	9745	-4.8	1.1	3.2	1.5	
Residential	18126	23284	17516	18375	19484	20511	21316	21751	22186	-0.3	1.1	0.9	0.4	
Tertiary	8867	9229	10136	10334	11575	12968	14167	15172	16148	1.3	1.3	2.0	1.3	
Transport	7338	8256	9185	12087	14891	17649	19578	21057	21647	2.3	5.0	2.8	1.0	
by fuel														
Solids	17066	23299	13728	11262	11688	11381	10863	10706	10428	-2.2	-1.6	-0.7	-0.4	
Oil	9104	11582	15452	17798	20424	23487	25600	26878	27334	5.4	2.8	2.3	0.7	
Gas	7987	7735	7447	8400	10657	12432	14043	15396	16393	-0.7	3.6	2.8	1.6	
Electricity	8233	7703	8317	8498	9701	11167	12719	13818	14947	0.1	1.6	2.7	1.6	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6670	7204	7610	7923	8081	-7.8	-0.3	1.3	0.6	
Renewable energy forms	1631	4408	3889	4156	4571	5572	6608	7446	8278	9.1	1.6	3.8	2.3	
Other	0	0	0	0	1	3	5	7	7			16.7	3.0	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6177	7599	8914	10892	12036		4.0	3.7	3.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	382.3	409.3	423.2	415.3	403.1	-1.4	0.2	1.0	-0.5	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	304.8	327.8	337.5	333.6	323.3	-1.3	0.5	1.0	-0.4	
Power generation/District heating	209.3	169.9	158.8	162.1	159.7	170.9	172.2	161.9	150.2	-2.7	0.1	0.8	-1.4	
Energy Branch	5.8	12.7	11.4	10.6	12.6	12.7	13.0	13.3	12.3	6.9	1.0	0.3	-0.6	
Industry	44.0	59.9	46.3	33.2	37.4	40.3	43.5	46.0	47.7	0.5	-2.1	1.5	0.9	
Residential	33.1	44.4	27.9	30.2	31.6	31.8	31.4	30.9	30.0	-1.7	1.3	-0.1	-0.5	
Tertiary	19.4	20.7	20.1	20.4	21.9	23.7	24.6	25.4	26.0	0.4	0.9	1.2	0.6	
Transport	20.5	23.1	25.8	34.3	41.5	48.5	52.7	56.0	57.1	2.3	4.9	2.4	0.8	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.6	14.6	17.9	20.5	22.9	4.2	-0.9	4.4	2.5	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	88.9	95.2	98.4	96.6	93.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Poland: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3
Gross Int. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	334.5	288.3	248.0	217.9	194.9	-4.6	-2.5	-2.9	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	3.02	2.95	2.88	2.71	2.53	-0.4	-0.6	-0.5	-1.3
Import Dependency %	2.2	-0.2	11.1	18.0	32.3	40.2	44.2	45.7	46.3				
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	48.3	59.6	70.5	79.6	86.4		3.6	3.9	2.1
as % of GDP			16.1	15.8	16.0	15.5	14.9	14.1	13.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.8	51.4	45.9	42.0	39.6	-6.9	-5.0	-2.6	-1.5
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.4	54.2	46.5	39.8	34.9	-5.8	-4.3	-3.2	-2.8
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	82.0	72.6	64.9	57.5	52.0	-2.1	-2.0	-2.3	-2.2
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.9	21.0	2.9	-0.2	-0.5	-1.3
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.3	40.1	38.7	37.1	35.8	0.3	3.9	-0.4	-0.8
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.59	0.58	0.54	0.47	0.42	0.8	-1.2	-1.0	-2.5
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.08	2.03	1.97	1.93	1.88	0.9	-0.4	-0.6	-0.4
Industry	1.74	2.64	2.45	2.02	2.11	2.00	1.94	1.90	1.87	3.5	-1.5	-0.8	-0.4
Residential	1.83	1.90	1.59	1.64	1.62	1.55	1.47	1.42	1.35	-1.4	0.2	-1.0	-0.8
Tertiary	2.19	2.25	1.98	1.97	1.89	1.83	1.74	1.68	1.61	-1.0	-0.5	-0.9	-0.7
Transport	2.80	2.80	2.81	2.84	2.79	2.75	2.69	2.66	2.64	0.0	-0.1	-0.3	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	9.3	10.3	11.1	12.8	13.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.0	4.9	7.5	8.9	9.6				
Gross Electricity generation by source (in GWh)													
			143147	155331	169039	185082	204192	221100	236467		1.7	1.9	1.5
Nuclear energy			0	0	0	0	0	18096	37994				
Solids			134042	141361	147574	158295	175529	170741	161919		1.0	1.7	-0.8
Oil (including refinery gas)			2936	2964	1941	1984	2167	2170	1672		-4.1	1.1	-2.6
Gas (including derived gases)			2979	5603	8051	10415	10938	13430	16108		10.5	3.1	3.9
Biomass-waste			1080	3068	7535	8911	9036	9291	10701		21.4	1.8	1.7
Hydro (pumping excluded)			2105	2201	2451	2725	3032	3204	3478		1.5	2.1	1.4
Wind			5	135	1486	2752	3486	4154	4558		76.7	8.9	2.7
Solar			0	0	0	0	3	14	37			25.7	29.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			30194	31711	32728	34719	39073	42047	43363		0.8	1.8	1.0
<u>Nuclear energy</u>			0	0	0	0	0	2089	4385				
<u>Renewable energy</u>			640	1038	1689	2385	2788	3175	3353		10.2	5.1	1.9
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7
Wind			5	124	711	1313	1628	1924	2077		63.5	8.6	2.5
Solar			0	0	0	0	3	15	40			25.7	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			29554	30673	31039	32334	36285	36784	35625		0.5	1.6	-0.2
of which cogeneration units			6632	6800	6938	7310	7994	9087	9096		0.5	1.4	1.3
Solids fired			28139	28775	28755	29745	33696	30534	28302		0.2	1.6	-1.7
Gas fired			820	1263	1664	1807	1807	2775	3378		7.3	0.8	6.5
Oil fired			472	474	461	472	472	352	296		-0.2	0.2	-4.6
Biomass-waste fired			122	160	160	310	310	3123	3650		2.8	6.9	28.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.2	51.1	54.4	56.1	55.2	55.5	57.4				
Efficiency of gross thermal power generation (%)			33.7	34.5	36.7	37.1	40.4	42.4	44.5				
% of gross electricity from CHP			12.2	12.9	22.7	18.5	19.4	20.7	17.3				
Carbon free gross electricity generation (%)			2.2	3.5	6.8	7.8	7.6	15.7	24.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	8.2	16.1				
- renewable energy forms			2.2	3.5	6.8	7.8	7.6	7.5	7.9				
Transport sector													
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.4	330.7	383.3	439.2	492.2	0.5	2.7	3.1	2.5
Public road transport	46.3	34.0	31.7	29.9	28.8	29.1	31.7	34.2	36.3	-3.7	-1.0	1.0	1.4
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.8	317.6	364.0	407.8	4.1	4.0	3.4	2.5
Rail	55.4	31.6	28.8	22.3	20.6	22.6	25.6	30.1	34.4	-6.3	-3.3	2.2	3.0
Aviation	2.0	2.3	2.6	3.1	4.1	5.9	8.0	10.6	13.3	3.1	4.5	6.9	5.2
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.5	2.2
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	234.2	268.4	296.6	316.7	0.6	4.0	3.3	1.7
Trucks	40.3	51.2	75.0	111.8	143.3	173.9	198.9	219.8	234.8	6.4	6.7	3.3	1.7
Rail	81.6	68.2	54.0	43.8	49.7	60.0	69.0	76.3	81.4	-4.0	-0.8	3.3	1.7
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7
Energy demand in transport (ktoe)	7338	8256	9185	12087	14891	17649	19578	21057	21647	2.3	5.0	2.8	1.0
Public road transport	314	229	217	190	183	180	187	189	183	-3.6	-1.7	0.2	-0.2
Private cars and motorcycles	3299	4112	4876	5324	6440	7509	8319	9023	9165	4.0	2.8	2.6	1.0
Trucks	2335	2847	3178	5748	7355	8860	9808	10436	10862	3.1	8.8	2.9	1.0
Rail	1095	667	539	502	531	609	650	656	553	-6.8	-0.2	2.0	-1.6
Aviation	196	371	369	319	380	489	611	750	881	6.5	0.3	4.9	3.7
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.2

Source: PRIMES

Portugal: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	2808	2602	3109	3583	5114	5488	6060	6831	7543	1.0	5.1	1.7	2.2	
Solids	115	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	2692	2602	3109	3583	5114	5488	6060	6831	7543	1.4	5.1	1.7	2.2	
Hydro	787	717	974	407	870	870	871	871	872	2.1	-1.1	0.0	0.0	
Biomass & Waste	1891	1831	2053	2936	3326	3589	3917	4321	4877	0.8	4.9	1.6	2.2	
Wind	0	1	14	152	768	843	1008	1327	1401	66.9	48.8	2.8	3.3	
Solar and others	11	15	18	23	68	101	172	198	217	5.4	13.9	9.7	2.3	
Geothermal	3	37	49	66	82	84	91	114	176	31.4	5.2	1.1	6.8	
Net Imports	15160	17876	21588	24040	24082	25851	27463	28220	28175	3.6	1.1	1.3	0.3	
Solids	2789	3797	3913	3223	3482	4296	5145	5250	4748	3.4	-1.2	4.0	-0.8	
Oil	12367	14001	15556	16338	16072	16923	17483	17748	17608	2.3	0.3	0.8	0.1	
- Crude oil and Feedstocks	11360	13547	12022	13459	13457	14136	14582	14795	14739	0.6	1.1	0.8	0.1	
- Oil products	1007	454	3534	2878	2614	2786	2900	2953	2869	13.4	-3.0	1.0	-0.1	
Natural gas	0	0	2039	3893	4423	4481	4750	5146	5750		8.1	0.7	1.9	
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Gross Inland Consumption	16890	19611	24108	26677	28590	30697	32851	34350	34993	3.6	1.7	1.4	0.6	
Solids	2580	3493	3803	3347	3482	4296	5145	5250	4748	4.0	-0.9	4.0	-0.8	
Oil	11614	13437	15083	15410	15466	16281	16811	17047	16884	2.6	0.3	0.8	0.0	
Natural gas	0	0	2034	3751	4423	4481	4750	5146	5750		8.1	0.7	1.9	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Renewable energy forms	2692	2602	3109	3583	5114	5488	6060	6831	7543	1.4	5.1	1.7	2.2	
as % in Gross Inland Consumption														
Solids	15.3	17.8	15.8	12.5	12.2	14.0	15.7	15.3	13.6					
Oil	68.8	68.5	62.6	57.8	54.1	53.0	51.2	49.6	48.2					
Natural gas	0.0	0.0	8.4	14.1	15.5	14.6	14.5	15.0	16.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	15.9	13.3	12.9	13.4	17.9	17.9	18.4	19.9	21.6					
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	60899	68372	77280	86038	93427	4.3	3.5	2.4	1.9	
Self consumption and grid losses	4441	4776	5435	6125	6709	7908	9095	11105	11898	2.0	2.1	3.1	2.7	
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	8217	9116	10047	10420	10731	4.2	2.4	2.0	0.7	
Solids	2027	2919	3198	3319	3477	4292	5142	5246	4745	4.7	0.8	4.0	-0.8	
Oil (including refinery gas)	2105	2371	1670	1884	1356	1355	1270	1150	1001	-2.3	-2.1	-0.6	-2.4	
Gas (including derived gases)	19	18	1234	2309	2609	2512	2618	2823	3336	51.6	7.8	0.0	2.5	
Biomass & Waste	149	148	356	430	696	876	928	1089	1476	9.1	6.9	2.9	4.8	
Geothermal heat	3	37	49	65	79	82	89	112	174	31.4	4.9	1.2	6.9	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11484	14055	12700	13608	13924	14739	15338	15694	15718	1.0	0.9	1.0	0.2	
Refineries	11152	13579	12251	13608	13744	14420	14863	15068	15008	0.9	1.2	0.8	0.1	
Biofuels and hydrogen production	0	0	0	0	180	318	475	626	710			10.2	4.1	
District heating	0	16	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1				
Energy Branch Consumption	658	870	881	900	852	911	951	1040	1007	3.0	-0.3	1.1	0.6	
Non-Energy Uses	2103	1875	2330	2405	2578	2686	2843	2990	3116	1.0	1.0	1.0	0.9	
Final Energy Demand	11208	13042	16937	16654	20251	21758	23232	24493	25289	4.2	1.8	1.4	0.9	
by sector														
Industry	4139	4247	5518	5656	5916	6222	6619	6968	7144	2.9	0.7	1.1	0.8	
- energy intensive industries	2497	2646	3437	3757	3883	4043	4270	4470	4575	3.2	1.2	1.0	0.7	
- other industrial sectors	1642	1601	2081	1899	2033	2179	2349	2498	2569	2.4	-0.2	1.5	0.9	
Residential	2290	2569	2804	3206	3628	4013	4392	4698	4970	2.0	2.6	1.9	1.2	
Tertiary	1052	1373	2098	2766	3121	3370	3586	3803	3987	7.2	4.0	1.4	1.1	
Transport	3728	4853	6517	7026	7587	8153	8633	9024	9188	5.7	1.5	1.3	0.6	
by fuel														
Solids	617	546	465	16	4	4	3	3	3	-2.8	-37.5	-2.1	-2.3	
Oil	6683	8187	10469	10492	10797	11483	11935	12163	12061	4.6	0.3	1.0	0.1	
Gas	103	97	853	1307	1750	1907	2070	2258	2346	23.6	7.4	1.7	1.3	
Electricity	2024	2477	3299	3983	4716	5299	5896	6466	7025	5.0	3.6	2.3	1.8	
Heat (from CHP and District Heating)	28	36	134	328	325	321	313	356	440	16.8	9.2	-0.4	3.5	
Renewable energy forms	1752	1698	1716	2529	2658	2743	3012	3243	3411	-0.2	4.5	1.3	1.3	
Other	0	0	0	0	1	1	2	3	3			14.6	2.7	
RES in Gross Final Energy Consumption ^(A)			2907	3266	4885	5210	5741	6446	7031		5.3	1.6	2.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	86.4	91.6	97.4	98.9	97.4	3.5	0.2	1.2	0.0	
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	63.1	68.6	73.7	75.2	73.7	4.1	0.8	1.6	0.0	
Power generation/District heating	14.8	19.2	20.9	24.5	24.1	27.1	30.5	31.0	29.7	3.5	1.5	2.3	-0.2	
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.2	4.3	0.1	0.3	-0.9	
Industry	8.2	8.4	10.8	7.3	7.8	8.7	9.3	9.5	9.1	2.8	-3.2	1.8	-0.2	
Residential	1.6	1.9	2.0	2.3	2.5	2.7	2.9	3.1	3.2	2.0	2.1	1.7	0.9	
Tertiary	1.9	2.2	3.2	4.2	4.2	4.1	4.0	3.9	3.8	5.4	2.9	-0.5	-0.6	
Transport	11.0	14.4	19.4	21.0	22.2	23.6	24.6	25.4	25.7	5.8	1.4	1.0	0.4	
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.4	6.6	6.9	7.1	4.7	-1.4	0.6	0.7	
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	143.3	151.9	161.4	163.9	161.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: Baseline scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660		0.2	0.4	0.1	-0.1
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8		3.4	1.3	2.7	2.5
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	175.6	165.8	154.4	141.0	128.3		0.2	0.4	-1.3	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.21	2.24	2.24	2.19	2.11		0.5	-0.9	0.2	-0.6
Import Dependency %	86.7	89.0	87.2	88.2	82.5	82.5	81.9	80.5	78.9					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.2	24.4	27.8	30.9	32.8			3.2	2.7	1.7
as % of GDP			10.8	12.3	13.0	13.2	13.1	12.7	12.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	104.0	98.5	93.1	87.6	83.7		1.7	0.4	-1.1	-1.1
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	109.6	107.7	103.8	98.1	93.3		-2.0	0.9	-0.5	-1.1
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	124.1	116.9	108.7	101.2	95.3		3.9	2.2	-1.3	-1.3
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.5	37.9	36.0	34.0	31.3		0.2	-1.0	-0.9	-1.4
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.0	57.0	56.2		1.3	-0.3	-0.5	-0.3
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.37	0.38	0.38	0.34	0.30		-1.0	-2.2	0.1	-2.2
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.81	1.80	1.76	1.71	1.65		0.3	-1.4	-0.3	-0.6
Industry	1.99	1.97	1.96	1.30	1.32	1.40	1.41	1.37	1.28		-0.1	-3.9	0.7	-0.9
Residential	0.71	0.74	0.71	0.70	0.68	0.67	0.66	0.66	0.64		0.0	-0.5	-0.2	-0.3
Tertiary	1.77	1.61	1.50	1.53	1.35	1.23	1.12	1.03	0.95		-1.6	-1.1	-1.9	-1.6
Transport	2.95	2.96	2.97	2.98	2.93	2.89	2.85	2.82	2.80		0.1	-0.2	-0.3	-0.2
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	23.5	23.2	23.9	25.3	26.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	3.8	5.4	6.8	7.7					
Gross Electricity generation by source (in GWh)														
			43364	46180	60899	68372	77280	86038	93427		3.5	2.4	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15872	20644	25602	27148	28017			0.7	4.9	0.9
Oil (including refinery gas)			9483	9244	8418	8477	7745	7273	6344			-1.2	-0.8	-2.0
Gas (including derived gases)			5745	11580	14601	14262	15651	17910	21587			9.8	0.7	3.3
Biomass-waste			1802	3434	2719	4758	5535	7112	9889			4.2	7.4	6.0
Hydro (pumping excluded)			11321	4730	10112	10122	10132	10132	10142			-1.1	0.0	0.0
Wind			168	1773	8934	9802	11723	15429	16289			48.8	2.8	3.3
Solar			1	3	114	176	218	272	262			60.6	6.7	1.8
Geothermal and other renewables			80	105	129	133	673	763	897			4.9	18.0	2.9
Net Generation Capacity in MW_e			10643	13440	21026	22001	23631	26769	27988		7.0	1.2	1.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	9242	9825	11028	12947	13573			8.6	1.8	2.1
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490			0.9	0.4	0.0
Wind			100	1047	4852	5252	6091	7933	8514			47.4	2.3	3.4
Solar			1	3	80	138	172	220	233			66.1	8.0	3.1
Other renewables (tidal etc.)			0	0	0	0	274	303	335					2.0
<u>Thermal power</u>			6585	8156	11784	12176	12603	13822	14415			6.0	0.7	1.4
of which cogeneration units			1372	1373	1829	2206	2222	2581	3161			2.9	2.0	3.6
Solids fired			1903	1914	1914	2465	3040	3127	3246			0.1	4.7	0.7
Gas fired			1868	3724	6401	5917	5919	6918	7097			13.1	-0.8	1.8
Oil fired			2338	2008	1981	2147	1941	1803	1547			-1.6	-0.2	-2.2
Biomass-waste fired			463	493	1472	1631	1682	1951	2485			12.3	1.3	4.0
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	16	21	22	41			2.1	2.8	6.8
Avg. Load factor of net power capacity (%)			44.8	37.8	32.2	34.4	36.2	35.1	36.6					
Efficiency of gross thermal power generation (%)			42.1	42.6	43.7	45.5	46.8	49.2	53.0					
% of gross electricity from CHP			11.3	10.1	10.4	12.7	13.1	15.5	17.7					
Carbon free gross electricity generation (%)			30.8	21.8	36.1	36.5	36.6	39.2	40.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	36.1	36.5	36.6	39.2	40.1					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.9	125.0	137.0	149.2	160.2		5.3	2.5	1.9	1.6
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.8	12.2	12.4		1.4	-0.5	0.5	0.5
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.5	97.0	104.5	111.0		7.7	3.0	1.8	1.4
Rail	6.3	5.3	4.6	4.6	4.8	5.1	5.6	6.3	7.1		-3.2	0.4	1.6	2.5
Aviation	7.1	9.1	11.7	13.2	15.5	18.5	22.0	25.7	29.1		5.1	2.8	3.5	2.8
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5		-0.3	2.3	1.4	1.0
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.9	63.7	69.3	74.2		4.7	2.1	2.1	1.5
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	59.0	64.3	68.9		5.4	2.1	2.1	1.6
Rail	1.5	2.0	2.2	2.4	2.7	3.1	3.3	3.5	3.8		4.1	2.2	2.1	1.3
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5		-7.9	2.8	2.4	0.8
Energy demand in transport (ktoe)	3728	4853	6517	7026	7587	8153	8633	9024	9188		5.7	1.5	1.3	0.6
Public road transport	67	90	100	108	103	100	100	97	91		4.2	0.2	-0.3	-0.9
Private cars and motorcycles	1575	2299	2945	3058	3288	3426	3494	3509	3358		6.5	1.1	0.6	-0.4
Trucks	1387	1717	2551	2872	3061	3340	3619	3872	4100		6.3	1.8	1.7	1.3
Rail	82	80	88	66	67	65	61	57	50		0.6	-2.6	-1.0	-2.0
Aviation	574	620	790	881	1021	1169	1304	1430	1529		3.2	2.6	2.5	1.6
Inland navigation	43	46	43	41	47	52	56	59	60		0.0	0.8	1.9	0.7

Source: PRIMES

Romania: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	41400	32600	28774	28181	29440	32197	34973	35722	36715	-3.6	0.2	1.7	0.5	
Solids	7935	7889	5879	5793	6233	6233	6954	7575	7466	-3.0	0.6	1.1	0.7	
Oil	7947	7104	6389	6120	5608	6183	6172	6167	6164	-2.2	-1.3	1.0	0.0	
Natural gas	22911	14446	10968	9701	10349	10925	11008	10383	9822	-7.1	-0.6	0.6	-1.1	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Renewable energy sources	2607	3162	4131	5134	5775	6529	7229	7916	9508	4.7	3.4	2.3	2.8	
Hydro	1460	1435	1271	1737	1597	1632	1653	1693	1788	-1.4	2.3	0.3	0.8	
Biomass & Waste	1147	1726	2854	3314	4066	4730	5350	5956	7413	9.5	3.6	2.8	3.3	
Wind	0	0	0	0	4	8	14	20	26			14.1	6.3	
Solar and others	0	0	0	0	7	35	71	100	126			25.2	6.0	
Geothermal	0	0	7	82	100	123	142	147	155		31.1	3.5	0.9	
Net Imports	20360	14542	8099	10719	12450	14749	18018	22889	25517	-8.8	4.4	3.8	3.5	
Solids	2423	2870	1905	2904	3221	4646	5577	7559	7663	-2.4	5.4	5.6	3.2	
Oil	11194	6852	3542	3874	5008	5732	7018	8061	8785	-10.9	3.5	3.4	2.3	
- Crude oil and Feedstocks	16094	8735	4836	8751	9752	10959	12708	14122	15101	-11.3	7.3	2.7	1.7	
- Oil products	-4900	-1883	-1294	-4877	-4744	-5226	-5690	-6061	-6316					
Natural gas	5928	4794	2712	4190	4524	4776	5845	7704	9530	-7.5	5.3	2.6	5.0	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Gross Inland Consumption	61492	47109	37069	39147	41890	46946	52991	58612	62232	-4.9	1.2	2.4	1.6	
Solids	10126	10796	7757	8769	9453	10337	12531	15134	15129	-2.6	2.0	2.9	1.9	
Oil	19106	13886	10148	10162	10616	11915	13190	14228	14949	-6.1	0.5	2.2	1.3	
Natural gas	28838	19240	13680	13942	14874	15700	16853	18087	19352	-7.2	0.8	1.3	1.4	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Renewable energy forms	2607	3162	4137	5090	5721	6466	7158	7837	9410	4.7	3.3	2.3	2.8	
as % in Gross Inland Consumption														
Solids	16.5	22.9	20.9	22.4	22.6	22.0	23.6	25.8	24.3					
Oil	31.1	29.5	27.4	26.0	25.3	25.4	24.9	24.3	24.0					
Natural gas	46.9	40.8	36.9	35.6	35.5	33.4	31.8	30.9	31.1					
Nuclear	0.0	0.0	3.8	3.7	3.5	6.1	6.8	6.3	6.0					
Renewable energy forms	4.2	6.7	11.2	13.0	13.7	13.8	13.5	13.4	15.1					
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	67065	79683	92938	108006	119724	-2.0	2.6	3.3	2.6	
Self consumption and grid losses	14388	11292	8909	10341	9745	10247	11707	13630	14867	-4.7	0.9	1.9	2.4	
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	9388	9850	12219	14853	15890	-7.6	-1.2	2.7	2.7	
Solids	8166	7352	5442	5982	6415	7072	9049	11560	11843	-4.0	1.7	3.5	2.7	
Oil (including refinery gas)	6202	2997	1684	775	54	0	0	0	0	-12.2	-29.2			
Gas (including derived gases)	8984	6090	3507	3343	2835	2753	2816	2818	2572	-9.0	-2.1	-0.1	-0.9	
Biomass & Waste	36	37	4	3	84	26	354	474	1475	-19.0	34.5	15.5	15.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	25764	21571	14558	17946	19167	21027	22752	24168	25169	-5.5	2.8	1.7	1.0	
Refineries	23718	15646	11318	14978	15360	17142	18880	20289	21265	-7.1	3.1	2.1	1.2	
Biofuels and hydrogen production	0	0	0	0	78	161	234	459	800			11.6	13.1	
District heating	496	1901	1737	823	1244	1049	1067	1106	1051	13.4	-3.3	-1.5	-0.1	
Derived gases, cokeries etc.	1551	4024	1503	2144	2485	2675	2572	2314	2054	-0.3	5.2	0.3	-2.2	
Energy Branch Consumption	3594	5270	4137	4184	4373	4654	4978	5315	5531	1.4	0.6	1.3	1.1	
Non-Energy Uses	908	1326	2291	2448	2427	2636	2925	3232	3528	9.7	0.6	1.9	1.9	
Final Energy Demand	36348	26449	22374	24625	28044	32019	35906	39666	43152	-4.8	2.3	2.5	1.9	
by sector														
Industry	25106	14528	8788	9751	10811	12508	14117	15789	17575	-10.0	2.1	2.7	2.2	
- energy intensive industries	15699	10582	5962	6928	7513	8491	9409	10318	11232	-9.2	2.3	2.3	1.8	
- other industrial sectors	9407	3946	2826	2823	3299	4017	4707	5471	6344	-11.3	1.6	3.6	3.0	
Residential	4190	6461	8557	8093	8580	9225	9995	10754	11426	7.4	0.0	1.5	1.3	
Tertiary	2845	2401	1646	2576	3278	3811	4162	4390	4517	-5.3	7.1	2.4	0.8	
Transport	4407	3058	3384	4204	5375	6474	7632	8732	9634	-2.6	4.7	3.6	2.4	
by fuel														
Solids	2678	1529	703	1429	1742	1851	1892	1750	1572	-12.5	9.5	0.8	-1.8	
Oil	8030	5234	5292	6547	7670	8957	10199	11182	11855	-4.1	3.8	2.9	1.5	
Gas	20495	10249	6885	7721	8730	9642	10418	11442	12571	-10.3	2.4	1.8	1.9	
Electricity	4355	3282	3122	3481	4153	5042	6004	7110	7997	-3.3	2.9	3.8	2.9	
Heat (from CHP and District Heating)	377	4679	3570	2135	1736	1816	2316	2661	3228	25.2	-7.0	2.9	3.4	
Renewable energy forms	612	1476	2802	3312	4012	4709	5075	5517	5924	16.4	3.7	2.4	1.6	
Other	0	0	0	0	1	1	2	4	5			13.6	9.7	
RES in Gross Final Energy Consumption ^(A)			4197	5132	5645	6409	7051	7662	9044		3.0	2.2	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	157.6	170.7	189.8	201.5	204.5	-6.4	1.4	1.9	0.7	
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	96.8	105.5	120.3	136.0	140.3	-6.7	1.5	2.2	1.5	
Power generation/District heating	75.9	59.2	40.6	37.2	36.4	38.0	46.7	57.3	57.7	-6.1	-1.1	2.5	2.1	
Energy Branch	6.2	7.5	7.4	8.0	8.7	9.3	9.7	10.2	10.4	1.8	1.5	1.2	0.6	
Industry	58.1	30.2	17.6	20.9	22.5	24.9	26.5	27.5	28.6	-11.3	2.5	1.6	0.8	
Residential	7.5	5.2	6.5	7.2	8.2	8.6	9.1	10.0	11.0	-1.4	2.4	1.1	1.9	
Tertiary	6.7	3.1	1.8	4.4	5.6	6.3	6.6	6.5	6.4	-12.1	11.8	1.5	-0.2	
Transport	12.3	8.6	9.6	12.1	15.4	18.5	21.7	24.4	26.2	-2.4	4.8	3.5	1.9	
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.5	21.1	24.8	27.8	30.6	-5.6	3.1	3.6	2.2	
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	44.1	44.7	44.7	37.6	33.5	-6.0	0.6	0.3	-2.8	
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	59.3	64.2	71.4	75.8	77.0						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Romania: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	399.4	332.7	286.3	245.8	206.2	-3.3	-4.3	-3.3	-3.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.31	2.25	2.27	2.32	2.25	-1.8	0.2	-0.2	-0.1
Import Dependency %	33.1	30.9	21.8	27.4	29.7	31.4	34.0	39.1	41.0				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	20.8	26.2	32.3	37.5	43.1		4.0	4.5	2.9
as % of GDP			23.4	18.7	19.8	18.6	17.4	15.7	14.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	74.5	65.5	58.1	52.0	46.9	-7.5	-2.9	-2.5	-2.1
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.5	39.4	32.5	27.1	22.7	8.2	-6.8	-4.1	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.2	94.5	77.5	62.5	50.2	-4.0	1.0	-3.5	-4.2
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.8	28.6	27.4	26.1	24.5	7.6	-2.6	-0.8	-1.1
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.3	29.7	29.3	28.7	28.0	0.5	-3.1	-0.3	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.37	0.34	0.36	0.38	0.35	-10.1	-0.4	-0.4	-0.4
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.85	1.82	1.78	1.73	1.67	-3.7	1.5	-0.4	-0.6
Industry	2.31	2.08	2.00	2.14	2.08	1.99	1.87	1.74	1.63	-1.4	0.4	-1.0	-1.4
Residential	1.78	0.81	0.76	0.89	0.96	0.93	0.91	0.93	0.96	-8.2	2.3	-0.5	0.5
Tertiary	2.37	1.30	1.12	1.69	1.72	1.65	1.57	1.48	1.42	-7.2	4.3	-0.9	-1.0
Transport	2.79	2.81	2.85	2.89	2.87	2.85	2.85	2.80	2.72	0.2	0.1	-0.1	-0.5
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	19.2	19.2	18.9	18.6	20.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.1	2.6	4.5	7.3				
Gross Electricity generation by source (in GWh)													
			51925	59402	67065	79683	92938	108006	119724		2.6	3.3	2.6
Nuclear energy			5455	5554	6207	11614	14892	15219	15554		1.3	9.1	0.4
Solids			16409	19761	23484	29941	38689	51913	59257		3.6	5.1	4.4
Oil (including refinery gas)			4145	3256	243	0	0	0	0		-24.7		
Gas (including derived gases)			11002	10316	18077	18832	18782	18989	17849		5.1	0.4	-0.5
Biomass-waste			138	311	432	214	1179	1930	5910		12.1	10.6	17.5
Hydro (pumping excluded)			14775	20203	18575	18982	19220	19686	20795		2.3	0.3	0.8
Wind			0	0	44	93	164	238	301			14.1	6.3
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			19962	19838	23212	22644	22094	19252	20422		1.5	-0.5	-0.8
<u>Nuclear energy</u>			654	650	1330	1342	1726	1764	1802		7.4	2.6	0.4
<u>Renewable energy</u>			5935	6215	6404	6789	7123	7243	7310		0.8	1.1	0.3
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	35	70	121	173	218			13.1	6.1
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	15478	14513	13245	10245	11309		1.5	-1.5	-1.6
of which cogeneration units			5378	5459	2259	2215	3144	3490	4356		-8.3	3.4	3.3
Solids fired			7285	7139	7129	7675	7866	6538	7165		-0.2	1.0	-0.9
Gas fired			3692	3459	5886	5115	3865	3002	2710		4.8	-4.1	-3.5
Oil fired			2375	2354	2442	1702	1204	298	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	21	22	311	407	1137		0.1	31.1	13.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	30.7	38.0	45.4	60.2	62.7				
Efficiency of gross thermal power generation (%)			25.6	28.6	38.7	42.8	41.3	42.2	44.9				
% of gross electricity from CHP			30.2	25.8	19.4	18.4	20.7	20.3	23.5				
Carbon free gross electricity generation (%)			39.2	43.9	37.7	38.8	38.2	34.4	35.6				
- nuclear			10.5	9.3	9.3	14.6	16.0	14.1	13.0				
- renewable energy forms			28.7	34.5	28.4	24.2	22.1	20.3	22.6				
Transport sector													
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	98.1	122.0	149.2	179.9	-2.7	4.1	4.7	4.0
Public road transport	24.0	12.3	7.7	9.4	11.7	14.4	16.6	18.6	20.5	-10.7	4.2	3.6	2.1
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.5	71.5	89.5	110.2	133.9	9.6	5.8	4.9	4.1
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.0	16.2	-9.2	-3.6	3.7	3.3
Aviation	0.7	0.7	0.8	1.2	1.7	2.5	4.1	6.3	9.3	1.6	7.5	9.4	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.8
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.8	123.5	146.3	168.6	186.3	-8.4	11.8	3.7	2.4
Trucks	29.0	19.7	14.3	51.5	72.2	88.9	105.7	121.9	133.7	-6.8	17.6	3.9	2.4
Rail	48.9	17.9	16.4	16.6	18.1	20.4	23.5	26.9	30.6	-10.4	1.0	2.7	2.7
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.2	17.1	19.8	22.0	2.3	15.9	4.0	2.6
Energy demand in transport (ktoe)	4407	3058	3384	4204	5375	6474	7632	8732	9634	-2.6	4.7	3.6	2.4
Public road transport	329	176	117	93	109	129	144	155	161	-9.9	-0.7	2.8	1.1
Private cars and motorcycles	591	845	1681	1609	1997	2440	2888	3331	3727	11.0	1.7	3.8	2.6
Trucks	2617	1272	893	2130	2836	3391	3969	4494	4872	-10.2	12.2	3.4	2.1
Rail	282	470	449	208	215	233	243	256	248	4.8	-7.1	1.2	0.2
Aviation	275	192	128	113	149	197	288	381	497	-7.3	1.5	6.8	5.6
Inland navigation	312	103	115	51	69	84	100	116	127	-9.5	-4.9	3.8	2.4

Source: PRIMES

Slovak Republic: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	5248	4808	5970	6305	5075	5963	6489	7284	7628	1.3	-1.6	2.5	1.6	
Solids	1397	1017	1018	637	846	845	831	837	764	-3.1	-1.8	-0.2	-0.8	
Oil	81	74	59	55	37	38	39	40	40	-3.1	-4.5	0.6	0.2	
Natural gas	338	264	133	126	131	145	157	170	182	-8.9	-0.1	1.8	1.5	
Nuclear	3105	2950	4255	4573	3191	3854	4066	4571	4709	3.2	-2.8	2.5	1.5	
Renewable energy sources	328	503	506	914	869	1082	1396	1665	1933	4.4	5.6	4.8	3.3	
Hydro	162	427	406	399	391	425	432	435	438	9.7	-0.4	1.0	0.1	
Biomass & Waste	166	76	100	507	470	639	931	1179	1425	-5.0	16.8	7.1	4.3	
Wind	0	0	0	1	1	4	11	19	28			24.2	10.0	
Solar and others	0	0	0	0	4	11	20	29	38			16.1	7.0	
Geothermal	0	0	0	8	2	2	3	3	3			3.4	2.0	
Net Imports	16086	12482	11623	13163	13448	14356	15344	16152	16714	-3.2	1.5	1.3	0.9	
Solids	6055	4131	3437	3794	3504	3697	4030	4419	4454	-5.5	0.2	1.4	1.0	
Oil	4231	3704	2711	3935	4008	4138	4262	4323	4312	-4.4	4.0	0.6	0.1	
- Crude oil and Feedstocks	5892	5405	5283	5768	5956	6133	6322	6423	6414	-1.1	1.2	0.6	0.1	
- Oil products	-1661	-1701	-2573	-1833	-1948	-1995	-2060	-2100	-2102					
Natural gas	5353	4528	5707	5757	6010	6647	7199	7797	8350	0.6	0.5	1.8	1.5	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18523	20319	21834	23435	24342	-1.8	0.6	1.7	1.1	
Solids	7771	5414	4261	4288	4351	4541	4861	5256	5218	-5.8	0.2	1.1	0.7	
Oil	4229	3487	2925	4045	4045	4176	4301	4363	4353	-3.6	3.3	0.6	0.1	
Natural gas	5088	5217	5776	5925	6141	6792	7355	7967	8532	1.3	0.6	1.8	1.5	
Nuclear	3105	2950	4255	4573	3191	3854	4066	4571	4709	3.2	-2.8	2.5	1.5	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	817	1011	1293	1535	1776	4.3	5.1	4.7	3.2	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	23.5	22.3	22.3	22.4	21.4					
Oil	20.2	19.7	16.7	20.8	21.8	20.6	19.7	18.6	17.9					
Natural gas	24.3	29.5	33.0	30.5	33.2	33.4	33.7	34.0	35.0					
Nuclear	14.8	16.7	24.3	23.6	17.2	19.0	18.6	19.5	19.3					
Renewable energy forms	1.6	2.8	2.8	4.4	4.4	5.0	5.9	6.5	7.3					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	32255	37664	43032	51523	55153	2.6	0.6	2.9	2.5	
Self consumption and grid losses	4853	5351	5235	4704	3527	3990	4604	5671	6120	0.8	-3.9	2.7	2.9	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2911	3317	3977	4675	4989	-1.9	0.9	3.2	2.3	
Solids	2054	1835	1617	1638	1479	1594	1802	2168	2275	-2.4	-0.9	2.0	2.4	
Oil (including refinery gas)	243	119	37	99	53	111	118	33	10	-17.1	3.5	8.5	-21.8	
Gas (including derived gases)	936	1216	1002	845	1263	1440	1728	1837	1875	0.7	2.3	3.2	0.8	
Biomass & Waste	0	0	0	40	117	172	328	637	828			10.9	9.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	10006	10223	10558	10755	10711	-1.2	2.2	0.5	0.1	
Refineries	6314	5182	5410	6374	6765	6954	7214	7376	7384	-1.5	2.3	0.6	0.2	
Biofuels and hydrogen production	0	0	0	11	49	106	175	222	266			13.5	4.2	
District heating	237	731	584	717	877	820	708	725	754	9.4	4.2	-2.1	0.6	
Derived gases, cokeries etc.	2458	2060	2026	2233	2315	2343	2460	2432	2308	-1.9	1.3	0.6	-0.6	
Energy Branch Consumption	1154	990	905	2482	2073	2138	2222	2323	2338	-2.4	8.6	0.7	0.5	
Non-Energy Uses	1203	651	1109	1239	1263	1338	1508	1677	1783	-0.8	1.3	1.8	1.7	
Final Energy Demand	14893	11085	10822	10560	11597	12585	13512	14291	14850	-3.1	0.7	1.5	0.9	
by sector														
Industry	6706	4339	3953	4413	4873	5268	5583	5793	5862	-5.1	2.1	1.4	0.5	
- energy intensive industries	4081	3091	3145	3590	3973	4295	4507	4629	4657	-2.6	2.4	1.3	0.3	
- other industrial sectors	2626	1248	808	823	900	973	1075	1164	1205	-11.1	1.1	1.8	1.1	
Residential	2275	2158	2822	2533	2641	2808	3023	3254	3476	2.2	-0.7	1.4	1.4	
Tertiary	4473	3078	2498	1809	1936	2160	2414	2655	2876	-5.7	-2.5	2.2	1.8	
Transport	1440	1509	1549	1805	2148	2349	2493	2589	2636	0.7	3.3	1.5	0.6	
by fuel														
Solids	4319	2322	1511	1455	1832	1920	1975	2016	1922	-10.0	1.9	0.8	-0.3	
Oil	3294	1873	1870	2195	2447	2596	2676	2739	2736	-5.5	2.7	0.9	0.2	
Gas	4319	3907	4537	3651	3502	3773	4019	4367	4734	0.5	-2.6	1.4	1.7	
Electricity	2013	1868	1893	1965	2382	2764	3181	3595	3879	-0.6	2.3	2.9	2.0	
Heat (from CHP and District Heating)	781	1111	1011	951	1283	1234	1243	1230	1207	2.6	2.4	-0.3	-0.3	
Renewable energy forms	166	4	1	344	152	297	417	343	370	-42.8	73.3	10.6	-1.2	
Other	0	0	0	0	0	0	1	1	2			15.3	6.8	
RES in Gross Final Energy Consumption ^(A)			407	761	649	837	1068	1258	1444		4.8	5.1	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	53.4	57.0	60.8	63.2	64.0	-3.7	1.3	1.3	0.5	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	39.4	41.9	44.4	47.1	48.0	-4.1	1.2	1.2	0.8	
Power generation/District heating	12.1	12.9	10.6	10.5	11.3	12.2	13.5	14.9	15.3	-1.3	0.7	1.8	1.3	
Energy Branch	2.5	1.8	1.5	5.0	4.5	4.6	4.9	5.1	5.0	-4.6	11.3	0.8	0.3	
Industry	17.8	12.2	10.3	10.4	11.8	12.3	12.6	13.0	12.7	-5.3	1.3	0.7	0.1	
Residential	4.4	2.9	4.1	3.5	3.4	3.8	4.2	4.8	5.4	-0.6	-1.8	2.1	2.5	
Tertiary	12.6	5.7	4.2	2.5	2.2	2.3	2.3	2.3	2.4	-10.3	-6.1	0.4	0.3	
Transport	4.0	4.2	4.4	5.2	6.2	6.6	6.9	7.1	7.1	0.8	3.5	1.1	0.3	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.2	6.0	6.5	6.8	-0.7	2.9	3.3	1.2	
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.6	10.0	10.3	9.6	9.3	9.3	-3.3	1.0	0.7	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	77.3	82.6	88.0	91.6	92.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Slovak Republic: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	370.3	323.8	281.5	253.8	230.2	-3.2	-4.3	-2.7	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.13	2.06	2.03	2.01	1.97	-2.3	0.6	-0.4	-0.3
Import Dependency %	76.7	70.6	66.5	67.8	72.6	70.7	70.3	68.9	68.7				
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.2	10.9	12.7	14.6	15.8		2.6	3.3	2.2
as % of GDP			23.3	19.5	18.4	17.4	16.4	15.8	14.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.4	46.6	40.4	36.0	33.4	-6.4	-5.9	-2.9	-1.9
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.9	51.7	45.6	41.6	39.1	2.0	-5.0	-2.7	-1.5
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.9	50.6	46.0	42.2	39.0	-5.6	-5.5	-2.1	-1.6
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.4	27.6	26.5	24.9	3.6	0.6	-0.6	-1.0
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	24.1	23.3	22.6	22.1	2.0	1.0	-0.3	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.22	0.22	0.22	0.21	0.21	-3.8	-0.5	0.0	-0.4
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.03	1.99	1.93	1.90	1.86	-2.0	-0.4	-0.5	-0.4
Industry	2.65	2.82	2.61	2.37	2.41	2.34	2.26	2.25	2.16	-0.2	-0.8	-0.7	-0.4
Residential	1.93	1.35	1.46	1.39	1.30	1.36	1.40	1.47	1.56	-2.8	-1.1	0.7	1.1
Tertiary	2.81	1.87	1.69	1.37	1.16	1.06	0.97	0.88	0.84	-4.9	-3.7	-1.7	-1.4
Transport	2.80	2.76	2.82	2.89	2.87	2.82	2.76	2.73	2.69	0.1	0.2	-0.4	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	5.4	6.4	7.6	8.5	9.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.0	3.9	6.1	7.4	8.8				
Gross Electricity generation by source (in GWh)													
			30431	31346	32255	37664	43032	51523	55153		0.6	2.9	2.5
Nuclear energy			16491	17724	12371	15244	16180	19509	20135		-2.8	2.7	2.2
Solids			4969	4825	5504	6144	7796	10943	12513		1.0	3.5	4.8
Oil (including refinery gas)			144	455	501	501	529	538	162		13.3	0.5	-11.2
Gas (including derived gases)			4102	3527	8772	10007	11660	11835	12408		7.9	2.9	0.6
Biomass-waste			0	172	539	770	1701	3392	4461			12.2	10.1
Hydro (pumping excluded)			4725	4637	4552	4938	5019	5056	5094		-0.4	1.0	0.1
Wind			0	7	15	51	128	219	331			24.2	10.0
Solar			0	0	2	9	18	33	49			24.7	10.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			6795	7307	8128	8571	7980	8751	8989		1.8	-0.2	1.2
<u>Nuclear energy</u>			2326	2439	1652	2011	2132	2385	2457		-3.4	2.6	1.4
<u>Renewable energy</u>			1669	1838	1894	2038	2118	2203	2305		1.3	1.1	0.8
Hydro (pumping excluded)			1668	1832	1882	1996	2013	2021	2029		1.2	0.7	0.1
Wind			1	5	10	35	90	155	236		26.0	24.5	10.1
Solar			0	0	2	7	15	26	40			24.6	10.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2800	3031	4582	4522	3730	4164	4227		5.0	-2.0	1.3
of which cogeneration units			1220	1400	1716	1627	1690	1713	1820		3.5	-0.2	0.7
Solids fired			1598	1661	1846	1696	1401	1726	1675		1.5	-2.7	1.8
Gas fired			1184	1221	2557	2647	2084	2088	2097		8.0	-2.0	0.1
Oil fired			18	115	115	115	114	114	114		20.7	-0.1	0.0
Biomass-waste fired			1	34	64	64	131	235	341		51.8	7.5	10.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.5	44.3	43.2	48.0	58.9	64.0	66.6				
Efficiency of gross thermal power generation (%)			29.8	29.4	45.3	45.2	46.9	49.1	50.9				
% of gross electricity from CHP			26.0	15.8	26.5	23.5	24.6	22.1	21.6				
Carbon free gross electricity generation (%)			69.7	71.9	54.2	55.8	53.6	54.7	54.5				
- nuclear			54.2	56.5	38.4	40.5	37.6	37.9	36.5				
- renewable energy forms			15.5	15.4	15.8	15.3	16.0	16.9	18.0				
Transport sector													
Passenger transport activity (Gpkm)													
	41.5	34.2	35.8	36.4	39.1	42.5	47.8	53.2	57.9	-1.5	0.9	2.0	1.9
Public road transport	19.5	11.2	8.4	8.1	7.9	7.7	7.6	7.6	7.6	-8.1	-0.6	-0.3	0.0
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.6	32.1	37.3	42.5	46.9	4.5	1.7	2.7	2.3
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.4	0.9
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.7			6.5	4.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	35.6	29.7	25.6	32.0	41.7	47.4	50.3	52.4	54.1	-3.3	5.0	1.9	0.7
Trucks	14.2	15.9	14.3	22.6	31.7	36.3	38.6	40.4	42.0	0.1	8.2	2.0	0.8
Rail	21.4	13.8	11.2	9.5	10.0	11.1	11.7	11.9	12.1	-6.2	-1.2	1.6	0.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1440	1509	1549	1805	2148	2349	2493	2589	2636	0.7	3.3	1.5	0.6
Public road transport	96	79	70	59	55	51	48	45	43	-3.1	-2.5	-1.2	-1.3
Private cars and motorcycles	671	729	886	964	1018	1075	1176	1253	1278	2.8	1.4	1.5	0.8
Trucks	572	583	510	693	971	1103	1136	1146	1160	-1.1	6.6	1.6	0.2
Rail	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.1	-0.8
Aviation	0	0	0	39	55	69	84	98	109			4.3	2.7
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovenia: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2902	3020	3085	3492	3571	3479	3698	3726	4049	0.6	1.5	0.3	0.9	
Solids	1432	1216	1062	1184	1226	1026	1105	1147	1294	-2.9	1.4	-1.0	1.6	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.3			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1333	1362	0.3	1.9	0.0	-0.8	
Renewable energy sources	254	542	788	787	857	969	1109	1247	1393	12.0	0.8	2.6	2.3	
Hydro	254	279	330	298	304	313	324	346	371	2.7	-0.8	0.6	1.4	
Biomass & Waste	0	263	458	489	545	622	720	816	924		1.8	2.8	2.5	
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	7	33	63	82	95			24.0	4.2	
Geothermal	0	0	0	0	0	0	0	0	0			1.4	0.7	
Net Imports	2567	3056	3369	3810	4566	5207	5527	5632	5730	2.8	3.1	1.9	0.4	
Solids	130	187	245	323	353	384	460	490	509	6.5	3.7	2.7	1.0	
Oil	1798	2231	2418	2589	3005	3316	3483	3638	3719	3.0	2.2	1.5	0.7	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	2	-12.8	-38.2	1.4	0.6	
- Oil products	1202	1644	2267	2589	3003	3315	3481	3637	3718	6.5	2.9	1.5	0.7	
Natural gas	723	750	820	925	1156	1283	1367	1462	1588	1.3	3.5	1.7	1.5	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	8136	8686	9225	9358	9779	1.5	2.4	1.3	0.6	
Solids	1645	1402	1306	1539	1579	1410	1565	1637	1802	-2.3	1.9	-0.1	1.4	
Oil	1748	2281	2381	2560	3005	3316	3483	3638	3719	3.1	2.4	1.5	0.7	
Natural gas	763	746	826	929	1161	1283	1367	1462	1588	0.8	3.5	1.7	1.5	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1333	1362	0.3	1.9	0.0	-0.8	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	857	969	1109	1247	1393	12.0	0.8	2.6	2.3	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	19.4	16.2	17.0	17.5	18.4					
Oil	31.7	37.4	37.1	35.0	36.9	38.2	37.8	38.9	38.0					
Natural gas	13.8	12.2	12.9	12.7	14.3	14.8	14.8	15.6	16.2					
Nuclear	21.6	20.4	19.1	20.8	18.2	17.1	16.1	14.2	13.9					
Renewable energy forms	4.6	9.3	12.3	10.8	10.5	11.2	12.0	13.3	14.2					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	16425	16074	17992	21408	24265	0.9	1.9	0.9	3.0	
Self consumption and grid losses	1516	1427	1625	1908	2215	2209	2473	2879	3178	0.7	3.1	1.1	2.5	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1608	1436	1619	1810	2174	-1.4	1.8	0.1	3.0	
Solids	1296	1315	1253	1411	1479	1292	1428	1491	1659	-0.3	1.7	-0.3	1.5	
Oil (including refinery gas)	155	119	12	9	3	1	1	1	1	-22.8	-11.5	-10.5	0.0	
Gas (including derived gases)	92	90	62	58	97	111	119	210	316	-3.8	4.6	2.0	10.3	
Biomass & Waste	0	0	15	30	29	32	71	108	197		6.5	9.4	10.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	201	261	312	345	338	-8.2	-2.3	4.5	0.8	
Refineries	540	503	169	1	1	1	1	1	2	-11.0	-38.9	1.4	0.6	
Biofuels and hydrogen production	0	0	0	0	42	106	170	215	256			14.9	4.2	
District heating	53	76	83	89	157	154	141	128	81	4.7	6.5	-1.1	-5.4	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	127	115	126	156	174	-0.9	1.2	-0.1	3.3	
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9	
Final Energy Demand	3368	3940	4431	4880	5088	6247	6725	7039	7257	2.8	2.4	1.8	0.8	
by sector														
Industry	1468	1179	1423	1655	1838	1969	2072	2145	2194	-0.3	2.6	1.2	0.6	
- energy intensive industries	728	587	839	1036	1146	1241	1313	1363	1394	1.4	3.2	1.4	0.6	
- other industrial sectors	740	593	584	619	692	728	758	782	800	-2.3	1.7	0.9	0.5	
Residential	850	1176	1122	1183	1266	1368	1466	1514	1561	2.8	1.2	1.5	0.6	
Tertiary	122	259	578	573	618	687	738	767	800	16.9	0.7	1.8	0.8	
Transport	928	1326	1309	1469	1886	2223	2449	2614	2702	3.5	3.7	2.6	1.0	
by fuel														
Solids	243	115	97	80	69	82	99	103	98	-8.8	-3.3	3.7	-0.1	
Oil	1507	2098	2231	2392	2795	3088	3237	3381	3445	4.0	2.3	1.5	0.6	
Gas	603	468	569	665	783	882	941	957	1018	-0.6	3.2	1.9	0.8	
Electricity	837	807	905	1096	1261	1404	1539	1622	1714	0.8	3.4	2.0	1.1	
Heat (from CHP and District Heating)	177	192	195	196	198	211	229	232	209	1.0	0.1	1.5	-0.9	
Renewable energy forms	0	260	435	452	502	580	678	743	772		1.4	3.1	1.3	
Other	0	0	0	0	0	0	1	1	1			19.7	3.9	
RES in Gross Final Energy Consumption ^(A)			780	767	842	940	1068	1187	1318	0.8	2.4	2.1		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	21.5	22.0	23.2	24.2	25.3	0.3	1.6	0.8	0.9	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	17.2	17.6	18.8	19.7	20.9	0.6	2.1	0.9	1.1	
Power generation/District heating	6.2	6.2	5.5	6.2	6.7	5.9	6.5	6.9	7.7	-1.1	1.9	-0.3	1.8	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9			0.6	
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.7	2.6	2.7	-0.7	0.5	0.7	0.2	
Residential	1.7	2.1	1.3	1.4	1.5	1.6	1.7	1.8	1.9	-2.5	1.7	1.2	1.1	
Tertiary	0.0	0.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	46.9	0.7	0.5	0.3	
Transport	2.7	3.9	3.8	4.3	5.5	6.3	6.8	7.2	7.4	3.5	3.7	2.3	0.7	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.3	-1.2	0.3	1.6	0.9	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.4	3.3	3.2	3.2	-0.6	-0.4	-0.3	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	119.7	122.4	129.1	134.3	140.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: Baseline scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1	
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9	
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	241.5	223.9	212.2	194.5	186.9	-0.3	-1.3	-1.3	-1.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.11	2.02	2.04	2.11	2.13	-0.9	-0.3	-0.4	0.5	
Import Dependency %	46.5	50.1	52.5	52.2	56.1	59.9	59.9	60.2	58.6					
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.1	6.1	6.9	7.6	7.9		3.4	3.1	1.4	
as % of GDP			15.6	14.5	15.1	15.7	15.8	15.8	15.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.4	81.2	77.0	73.6	71.0	-0.9	-1.4	-1.1	-0.8	
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	82.0	77.4	74.3	69.6	66.2	0.2	-2.0	-1.0	-1.1	
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	73.9	71.4	68.4	63.6	60.4	14.2	-3.0	-0.8	-1.2	
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.6	44.0	41.3	39.6	38.4	5.3	-1.5	-1.0	-0.7	
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.9	49.1	51.2	50.9	48.4	2.3	-0.9	1.3	-0.6	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.34	0.31	0.30	0.28	0.29	-2.0	0.1	-1.2	-0.6	
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.87	1.87	1.83	1.82	1.81	-0.8	-0.1	-0.2	-0.1	
Industry	1.72	1.55	1.65	1.38	1.35	1.34	1.28	1.23	1.24	-0.4	-2.0	-0.5	-0.4	
Residential	1.98	1.80	1.17	1.21	1.22	1.20	1.19	1.22	1.24	-5.2	0.5	-0.3	0.4	
Tertiary	0.17	0.13	1.65	1.76	1.65	1.57	1.45	1.44	1.38	25.7	0.0	-1.2	-0.5	
Transport	2.88	2.91	2.89	2.94	2.89	2.84	2.80	2.76	2.73	0.0	0.0	-0.3	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	14.4	14.5	15.3	16.2	17.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.0	5.8	6.9	8.0					
Gross Electricity generation by source (in GWh)														
			13622	15114	16425	16074	17992	21408	24265		1.9	0.9	3.0	
Nuclear energy			4760	5883	5751	5751	5751	6036	6169		1.9	0.0	0.7	
Solids			4484	5229	6222	5530	6678	8647	9735		3.3	0.7	3.8	
Oil (including refinery gas)			106	36	93	7	5	7	7		-1.3	-25.4	3.0	
Gas (including derived gases)			321	324	592	849	1153	1818	2734		6.3	6.9	9.0	
Biomass-waste			117	181	225	295	623	849	1270		6.8	10.7	7.4	
Hydro (pumping excluded)			3833	3460	3539	3636	3763	4025	4319		-0.8	0.6	1.4	
Wind			0	0	2	6	19	25	30			27.1	4.4	
Solar			0	0	0	1	1	2	3			11.2	8.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2861	3188	3431	3513	3565	3834	4082		1.8	0.4	1.4	
<u>Nuclear energy</u>			656	656	666	666	666	697	712		0.2	0.0	0.7	
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3	
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2	
Wind			0	0	2	7	22	29	34			27.1	4.4	
Solar			0	0	0	1	1	1	2			11.2	8.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			1241	1557	1783	1806	1839	2067	2277		3.7	0.3	2.2	
of which cogeneration units			244	363	413	403	590	635	782		5.4	3.6	2.9	
Solids fired			996	1013	1057	1117	1017	1333	1204		0.6	-0.4	1.7	
Gas fired			81	374	530	525	632	558	883		20.7	1.8	3.4	
Oil fired			142	99	100	73	60	23	0		-3.4	-5.0	-38.9	
Biomass-waste fired			21	71	95	91	130	154	189		16.2	3.2	3.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			51.1	50.7	50.9	49.1	54.2	59.5	63.3					
Efficiency of gross thermal power generation (%)			32.2	32.9	38.1	40.0	44.9	53.8	54.4					
% of gross electricity from CHP			3.5	3.2	9.4	13.1	19.3	18.6	16.4					
Carbon free gross electricity generation (%)			63.9	63.0	57.9	60.3	56.5	51.1	48.6					
- nuclear			34.9	38.9	35.0	35.8	32.0	28.2	25.4					
- renewable energy forms			29.0	24.1	22.9	24.5	24.5	22.9	23.2					
Transport sector														
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.3	23.6	25.9	28.3	30.5	-0.5	2.2	2.0	1.7	
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.1	-13.1	-5.6	1.1	1.2	
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.2	21.3	23.2	25.2	27.1	3.9	2.7	1.9	1.6	
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.5	-6.8	2.5	3.1	2.4	
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	2.0	5.3	5.0	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	20.3	24.1	26.9	29.4	31.6	-1.1	9.6	2.8	1.6	
Trucks	4.9	3.3	5.3	11.0	15.9	19.0	21.4	23.4	25.0	0.8	11.6	3.0	1.5	
Rail	4.2	3.1	2.9	3.2	4.5	5.2	5.5	6.0	6.6	-3.8	4.6	2.1	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	928	1326	1309	1469	1886	2223	2449	2614	2702	3.5	3.7	2.6	1.0	
Public road transport	43	58	15	7	8	8	8	8	8	-10.0	-6.7	0.3	0.6	
Private cars and motorcycles	498	727	867	828	937	999	1024	1064	1110	5.7	0.8	0.9	0.8	
Trucks	330	492	368	582	878	1144	1337	1454	1497	1.1	9.1	4.3	1.1	
Rail	29	29	34	29	38	43	42	42	33	1.4	1.3	1.0	-2.4	
Aviation	27	20	25	23	25	30	37	45	54	-0.8	0.1	4.1	3.7	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Spain: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	35274	36406	40549	35388	39248	-0.7	1.2	1.4	-0.3	
Solids	11679	10170	7740	6265	5856	4664	4251	3062	2577	-4.0	-2.8	-3.2	-4.9	
Oil	794	779	225	165	166	150	100	0	0	-11.8	-3.0	-4.9		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Renewable energy sources	6276	5722	7185	8710	13368	16503	21209	23508	26019	1.4	6.4	4.7	2.1	
Hydro	2184	1987	2534	1681	2359	2244	2298	2419	2552	1.5	-0.7	-0.3	1.1	
Biomass & Waste	4067	3684	4205	5129	7693	8577	11401	12883	14929	0.3	6.2	4.0	2.7	
Wind	1	23	406	1825	3032	5184	6723	7128	7293	79.0	22.3	8.3	0.8	
Solar and others	21	25	33	68	276	489	779	1070	1237	4.5	23.8	10.9	4.7	
Geothermal	2	3	8	8	8	8	8	8	8	12.3	0.4	0.3	-0.1	
Net Imports	59857	75415	98351	122830	130537	140086	140732	148039	142672	5.1	2.9	0.8	0.1	
Solids	7038	9146	12636	14418	15655	16803	17394	24744	23705	6.0	2.2	1.1	3.1	
Oil	49166	58363	69866	78279	79388	82136	84422	85685	85245	3.6	1.3	0.6	0.1	
- Crude oil and Feedstocks	53256	55362	58393	59850	61245	63196	64845	65776	65584	0.9	0.5	0.6	0.1	
- Oil products	-4091	3001	11473	18429	18143	18941	19577	19909	19661		4.7	0.8	0.0	
Natural gas	3690	7521	15467	30248	35008	40564	38360	37257	33285	15.4	8.5	0.9	-1.4	
Electricity	-36	386	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Gross Inland Consumption	89401	102207	122698	143487	157295	167499	171906	173806	172279	3.2	2.5	0.9	0.0	
Solids	18942	19515	20643	20698	21511	21468	21645	27806	26283	0.9	0.4	0.1	2.0	
Oil	45547	54556	63223	69507	71038	73293	75147	76064	75604	3.3	1.2	0.6	0.1	
Natural gas	4970	7722	15219	29844	35138	40664	38360	37257	33285	11.8	8.7	0.9	-1.4	
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Electricity	-36	385	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Renewable energy forms	6276	5723	7185	8711	13591	16752	21540	23882	26452	1.4	6.6	4.7	2.1	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	13.7	12.8	12.6	16.0	15.3					
Oil	50.9	53.4	51.5	48.4	45.2	43.8	43.7	43.8	43.9					
Natural gas	5.6	7.6	12.4	20.8	22.3	24.3	22.3	21.4	19.3					
Nuclear	15.3	14.0	13.1	10.3	10.0	8.9	8.7	5.1	6.2					
Renewable energy forms	7.0	5.6	5.9	6.1	8.6	10.0	12.5	13.7	15.4					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	330397	363761	386819	406570	416795	4.0	4.0	1.6	0.7	
Self consumption and grid losses	21388	24573	32539	40790	42165	44881	47889	53833	55334	4.3	2.6	1.3	1.5	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	37972	39441	38260	43758	39831	4.7	3.7	0.1	0.4	
Solids	13881	13585	18249	17641	18899	19065	19331	25635	24193	2.8	0.4	0.2	2.3	
Oil (including refinery gas)	2170	3654	4442	5246	1896	557	604	700	726	7.4	-8.2	-10.8	1.9	
Gas (including derived gases)	486	987	3075	11140	14182	18017	13452	11535	8517	20.3	16.5	-0.5	-4.5	
Biomass & Waste	145	377	694	1389	2995	1802	4873	5888	6395	16.9	15.7	5.0	2.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	65288	68677	70933	72094	71998	0.9	0.3	0.8	0.1	
Refineries	53753	56041	60048	60507	60979	63157	64882	65779	65623	1.1	0.2	0.6	0.1	
Biofuels and hydrogen production	0	0	65	259	2096	3651	4405	4888	5171		41.5	7.7	1.6	
District heating	0	0	0	0	0	0	0	0	0			-0.5	0.6	
Derived gases, cokeries etc.	4131	2924	3031	3077	2213	1869	1646	1427	1205	-3.0	-3.1	-2.9	-3.1	
Energy Branch Consumption	4757	5473	6118	6397	5854	5975	6151	6517	6549	2.5	-0.4	0.5	0.6	
Non-Energy Uses	5847	8006	9094	7823	8098	8600	9081	9428	9613	4.5	-1.2	1.2	0.6	
Final Energy Demand	56647	63536	79422	97170	108516	117655	122658	125386	126148	3.4	3.2	1.2	0.3	
by sector														
Industry	20014	20476	25474	31036	34229	37377	39390	40265	40532	2.4	3.0	1.4	0.3	
- energy intensive industries	13069	13620	17260	20421	22305	24152	25140	25517	25582	2.8	2.6	1.2	0.2	
- other industrial sectors	6945	6856	8213	10615	11924	13226	14250	14748	14950	1.7	3.8	1.8	0.5	
Residential	9266	9986	11871	15150	16865	17666	17768	17798	17664	2.5	3.6	0.5	-0.1	
Tertiary	5041	7007	9219	11556	12631	13455	13751	13933	13972	6.2	3.2	0.9	0.2	
Transport	22326	26069	32858	39428	44791	49157	51750	53390	53980	3.9	3.1	1.5	0.4	
by fuel														
Solids	3524	2235	1671	1782	1633	1591	1602	1575	1598	-7.2	-0.2	-0.2	0.0	
Oil	33488	38971	45784	52776	56829	59943	61325	61962	61428	3.2	2.2	0.8	0.0	
Gas	4873	6841	12141	17978	20792	22164	24277	24857	24029	9.6	5.5	1.6	-0.1	
Electricity	10817	12116	16205	20827	24489	27189	28798	29785	30537	4.1	4.2	1.6	0.6	
Heat (from CHP and District Heating)	0	39	74	0	21	20	27	25	24		-11.9	2.7	-1.2	
Renewable energy forms	3945	3335	3547	3806	4749	6742	6616	7166	8516	-1.1	3.0	3.4	2.6	
Other	0	0	0	0	3	6	13	16	17			14.9	2.7	
RES in Gross Final Energy Consumption ^(A)			6709	8189	11825	15474	19705	21789	24160	5.8	5.2	2.1		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	470.6	491.1	491.9	517.9	502.5	3.1	2.0	0.4	0.2	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	357.7	375.8	375.2	398.6	381.3	3.4	2.4	0.5	0.2	
Power generation/District heating	63.6	68.2	94.1	113.2	114.3	119.6	110.1	130.7	118.0	4.0	2.0	-0.4	0.7	
Energy Branch	11.5	13.1	13.6	14.7	13.6	14.0	14.0	13.9	13.1	1.6	0.1	0.3	-0.7	
Industry	41.9	43.4	48.9	58.2	63.7	66.2	70.0	70.3	67.2	1.6	2.7	1.0	-0.4	
Residential	12.9	13.6	16.4	20.4	21.2	21.6	21.0	20.5	19.9	2.5	2.6	-0.1	-0.5	
Tertiary	7.7	10.5	12.9	16.2	16.3	16.6	16.3	15.9	15.3	5.3	2.3	0.0	-0.6	
Transport	65.6	76.9	97.3	116.7	128.5	137.8	143.8	147.3	147.8	4.0	2.8	1.1	0.3	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	39.0	40.7	40.8	40.3	39.6	1.6	2.9	0.5	-0.3	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	74.7	75.8	79.0	81.6	2.5	-0.2	0.3	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	163.9	171.1	171.3	180.4	175.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: Baseline scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Int. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	147.7	134.8	121.8	111.7	102.9	0.2	-0.7	-1.9	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.24	2.18	2.29	2.21	0.1	-0.1	-0.4	0.1
Import Dependency %	64.2	71.6	76.5	81.2	78.7	79.4	77.6	80.7	78.4				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	98.9	113.5	128.5	139.1	145.8		3.3	2.7	1.3
as % of GDP			9.2	9.1	9.3	9.1	9.1	8.9	8.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.9	101.2	93.2	87.2	82.9	0.3	0.9	-1.5	-1.2
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	102.6	92.9	82.9	75.7	70.1	-0.4	0.3	-2.1	-1.7
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	100.3	91.7	82.5	76.1	71.4	3.8	0.0	-1.9	-1.4
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.9	39.3	37.3	36.2	36.0	0.6	-0.4	-0.9	-0.4
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	61.0	60.5	58.6	56.3	54.1	-2.3	-1.3	-0.4	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.35	0.33	0.28	0.32	0.28	0.0	-1.9	-1.9	-0.1
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.12	2.06	2.05	2.03	1.98	-0.2	-0.4	-0.3	-0.3
Industry	2.10	2.12	1.92	1.87	1.86	1.77	1.78	1.75	1.66	-0.9	-0.3	-0.5	-0.7
Residential	1.39	1.36	1.39	1.34	1.26	1.22	1.18	1.15	1.13	0.0	-0.9	-0.7	-0.4
Tertiary	1.53	1.50	1.40	1.40	1.29	1.23	1.19	1.14	1.10	-0.9	-0.8	-0.8	-0.8
Transport	2.94	2.95	2.96	2.96	2.87	2.80	2.78	2.76	2.74	0.1	-0.3	-0.3	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	10.5	12.7	15.5	16.8	18.5				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.5	7.3	8.5	9.3	10.0				
Gross Electricity generation by source (in GWh)													
			222776	290555	330397	363761	386819	406570	416795		4.0	1.6	0.7
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	81893	87470	126162	132929		0.3	0.8	4.3
Oil (including refinery gas)			19567	23770	9465	3748	3866	4007	3971		-7.0	-8.6	0.3
Gas (including derived gases)			24741	85513	101884	123949	106705	98405	78600		15.2	0.5	-3.0
Biomass-waste			3374	5457	13466	8362	22935	27942	32333		14.8	5.5	3.5
Hydro (pumping excluded)			29465	19549	27435	26095	26725	28126	29674		-0.7	-0.3	1.1
Wind			4723	21215	35251	60281	78178	82881	84798		22.3	8.3	0.8
Solar			18	78	674	1338	2844	4871	6001		43.7	15.5	7.8
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			60718	80297	91569	98732	109134	112098	117458		4.2	1.8	0.7
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40396	49344	52645	56189		7.4	4.9	1.3
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25712	33692	35695	38509		22.0	7.5	1.3
Solar			14	52	435	864	1830	3128	3858		41.5	15.4	7.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			38166	50004	53520	51350	52803	55346	55669		3.4	-0.1	0.5
of which cogeneration units			5017	7578	7906	8052	10456	11436	11482		4.7	2.8	0.9
Solids fired			11352	11485	11277	10570	11342	15425	16378		-0.1	0.1	3.7
Gas fired			19801	32257	35544	34467	33883	32314	31804		6.0	-0.5	-0.6
Oil fired			6518	5375	5589	5216	3925	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1109	1097	3653	4360	4982		8.4	12.7	3.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	39.8	40.8	39.1	39.6	38.7				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.7	47.5	49.7	50.4	53.5				
% of gross electricity from CHP			7.4	13.5	12.0	11.3	14.6	15.2	14.7				
Carbon free gross electricity generation (%)			44.8	35.7	41.7	42.4	48.8	43.8	48.3				
- nuclear			27.9	19.8	18.5	16.0	15.0	8.4	11.6				
- renewable energy forms			16.9	15.9	23.3	26.4	33.8	35.4	36.7				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	617.2	700.1	772.5	830.0	867.9	5.3	2.9	2.3	1.2
Public road transport	33.4	39.6	50.3	54.6	56.9	59.4	62.1	64.4	66.4	4.2	1.3	0.9	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	427.8	481.4	523.2	552.2	568.0	5.5	3.3	2.0	0.8
Rail	19.9	20.8	25.4	27.2	29.2	32.2	35.9	41.3	46.7	2.5	1.4	2.1	2.7
Aviation	39.5	51.4	73.6	82.2	100.9	124.7	148.9	169.7	184.4	6.4	3.2	4.0	2.2
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.4	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	320.0	358.0	391.5	414.0	421.0	4.1	5.3	2.0	0.7
Trucks	83.8	101.6	148.7	233.2	272.7	305.0	333.3	353.6	359.8	5.9	6.3	2.0	0.8
Rail	11.2	11.0	11.6	11.1	12.4	13.9	15.3	16.2	16.6	0.4	0.6	2.1	0.8
Inland navigation	33.0	38.0	31.0	32.0	34.9	39.1	42.9	44.2	44.6	-0.6	1.2	2.1	0.4
Energy demand in transport (ktoe)	22326	26069	32858	39428	44791	49157	51750	53390	53980	3.9	3.1	1.5	0.4
Public road transport	224	221	275	284	280	278	281	281	286	2.1	0.2	0.0	0.2
Private cars and motorcycles	7830	10598	14286	16266	17858	18934	19383	19579	19549	6.2	2.3	0.8	0.1
Trucks	9634	9647	11587	14854	17348	19247	20364	20805	20627	1.9	4.1	1.6	0.1
Rail	528	626	847	1166	1210	1287	1307	1267	939	4.8	3.6	0.8	-3.3
Aviation	2456	3105	4486	5323	6429	7599	8485	9523	10672	6.2	3.7	2.8	2.3
Inland navigation	1655	1871	1378	1534	1667	1810	1930	1936	1908	-1.8	1.9	1.5	-0.1

Source: PRIMES

Sweden: Baseline scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	29728	31514	30077	34378	36076	36696	37316	38092	38467	0.1	1.8	0.3	0.3
Solids	216	321	231	302	306	306	270	246	145	0.7	2.9	-1.2	-6.0
Oil	3	4	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	17764	18040	14781	18670	19475	19476	19477	19479	19479	-1.8	2.8	0.0	0.0
Renewable energy sources	11745	13149	15065	15406	16295	16914	17568	18367	18843	2.5	0.8	0.8	0.7
Hydro	6234	5856	6757	6260	6226	6253	6279	6279	6279	0.8	-0.8	0.1	0.0
Biomass & Waste	5507	7279	8264	9059	9691	10203	10820	11593	12002	4.1	1.6	1.1	1.0
Wind	1	9	39	80	356	423	425	446	506	54.2	24.7	1.8	1.8
Solar and others	3	5	5	6	21	35	44	50	56	5.3	14.9	7.5	2.4
Geothermal	0	0	0	0	0	0	0	0	0			1.2	-0.1
Net Imports	17923	19281	19172	19867	21489	22941	23246	23200	22886	0.7	1.1	0.8	-0.2
Solids	2329	2657	2340	2462	3029	5065	5177	4959	4776	0.0	2.6	5.5	-0.8
Oil	15169	16014	15654	17198	18006	17195	16714	16747	16615	0.3	1.4	-0.7	-0.1
- Crude oil and Feedstocks	16989	17815	20372	19825	20649	20112	19770	19823	19693	1.8	0.1	-0.4	0.0
- Oil products	-1820	-1801	-4718	-2626	-2643	-2916	-3056	-3076	-3078				
Natural gas	577	755	776	843	1382	2144	2767	2817	2853	3.0	5.9	7.2	0.3
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Gross Inland Consumption	47166	50446	47849	51555	55528	57527	58377	59023	59009	0.1	1.5	0.5	0.1
Solids	2677	2893	2442	2626	3335	5371	5447	5206	4921	-0.9	3.2	5.0	-1.0
Oil	14555	15754	14382	14646	15969	15085	14529	14478	14271	-0.1	1.1	-0.9	-0.2
Natural gas	577	755	776	843	1382	2144	2767	2817	2853	3.0	5.9	7.2	0.3
Nuclear	17764	18040	14781	18670	19475	19476	19477	19479	19479	-1.8	2.8	0.0	0.0
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Renewable energy forms	11745	13149	15065	15406	16295	16914	17568	18367	18843	2.5	0.8	0.8	0.7
as % in Gross Inland Consumption													
Solids	5.7	5.7	5.1	5.1	6.0	9.3	9.3	8.8	8.3				
Oil	30.9	31.2	30.1	28.4	28.8	26.2	24.9	24.5	24.2				
Natural gas	1.2	1.5	1.6	1.6	2.5	3.7	4.7	4.8	4.8				
Nuclear	37.7	35.8	30.9	36.2	35.1	33.9	33.4	33.0	33.0				
Renewable energy forms	24.9	26.1	31.5	29.9	29.3	29.4	30.1	31.1	31.9				
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	172992	185921	188746	190416	191585	0.0	1.7	0.9	0.1
Self consumption and grid losses	13436	14222	14818	15557	17775	18736	18965	19742	19812	1.0	1.8	0.7	0.4
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	5304	6291	6195	5786	5512	8.1	5.1	1.6	-1.2
Solids	558	705	467	494	724	1000	646	507	166	-1.8	4.5	-1.1	-12.7
Oil (including refinery gas)	253	737	276	316	172	52	14	1	1	0.9	-4.6	-22.3	-25.6
Gas (including derived gases)	253	406	414	490	162	400	477	553	596	5.0	-8.9	11.4	2.2
Biomass & Waste	427	1398	2083	3166	4247	4838	5057	4724	4749	17.2	7.4	1.8	-0.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	20579	23463	25294	24304	24610	24419	24322	24379	24224	2.1	-0.3	-0.1	0.0
Refineries	18041	19475	21618	20537	20627	20101	19765	19821	19692	1.8	-0.5	-0.4	0.0
Biofuels and hydrogen production	0	0	0	210	422	631	794	928	1053			6.5	2.9
District heating	1123	2373	1973	1722	1648	1749	1763	1705	1664	5.8	-1.8	0.7	-0.6
Derived gases, cokeries etc.	1415	1615	1704	1835	1913	1938	2000	1926	1815	1.9	1.2	0.4	-1.0
Energy Branch Consumption	1758	1629	1532	1424	1555	1661	1680	1743	1735	-1.4	0.1	0.8	0.3
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2602	0.0	3.6	0.2	0.1
Final Energy Demand	30514	32602	33302	33145	35036	37032	38260	39533	39958	0.9	0.5	0.9	0.4
by sector													
Industry	11857	11527	12047	12042	12992	14260	14931	15674	15855	0.2	0.8	1.4	0.6
- energy intensive industries	8574	8572	9161	9204	9767	10688	11143	11725	11796	0.7	0.6	1.3	0.6
- other industrial sectors	3283	2955	2886	2838	3225	3572	3788	3949	4059	-1.3	1.1	1.6	0.7
Residential	6840	8032	7546	7882	8122	8270	8308	8381	8374	1.0	0.7	0.2	0.1
Tertiary	4555	5378	5581	4577	4835	4974	5090	5186	5249	2.1	-1.4	0.5	0.3
Transport	7263	7666	8128	8643	9087	9527	9931	10293	10460	1.1	1.1	0.9	0.5
by fuel													
Solids	1231	1192	1141	1345	1594	2846	3176	3061	3167	-0.8	3.4	7.1	0.0
Oil	12004	12567	12341	11087	11676	10968	11134	11354	11380	0.3	-0.6	-0.5	0.2
Gas	587	611	673	746	1687	2248	2406	2203	2102	1.4	9.6	3.6	-1.3
Electricity	10348	10711	11068	11382	12148	12640	12913	13076	13135	0.7	0.9	0.6	0.2
Heat (from CHP and District Heating)	1706	3540	3550	4174	3868	3981	4013	4018	3977	7.6	0.9	0.4	-0.1
Renewable energy forms	4639	3981	4528	4410	4062	4347	4615	5816	6171	-0.2	-1.1	1.3	2.9
Other	0	0	0	0	1	1	3	5	6			13.9	6.2
RES in Gross Final Energy Consumption ^(A)			14717	14682	14591	15208	15934	16905	17506		-0.1	0.9	0.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	74.3	81.8	82.6	81.7	80.3	-0.1	0.3	1.1	-0.3
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	53.6	61.1	61.5	60.9	59.6	0.0	0.6	1.4	-0.3
Power generation/District heating	6.3	7.9	5.1	5.5	4.9	8.2	6.7	6.7	5.4	-2.0	-0.4	3.1	-2.0
Energy Branch	1.5	1.8	1.9	2.3	2.3	2.6	2.2	2.1	2.0	2.3	1.7	-0.3	-1.1
Industry	11.6	12.5	11.0	12.2	16.5	19.7	21.0	19.4	19.2	-0.5	4.1	2.4	-0.9
Residential	4.8	4.6	3.7	1.4	1.7	1.7	1.8	2.0	2.1	-2.6	-7.7	0.6	1.9
Tertiary	5.6	5.4	5.6	3.1	3.3	3.2	3.3	3.3	3.4	0.0	-5.2	0.1	0.3
Transport	20.7	21.8	23.2	24.0	24.9	25.7	26.5	27.3	27.5	1.1	0.7	0.6	0.4
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.9	7.1	7.2	7.3	-0.3	0.8	0.3	0.2
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	13.7	14.0	13.6	13.4	-0.4	-1.1	0.2	-0.5
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	101.8	112.1	113.2	111.9	110.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Sweden: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	165.3	152.0	138.6	127.2	117.4	-1.9	-1.2	-1.7	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.97	1.06	1.05	1.03	1.01	-0.1	-0.9	0.9	-0.4
Import Dependency %	37.5	37.5	39.0	37.2	37.3	38.5	38.4	37.9	37.3				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.0	37.9	40.7	43.1	44.7		3.7	1.5	0.9
as % of GDP			9.5	10.7	10.4	10.0	9.7	9.3	8.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	73.8	70.6	65.7	62.5	58.5	-5.6	-3.0	-1.2	-1.2
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	87.1	80.0	73.2	67.7	62.8	-0.7	-1.4	-1.7	-1.5
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	68.2	62.3	57.2	52.6	48.9	0.5	-3.8	-1.7	-1.6
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	37.1	35.8	34.8	33.5	32.2	-0.6	-0.8	-0.6	-0.8
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	43.8	42.1	40.7	39.8	38.2	1.3	-0.1	-0.7	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.04	0.03	0.03	0.02	-3.1	-1.9	2.3	-2.1
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.32	1.36	1.37	1.32	1.31	-0.7	0.1	0.4	-0.5
Industry	0.97	1.08	0.91	1.01	1.27	1.38	1.41	1.24	1.21	-0.6	3.4	1.0	-1.5
Residential	0.70	0.57	0.49	0.18	0.20	0.21	0.21	0.24	0.25	-3.5	-8.4	0.4	1.8
Tertiary	1.23	1.00	1.00	0.68	0.67	0.64	0.64	0.65	0.64	-2.0	-3.8	-0.5	-0.1
Transport	2.85	2.85	2.85	2.77	2.75	2.70	2.67	2.65	2.63	0.0	-0.4	-0.3	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	39.8	39.2	39.8	40.9	42.0				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.1	6.0	7.3	8.4	9.6				
Gross Electricity generation by source (in GWh)													
			145524	158341	172992	185921	188746	190416	191585		1.7	0.9	0.1
Nuclear energy			57306	72364	75517	75881	75886	75891	75893		2.8	0.0	0.0
Solids			1141	1241	2880	3605	2381	1973	1157		9.7	-1.9	-7.0
Oil (including refinery gas)			1828	1004	991	496	198	3	4		-5.9	-14.9	-33.0
Gas (including derived gases)			1714	1394	1892	3744	4034	4295	3867		1.0	7.9	-0.4
Biomass-waste			4508	8607	15170	24568	28284	30047	31756		12.9	6.4	1.2
Hydro (pumping excluded)			78570	72795	72397	72704	73014	73014	73014		-0.8	0.1	0.0
Wind			457	936	4143	4916	4943	5182	5881		24.7	1.8	1.8
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	35604	36244	37015	38943	40152		0.9	0.4	0.8
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	17273	17544	17563	17582	17821		0.9	0.2	0.1
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	1612	1872	1881	1961	2184		21.4	1.6	1.5
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	9286	9254	10003	11912	12883		2.8	0.7	2.6
of which cogeneration units			3791	4762	3704	5068	5434	5887	5897		-0.2	3.9	0.8
Solids fired			847	868	756	724	666	620	262		-1.1	-1.3	-8.9
Gas fired			514	522	942	1298	2996	4587	5263		6.2	12.3	5.8
Oil fired			4271	4366	4135	3022	1586	1596	1919		-0.3	-9.1	1.9
Biomass-waste fired			1389	1842	3453	4210	4755	5108	5440		9.5	3.3	1.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	53.9	56.7	56.3	53.8	52.5				
Efficiency of gross thermal power generation (%)			24.4	23.6	33.9	44.3	48.4	54.0	57.4				
% of gross electricity from CHP			5.9	7.5	9.0	13.4	15.0	16.2	17.0				
Carbon free gross electricity generation (%)			96.8	97.7	96.7	95.8	96.5	96.7	97.4				
- nuclear			39.4	45.7	43.7	40.8	40.2	39.9	39.6				
- renewable energy forms			57.4	52.0	53.0	55.0	56.3	56.9	57.8				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	156.0	168.7	181.0	193.1	203.9	1.1	1.5	1.5	1.2
Public road transport	8.0	8.5	9.5	9.0	9.1	9.3	9.7	10.1	10.4	1.7	-0.4	0.6	0.7
Private cars and motorcycles	87.6	88.1	93.3	99.4	108.4	115.9	123.3	130.9	137.2	0.6	1.5	1.3	1.1
Rail	8.6	8.8	10.2	11.0	12.1	13.6	14.7	15.5	16.5	1.7	1.7	2.0	1.2
Aviation	8.1	10.8	13.8	15.6	19.1	22.4	25.7	28.9	31.8	5.4	3.3	3.0	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.3	7.4	7.6	7.7	7.9	-1.3	0.1	0.4	0.4
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	75.5	82.7	89.5	96.2	102.0	1.4	2.0	1.7	1.3
Trucks	26.5	31.6	35.6	38.6	43.6	47.2	51.1	55.3	59.0	3.0	2.0	1.6	1.5
Rail	19.1	19.4	19.5	21.7	24.6	27.7	30.1	32.1	34.0	0.2	2.4	2.0	1.2
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.4	8.8	9.0	-1.8	0.6	1.4	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	9087	9527	9931	10293	10460	1.1	1.1	0.9	0.5
Public road transport	230	275	189	156	146	145	149	152	151	-2.0	-2.6	0.2	0.2
Private cars and motorcycles	4004	4099	4086	4472	4512	4633	4736	4746	4699	0.2	1.0	0.5	-0.1
Trucks	1872	2066	2471	2695	2965	3120	3272	3464	3535	2.8	1.8	1.0	0.8
Rail	252	273	299	332	366	388	391	385	389	1.7	2.0	0.7	0.0
Aviation	760	849	928	846	954	1092	1231	1389	1529	2.0	0.3	2.6	2.2
Inland navigation	143	103	154	141	144	148	153	156	157	0.8	-0.7	0.6	0.3

Source: PRIMES

United Kingdom: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	205508	249865	268722	202300	168638	108066	75439	68290	70757	2.7	-4.6	-7.7	-0.6	
Solids	54125	30516	18577	12172	10500	9000	8000	7000	6000	-10.1	-5.5	-2.7	-2.8	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	9903	16255	2.8	-1.6	-8.7	8.0	
Renewable energy sources	1070	1996	2635	4048	6396	8148	10922	13387	15501	9.4	9.3	5.5	3.6	
Hydro	436	416	437	427	417	436	452	485	523	0.0	-0.5	0.8	1.5	
Biomass & Waste	627	1539	2104	3340	4816	5974	7352	8586	9685	12.9	8.6	4.3	2.8	
Wind	1	34	81	250	1003	1360	2481	3528	4359	59.3	28.5	9.5	5.8	
Solar and others	5	6	11	30	159	377	636	785	933	8.1	30.4	14.8	3.9	
Geothermal	1	1	1	1	1	1	2	2	3	0.0	4.4	4.1	3.3	
Net Imports	5932	-36021	-39030	32641	61330	125828	152748	160884	159517			9.6	0.4	
Solids	9122	10493	14577	27467	32253	33846	31337	31963	27533	4.8	8.3	-0.3	-1.3	
Oil	-10396	-48554	-45515	-2171	16498	43753	65237	71556	74842			14.7	1.4	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	21747	49029	70525	76853	80146			12.5	1.3	
- Oil products	-5858	-12196	-6490	-7027	-5249	-5275	-5288	-5297	-5304					
Natural gas	6178	637	-9311	5973	10783	46128	53897	54975	54820			17.5	0.2	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	227928	231814	226072	227036	228131	0.9	-0.1	-0.1	0.1	
Solids	64305	45866	36816	38186	42753	42846	39337	38963	33533	-5.4	1.5	-0.8	-1.6	
Oil	80903	82378	81357	82701	84458	86674	88123	89418	90700	0.1	0.4	0.4	0.3	
Natural gas	47203	65119	87399	84898	73783	76128	77897	72975	69820	6.4	-1.7	0.5	-1.1	
Nuclear	16574	21249	21942	21054	18742	15918	7517	9903	16255	2.8	-1.6	-8.7	8.0	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	7343	9323	12367	15075	17405	9.4	10.8	5.4	3.5	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	18.8	18.5	17.4	17.2	14.7					
Oil	38.3	37.8	35.2	35.6	37.1	37.4	39.0	39.4	39.8					
Natural gas	22.4	29.9	37.8	36.6	32.4	32.8	34.5	32.1	30.6					
Nuclear	7.9	9.7	9.5	9.1	8.2	6.9	3.3	4.4	7.1					
Renewable energy forms	0.5	0.9	1.1	2.0	3.2	4.0	5.5	6.6	7.6					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	414854	431516	451496	469320	479224	1.7	1.0	0.8	0.6	
Self consumption and grid losses	44516	46573	48246	50822	50846	50838	56202	60877	60553	0.8	0.5	1.0	0.7	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	61759	65239	64926	61842	54797	-0.1	1.1	0.5	-1.7	
Solids	47267	33844	27232	30920	35753	36122	32877	33262	28334	-5.4	2.8	-0.8	-1.5	
Oil (including refinery gas)	7172	3403	806	815	0	0	1	17	0	-19.6			-8.3	
Gas (including derived gases)	1668	12054	26033	26807	22910	25856	28094	23798	20856	31.6	-1.3	2.1	-2.9	
Biomass & Waste	212	620	1410	3455	3096	3261	3954	4764	5607	20.9	8.2	2.5	3.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	97199	101192	104028	105685	107309	0.1	-0.3	0.7	0.3	
Refineries	89882	94255	89299	87320	90065	93311	95300	96893	98324	-0.1	0.1	0.6	0.3	
Biofuels and hydrogen production	0	0	0	80	1433	2583	3842	4532	5084			10.4	2.8	
District heating	0	0	3354	1976	1035	896	790	703	635		-11.1	-2.7	-2.2	
Derived gases, cokeries etc.	9263	8079	7682	5436	4665	4402	4096	3558	3266	-1.9	-4.9	-1.3	-2.2	
Energy Branch Consumption	12836	14401	15039	15383	13559	13430	13600	13375	12971	1.6	-1.0	0.0	-0.5	
Non-Energy Uses	11173	12550	11152	11510	11828	12188	12599	13009	13362	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151500	151639	155634	158435	160377	162158	1.0	0.0	0.4	0.2	
by sector														
Industry	34962	35132	35909	33889	33935	35146	35899	36346	36677	0.3	-0.6	0.6	0.2	
- energy intensive industries	19483	19965	19215	16289	16390	16840	16998	16828	16672	-0.1	-1.6	0.4	-0.2	
- other industrial sectors	15479	15167	16694	17600	17544	18307	18901	19518	20005	0.8	0.5	0.7	0.6	
Residential	37939	39567	43072	43284	41094	40735	40321	39846	39562	1.3	-0.5	-0.2	-0.2	
Tertiary	18596	20863	20359	19170	18632	18991	19232	19369	19502	0.9	-0.9	0.3	0.1	
Transport	45451	46867	52324	55236	57979	60762	62983	64816	66417	1.4	1.0	0.8	0.5	
by fuel														
Solids	12266	8891	5683	4422	4791	4621	4680	3806	3452	-7.4	-1.7	-0.2	-3.0	
Oil	58770	60197	62437	65731	68652	70490	71561	72477	73478	0.6	1.0	0.4	0.3	
Gas	41893	47140	52180	49853	43730	43229	42544	42701	42755	2.2	-1.8	-0.3	0.0	
Electricity	23597	25274	28325	29686	31321	32841	34068	35041	35562	1.8	1.0	0.8	0.4	
Heat (from CHP and District Heating)	0	0	2439	1317	1025	1154	1309	1470	1566		-8.3	2.5	1.8	
Renewable energy forms	421	926	600	572	2116	3292	4259	4860	5321	3.6	13.4	7.2	2.3	
Other	0	0	0	0	4	7	14	22	23			14.2	5.2	
RES in Gross Final Energy Consumption ^(A)			1537	2483	5208	7031	10127	13025	15083		13.0	6.9	4.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	680.0	690.5	684.3	652.6	612.3	-1.1	-0.2	0.1	-1.1	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	554.7	566.3	559.9	549.8	523.9	-0.4	0.2	0.1	-0.7	
Power generation/District heating	214.2	173.6	181.2	193.8	197.8	205.7	197.9	189.7	163.2	-1.7	0.9	0.0	-1.9	
Energy Branch	27.9	31.9	33.1	34.6	29.3	29.4	29.2	27.9	27.0	1.7	-1.2	0.0	-0.8	
Industry	81.8	78.8	70.5	65.5	65.7	66.6	67.2	65.3	64.8	-1.5	-0.7	0.2	-0.4	
Residential	77.8	77.3	81.9	79.7	73.2	70.5	68.2	66.1	64.9	0.5	-1.1	-0.7	-0.5	
Tertiary	32.9	35.2	26.7	24.3	21.8	21.6	21.3	21.0	20.9	-2.1	-2.0	-0.2	-0.2	
Transport	132.4	136.5	152.7	161.8	166.9	172.5	176.1	179.9	183.2	1.4	0.9	0.5	0.4	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.2	27.3	27.7	27.7	28.2	-1.5	1.4	0.2	0.2	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	96.9	96.7	75.2	60.3	-3.9	-2.2	-0.1	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	87.7	89.0	88.2	84.2	79.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										United Kingdom: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	112.1	101.3	88.3	80.3	74.4	-1.5	-2.6	-2.4	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.43	2.44	2.48	2.42	2.30	-1.3	0.3	0.2	-0.8
Import Dependency %	2.8	-16.3	-16.7	13.9	26.7	53.8	66.9	70.2	69.3				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	146.7	163.9	181.1	195.6	206.2		0.6	2.1	1.3
as % of GDP			8.7	7.4	7.2	7.2	7.1	6.9	6.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	94.0	89.5	84.5	79.4	75.7	-0.6	-0.6	-1.1	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	73.6	65.1	57.9	52.0	47.8	-1.4	-3.0	-2.4	-1.9
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	66.0	58.8	52.5	47.4	43.6	-2.2	-4.1	-2.3	-1.8
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.8	42.9	42.1	41.3	41.2	0.3	-0.8	-0.4	-0.2
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.3	58.4	57.5	56.4	54.0	-0.5	1.2	-0.1	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.46	0.46	0.42	0.39	0.33	-4.0	0.2	-0.9	-2.5
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.16	2.13	2.10	2.07	2.06	-0.8	-0.1	-0.3	-0.2
Industry	2.34	2.24	1.96	1.93	1.94	1.89	1.87	1.80	1.77	-1.7	-0.1	-0.3	-0.6
Residential	2.05	1.95	1.90	1.84	1.78	1.73	1.69	1.66	1.64	-0.7	-0.7	-0.5	-0.3
Tertiary	1.77	1.69	1.31	1.27	1.17	1.14	1.11	1.08	1.07	-3.0	-1.1	-0.6	-0.3
Transport	2.91	2.91	2.92	2.93	2.88	2.84	2.80	2.78	2.76	0.0	-0.1	-0.3	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	3.3	4.4	6.2	7.9	9.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.6	4.6	6.8	8.1	9.0				
Gross Electricity generation by source (in GWh)													
			374308	397522	414854	431516	451496	469320	479224		1.0	0.8	0.6
Nuclear energy			85048	81603	72657	61709	29140	40603	72535		-1.6	-8.7	9.5
Solids			118129	134618	157376	159020	173001	183073	161373		2.9	1.0	-0.7
Oil (including refinery gas)			7147	7622	104	104	107	178	89		-34.5	0.3	-1.8
Gas (including derived gases)			153298	152495	154815	175132	194275	174237	158869		0.1	2.3	-2.0
Biomass-waste			4653	13308	13366	14622	19545	22190	25987		11.1	3.9	2.9
Hydro (pumping excluded)			5085	4960	4846	5069	5258	5644	6076		-0.5	0.8	1.5
Wind			947	2907	11666	15810	28847	41019	50682		28.5	9.5	5.8
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	0	1243	2235	3376				10.5
Net Generation Capacity in MW_e			84356	90824	94919	94798	96175	103293	108797		1.2	0.1	1.2
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	5596	8662		-1.9	-8.5	7.0
<u>Renewable energy</u>			1758	3009	5651	7129	12495	17400	21643		12.4	8.3	5.6
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	4161	5511	10257	14553	18064		26.2	9.4	5.8
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	77	645	1160	1752				10.5
<u>Thermal power</u>			69560	75978	78545	78405	79268	80298	78491		1.2	0.1	-0.1
of which cogeneration units			6116	8041	6800	8403	9672	11860	12936		1.1	3.6	3.0
Solids fired			30684	30627	28669	23771	20764	21727	20804		-0.7	-3.2	0.0
Gas fired			27319	33944	38268	42681	46189	48331	48723		3.4	1.9	0.5
Oil fired			10540	9879	9357	9164	7715	5449	4158		-1.2	-1.9	-6.0
Biomass-waste fired			1017	1528	2251	2788	4601	4791	4807		8.3	7.4	0.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	47.9	50.1	51.3	49.4	48.0				
Efficiency of gross thermal power generation (%)			43.9	42.7	45.3	46.0	51.3	52.8	54.4				
% of gross electricity from CHP			9.0	8.5	10.3	12.5	14.1	15.1	15.7				
Carbon free gross electricity generation (%)			25.6	25.9	24.7	22.5	18.6	23.8	33.2				
- nuclear			22.7	20.5	17.5	14.3	6.5	8.7	15.1				
- renewable energy forms			2.9	5.3	7.2	8.2	12.2	15.2	18.0				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	976.0	1042.6	1108.1	1169.7	1221.7	1.3	1.5	1.3	1.0
Public road transport	46.2	44.3	47.0	48.8	50.3	51.6	53.1	54.3	55.2	0.2	0.7	0.5	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	730.6	770.1	809.7	850.3	884.3	0.9	1.3	1.0	0.9
Rail	39.9	37.1	46.7	51.8	56.6	62.0	67.6	72.2	77.2	1.6	1.9	1.8	1.3
Aviation	49.3	66.8	94.0	110.0	131.9	152.3	171.1	186.0	198.1	6.7	3.4	2.6	1.5
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.7	6.7	6.8	-2.1	0.0	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	261.8	273.9	284.7	292.9	297.4	1.1	0.7	0.8	0.4
Trucks	145.7	161.5	165.6	167.5	175.4	185.7	195.0	202.1	205.9	1.3	0.6	1.1	0.5
Rail	16.0	13.3	18.1	22.1	24.2	25.7	27.0	27.8	28.3	1.2	3.0	1.1	0.5
Inland navigation	55.8	53.1	60.0	61.2	62.1	62.5	62.8	63.0	63.1	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57979	60762	62983	64816	66417	1.4	1.0	0.8	0.5
Public road transport	514	493	518	490	477	482	488	497	498	0.1	-0.8	0.2	0.2
Private cars and motorcycles	25438	25836	27031	25783	26035	26628	26936	27045	27644	0.6	-0.4	0.3	0.3
Trucks	10387	10366	11277	13316	13584	14260	14730	15074	14912	0.8	1.9	0.8	0.1
Rail	1063	1233	1464	1532	1587	1429	1269	1083	804	3.2	0.8	-2.2	-4.5
Aviation	6779	7822	11115	12847	15014	16680	18297	19873	21332	5.1	3.1	2.0	1.5
Inland navigation	1269	1117	920	1269	1282	1282	1264	1244	1227	-3.2	3.4	-0.1	-0.3

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10⁷ kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10⁶ watt

MWh: megawatt-hour or 10⁶ watt-hours

GWh: gigawatt-hour or 10⁹ watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10⁹ passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10⁹ tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 2: EC Proposal without RES trading

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	933011	946298	937567	896393	839432	774537	746078	747510	762857	0.0	-1.1	-1.2	0.2	
Solids	365918	277924	213693	196451	160728	128549	112290	108145	108679	-5.2	-2.8	-3.5	-0.3	
Oil	128809	170055	171665	132993	104492	76537	52707	44090	40803	2.9	-4.8	-6.6	-2.5	
Natural gas	162447	188965	207559	188021	166396	121633	109352	96063	83993	2.5	-2.2	-4.1	-2.6	
Nuclear	202589	223028	243761	257360	245217	243285	218761	211520	212008	1.9	0.1	-1.1	-0.3	
Renewable energy sources	73248	86325	100890	121568	162599	204533	252968	287692	317374	3.3	4.9	4.5	2.3	
Hydro	25101	28054	30374	26394	29697	29531	29931	30119	30362	1.9	-0.2	0.1	0.1	
Biomass & Waste	44737	54203	64774	82903	107300	132294	166535	188033	204714	3.8	5.2	4.4	2.1	
Wind	67	350	1913	6060	14886	23033	31109	40159	49232	39.8	22.8	7.6	4.7	
Solar and others	153	273	418	816	4119	12657	18958	21950	25676	10.6	25.7	16.5	3.1	
Geothermal	3190	3444	3412	5395	6597	7017	7335	7432	7390	0.7	6.8	1.1	0.1	
Net Imports	748677	730704	818875	975298	1013314	1059354	1084350	1101366	1109574	0.9	2.2	0.7	0.2	
Solids	79289	79183	79183	126702	135103	116049	103043	103397	109745	2.2	3.2	-2.7	0.6	
Oil	530805	504448	525661	589611	599994	616212	622732	624974	622230	-0.1	1.3	0.4	0.0	
- Crude oil and Feedstocks	503539	488479	507317	574313	599794	626650	643933	651323	653324	0.1	1.7	0.7	0.1	
- Oil products	27265	15969	18344	15298	200	-10437	-21201	-26348	-31094	-3.9	-36.4			
Natural gas	135121	145288	192531	256828	271387	313767	328625	337379	339032	3.6	3.5	1.9	0.3	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1799098	1777891	1772247	1788743	1810877	0.4	0.5	-0.2	0.2	
Solids	450105	364252	321390	320065	295832	244598	215333	211542	218424	-3.3	-0.8	-3.1	0.1	
Oil	625464	642003	650399	665514	650837	636749	617259	608932	601478	0.4	0.0	-0.5	-0.3	
Natural gas	294905	333268	393417	444804	437783	435400	437977	433442	423025	2.9	1.1	0.0	-0.3	
Nuclear	202589	223028	243761	257360	245217	243285	218761	211520	212008	1.9	0.1	-1.1	-0.3	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	167933	216393	281878	322380	355018	3.2	5.2	5.3	2.3	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	16.4	13.8	12.2	11.8	12.1					
Oil	37.9	38.9	38.0	36.7	36.2	35.8	34.8	34.0	33.2					
Natural gas	17.9	20.2	23.0	24.6	24.3	24.5	24.7	24.2	23.4					
Nuclear	12.3	13.5	14.2	14.2	13.6	13.7	12.3	11.8	11.7					
Renewable energy forms	4.5	5.2	5.9	6.8	9.3	12.2	15.9	18.0	19.6					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3306884	3337773	3506917	3895512	4327787	1.6	1.0	0.6	2.1	
Self consumption and grid losses	335093	353101	383382	407678	377403	366569	379590	449080	554655	1.4	-0.2	0.1	3.9	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	359273	321316	335332	367954	395663	0.1	-0.6	-0.7	1.7	
Solids	259913	233747	223114	229144	208182	159908	136109	136649	149003	-1.5	-0.7	-4.2	0.9	
Oil (including refinery gas)	54361	51375	39172	29499	9213	4849	4244	4179	4018	-3.2	-13.5	-7.5	-0.5	
Gas (including derived gases)	56680	67840	102572	133257	112426	113965	120617	129680	130881	6.1	0.9	0.7	0.8	
Biomass & Waste	5861	9809	14969	26638	23989	36936	68587	91600	105861	9.8	4.8	11.1	4.4	
Geothermal heat	2774	2992	2939	4645	5463	5659	5774	5848	5900	0.6	6.4	0.6	0.2	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	839615	846319	845192	840728	836336	-0.2	0.3	0.1	-0.1	
Refineries	673810	699352	727451	749312	738165	737796	730869	728941	726759	0.8	0.1	-0.1	-0.1	
Biofuels and hydrogen production	2	202	624	3206	20828	33653	46824	50184	53374	80.0	42.0	8.4	1.3	
District heating	33413	23351	19302	16177	20167	17044	16149	14255	13235	-5.3	0.4	-2.2	-2.0	
Derived gases, cokeries etc.	127920	86079	71473	65511	60455	57827	51350	47348	42969	-5.7	-1.7	-1.6	-1.8	
Energy Branch Consumption	81962	88206	87583	93941	88707	85246	83860	85828	90938	0.7	0.1	-0.6	0.8	
Non-Energy Uses	96068	105319	109135	111706	115838	120689	125115	128365	130850	1.3	0.6	0.8	0.4	
Final Energy Demand	1070684	1066881	1112192	1166880	1213305	1226876	1235591	1245450	1257768	0.4	0.9	0.2	0.2	
by sector														
Industry	367505	325769	324835	324493	339352	348353	351794	358022	365970	-1.2	0.4	0.4	0.4	
- energy intensive industries	236724	213853	212264	209326	217551	222008	220847	222244	224930	-1.1	0.2	0.2	0.2	
- other industrial sectors	130780	111916	112571	115167	121801	126344	130947	135778	141040	-1.5	0.8	0.7	0.7	
Residential	264548	279716	287255	307013	313307	310028	311772	310477	308279	0.8	0.9	0.0	-0.1	
Tertiary	159192	161639	160963	173669	175961	172931	172659	173840	174073	0.1	0.9	-0.2	0.1	
Transport	279440	299758	339129	361705	385285	395564	399366	403111	409446	2.0	1.3	0.4	0.2	
by fuel														
Solids	130725	85607	61781	53475	55134	53429	50973	48653	45065	-7.2	-1.1	-0.8	-1.2	
Oil	442561	455056	477166	492540	498794	488740	470053	462769	456043	0.8	0.4	-0.6	-0.3	
Gas	227872	245996	267506	287197	294551	291126	286001	271410	258327	1.6	1.0	-0.3	-1.0	
Electricity	184059	194149	217155	237501	243304	248350	261807	289328	317459	1.7	1.1	0.7	1.9	
Heat (from CHP and District Heating)	48744	45026	40988	41333	40131	39747	42365	42887	43684	-1.7	-0.2	0.5	0.3	
Renewable energy forms	36724	41048	47586	54833	81962	105413	124277	130261	137033	2.6	5.6	4.3	1.0	
Other	0	0	0	0	28	71	115	142	156			15.1	3.1	
RES in Gross Final Energy Consumption (A)			91114	104237	151035	196042	254288	290776	321014		5.2	5.3	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	5010.9	4671.8	4465.5	4290.4	3969.9	-0.9	-0.2	-1.1	-1.2	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3778.8	3514.2	3335.4	3241.3	2977.0	-0.6	-0.1	-1.2	-1.1	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1177.4	965.8	881.9	862.5	670.4	-1.1	-1.1	-2.8	-2.7	
Energy Branch	154.2	172.4	173.1	184.3	168.3	162.1	149.4	142.2	137.1	1.2	-0.3	-1.2	-0.9	
Industry	801.7	684.2	632.4	599.4	627.1	629.0	601.7	581.9	557.0	-2.3	-0.1	-0.4	-0.8	
Residential	507.7	482.4	466.1	483.1	473.3	441.8	419.1	383.7	348.1	-0.9	0.2	-1.2	-1.8	
Tertiary	304.7	274.8	242.0	254.6	252.9	236.6	226.4	214.0	201.1	-2.3	0.4	-1.1	-1.2	
Transport	810.0	870.4	987.6	1050.6	1079.8	1078.9	1056.9	1057.0	1063.3	2.0	0.9	-0.2	0.1	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	332.0	339.1	342.1	345.8	346.4	-0.8	0.8	0.3	0.1	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	818.5	788.0	703.2	646.5	-2.1	-0.8	-1.3	-2.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	89.8	83.8	80.1	76.9	71.2					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										EU27: EC proposal without RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0	
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8	
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	144.7	126.5	113.0	103.6	96.9	-1.8	-1.6	-2.4	-1.5	
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.10	1.98	1.88	1.81	1.64	-0.9	-0.6	-1.1	-1.3	
Import Dependency %	44.4	43.3	46.7	52.4	54.7	57.8	59.2	59.6	59.3					
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1249.8	1439.2	1624.3	1759.8	1875.4		2.5	2.7	1.4	
as % of GDP			9.7	9.9	10.1	10.2	10.4	10.2	10.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.7	79.8	72.3	67.0	63.7	-2.7	-1.3	-1.9	-1.3	
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	88.0	77.7	70.5	64.0	58.8	-1.3	-1.3	-2.2	-1.8	
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	86.6	75.0	66.9	61.1	56.4	-2.3	-1.4	-2.6	-1.7	
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.2	33.3	31.4	30.4	0.1	-0.7	-1.0	-0.9	
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.3	47.8	45.1	43.3	41.9	0.3	0.0	-1.1	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.30	0.25	0.22	0.19	0.14	-2.0	-2.0	-3.4	-4.5	
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.00	1.95	1.86	1.80	1.72	-0.8	-0.4	-0.7	-0.8	
Industry	2.18	2.10	1.95	1.85	1.85	1.81	1.71	1.63	1.52	-1.1	-0.5	-0.8	-1.2	
Residential	1.92	1.72	1.62	1.57	1.51	1.43	1.34	1.24	1.13	-1.7	-0.7	-1.2	-1.7	
Tertiary	1.91	1.70	1.50	1.47	1.44	1.37	1.31	1.23	1.16	-2.4	-0.5	-0.9	-1.3	
Transport	2.90	2.90	2.91	2.90	2.80	2.73	2.65	2.62	2.60	0.0	-0.4	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	12.1	15.5	20.0	22.6	24.6					
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	5.3	8.5	11.8	12.6	13.4					
Gross Electricity generation by source (in GWh)														
	2992030	3275359	3306884	3337773	3506917	3895512	4327787			1.0	0.6	2.1		
Nuclear energy	944823	997519	951111	946823	855220	848991	904228			0.1	-1.1	0.6		
Solids	900381	918139	911047	749250	651219	711027	840712			0.1	-3.3	2.6		
Oil (including refinery gas)	176516	150480	52107	32260	30883	33087	31174			-11.5	-5.1	0.1		
Gas (including derived gases)	535039	721024	750624	789373	862560	936079	965794			3.4	1.4	1.1		
Biomass-waste	54964	101813	110534	189264	365143	504551	593475			7.2	12.7	5.0		
Hydro (pumping excluded)	353182	306902	345318	343387	348038	350215	353049			-2.2	0.1	0.1		
Wind	22246	70469	173090	267830	361735	466969	572463			22.8	7.6	4.7		
Solar	117	1489	3731	6430	14811	24761	44942			41.4	14.8	11.7		
Geothermal and other renewables	4762	7525	9322	13156	17308	19831	21950			6.9	6.4	2.4		
Net Generation Capacity in MW_e	680864	739517	831331	861980	894121	966478	1079218			2.0	0.7	1.9		
<u>Nuclear energy</u>	135806	134187	125500	123772	113158	104216	111017			-0.8	-1.0	-0.2		
<u>Renewable energy</u>	120596	151902	197926	238995	286619	340845	402907			5.1	3.8	3.5		
Hydro (pumping excluded)	107638	109284	111704	113415	114669	115153	115682			0.4	0.3	0.1		
Wind	12786	40822	82159	117153	155313	200370	245893			20.4	6.6	4.7		
Solar	172	1797	3782	6275	12417	19837	34579			36.2	12.6	10.8		
Other renewables (tidal etc.)	0	0	281	2152	4221	5485	6753				31.1	4.8		
<u>Thermal power</u>	424462	453429	507905	499213	494344	521416	565294			1.8	-0.3	1.4		
of which cogeneration units	123462	133684	114570	124903	150836	165958	173437			-0.7	2.8	1.4		
Solids fired	191258	188695	184157	178402	149923	144450	138732			-0.4	-2.0	-0.8		
Gas fired	149738	181031	232019	230357	228436	242699	285371			4.5	-0.2	2.3		
Oil fired	71858	67498	65385	46114	34929	24076	16896			-0.9	-6.1	-7.0		
Biomass-waste fired	10810	15216	25295	43245	79919	109044	123040			8.9	12.2	4.4		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat	798	988	1050	1096	1137	1147	1256			2.8	0.8	1.0		
Avg. Load factor of net power capacity (%)	47.4	47.8	43.3	42.3	42.9	43.9	43.1							
Efficiency of gross thermal power generation (%)	37.6	38.6	43.9	47.4	49.2	51.3	53.0							
% of gross electricity from CHP	12.7	12.8	16.1	18.7	22.3	23.1	22.9							
Carbon free gross electricity generation (%)	46.1	45.4	48.2	52.9	56.0	56.9	57.5							
- nuclear	31.6	30.5	28.8	28.4	24.4	21.8	20.9							
- renewable energy forms	14.5	14.9	19.4	24.6	31.6	35.1	36.6							
Transport sector														
Passenger transport activity (Gpkm)														
Public road transport	4784.5	5221.8	5819.7	6245.4	6739.7	7198.7	7656.3	8131.8	8549.1	2.0	1.5	1.3	1.1	
Private cars and motorcycles	555.6	498.3	514.0	529.0	546.4	569.3	598.1	620.7	639.4	-0.8	0.6	0.9	0.7	
Rail	3459.2	3930.1	4375.8	4714.4	5069.7	5359.9	5627.0	5911.6	6149.6	2.4	1.5	1.0	0.9	
Aviation	464.8	412.0	438.5	446.8	473.7	515.8	566.8	626.0	691.0	-0.6	0.8	1.8	2.0	
Inland navigation	247.9	325.9	442.0	506.3	600.7	704.0	813.4	921.2	1015.9	6.0	3.1	3.1	2.2	
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2743.9	2981.5	3202.1	3407.9	3564.5	1.5	2.4	1.6	1.1	
Trucks	1096.9	1279.3	1507.5	1790.0	2013.4	2183.5	2343.8	2502.6	2620.1	3.2	2.9	1.5	1.1	
Rail	524.8	385.0	396.1	393.9	434.8	482.0	521.8	555.1	582.8	-2.8	0.9	1.8	1.1	
Inland navigation	257.2	264.7	271.3	280.1	295.6	316.0	336.5	350.2	361.7	0.5	0.9	1.3	0.7	
Energy demand in transport (ktoe)														
Public road transport	279440	299758	339129	361705	385285	395564	399366	403111	409446	2.0	1.3	0.4	0.2	
Private cars and motorcycles	5216	4538	4464	4316	4283	4227	4147	4042	3991	-1.5	-0.4	-0.3	-0.4	
Trucks	148125	159084	174735	175721	181266	181958	180696	180361	182466	1.7	0.4	0.0	0.1	
Rail	80641	85832	99349	116963	127014	130809	132626	136454	139412	2.1	2.5	0.4	0.5	
Aviation	9605	9409	9710	9605	9970	10089	9682	9170	7891	0.1	0.3	-0.3	-2.0	
Inland navigation	28947	34014	45368	49744	57178	62708	66281	67113	69718	4.6	2.3	1.5	0.5	
	6905	6881	5503	5356	5574	5771	5935	5971	5968	-2.2	0.1	0.6	0.1	

Source: PRIMES

EU27: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	933011	937567	896393	774537	746078	762857	4315	21319	72165	0.6	2.9	10.4
Solids	365918	213693	196451	128549	112290	108679	-23816	-29474	-17129	-15.6	-20.8	-13.6
Oil	128809	171665	132993	76537	52707	40803	-630	-404	-17	-0.8	-0.8	0.0
Natural gas	162447	207559	188021	121633	109352	83993	-7366	-5582	-768	-5.7	-4.9	-0.9
Nuclear	202589	243761	257360	243285	218761	212008	-430	-2711	5604	-0.2	-1.2	2.7
Renewable energy sources	73248	100890	121568	204533	252968	317374	36556	59491	84475	21.8	30.7	36.3
Hydro	25101	30374	26394	29531	29931	30362	1197	1002	180	4.2	3.5	0.6
Biomass & Waste	44737	64774	82903	132294	165635	204714	19814	36406	46673	17.6	28.2	29.5
Wind	67	1913	6060	23033	31109	49232	5662	7789	19794	32.6	33.4	67.2
Solar and others	153	418	816	12657	18958	25676	8489	12716	17005	203.7	203.7	196.1
Geothermal	3190	3412	5395	7017	7335	7390	1394	1579	823	24.8	27.4	12.5
Net Imports	748677	818875	975298	1059354	1084350	1109574	-154114	-216777	-266207	-12.7	-16.7	-19.3
Solids	79289	98575	126702	116049	103043	109745	-65735	-97045	-100089	-36.2	-48.5	-47.7
Oil	530805	525661	589611	616212	622732	622230	-53474	-84072	-106957	-8.0	-11.9	-14.7
- Crude oil and Feedstocks	503539	507317	574313	626650	643933	653324	-32500	-52340	-67635	-4.9	-7.5	-9.4
- Oil products	27265	18344	15298	-10437	-21201	-31094	-20974	-31732	-39322	-199.1	-301.3	-477.9
Natural gas	135121	192531	256828	313767	328625	339032	-44280	-61339	-92417	-12.4	-15.7	-21.4
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1777891	1772247	1810877	-149747	-195322	-193836	-7.8	-9.9	-9.7
Solids	450105	321390	320065	244598	215333	218424	-89551	-126519	-117218	-26.8	-37.0	-34.9
Oil	625464	650399	665514	636749	617259	601478	-54052	-84340	-106768	-7.8	-12.0	-15.1
Natural gas	294905	393417	444804	435400	437977	423025	-51646	-66921	-93185	-10.6	-13.3	-18.1
Nuclear	202589	243761	257360	243285	218761	212008	-430	-2711	5604	-0.2	-1.2	2.7
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	216393	281878	355018	45932	85169	117731	26.9	43.3	49.6
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	13.8	12.2	12.1	-3.6	-5.2	-4.7			
Oil	37.9	38.0	36.7	35.8	34.8	33.2	0.0	-0.8	-2.1			
Natural gas	17.9	23.0	24.6	24.5	24.7	23.4	-0.8	-0.9	-2.4			
Nuclear	12.3	14.2	14.2	13.7	12.3	11.7	1.0	1.1	1.4			
Renewable energy forms	4.5	5.9	6.8	12.2	15.9	19.6	3.3	5.9	7.8			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3337773	3506917	4327787	-501636	-571320	-80246	-13.1	-14.0	-1.8
Self consumption and grid losses	335093	383382	407678	366569	379590	554655	-71048	-86894	34243	-16.2	-18.6	6.6
Fuel Inputs to Thermal Power Generation	379588	382767	423183	321316	335332	395663	-118687	-130788	-78036	-27.0	-28.1	-16.5
Solids	259913	223114	229144	159908	136109	149003	-88332	-121366	-107702	-35.6	-47.1	-42.0
Oil (including refinery gas)	54361	39172	29499	4849	4244	4018	-10097	-9121	-6504	-67.6	-68.2	-61.8
Gas (including derived gases)	56680	102572	133257	113965	120617	130881	-30775	-33197	-17650	-21.3	-21.6	-11.9
Biomass & Waste	5861	14969	26638	36936	68587	105861	9743	32154	53820	35.8	88.3	103.4
Geothermal heat	2774	2939	4645	5659	5774	5900	775	742	0	15.9	14.7	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	846319	845192	836336	-22354	-40578	-64193	-2.6	-4.6	-7.1
Refineries	673810	727451	749312	737796	730869	726759	-33225	-52871	-67763	-4.3	-6.7	-8.5
Biofuels and hydrogen production	2	624	3206	33653	46824	53374	9777	14556	10946	40.9	45.1	25.8
District heating	33413	19302	16177	17044	16149	13235	-2174	-2301	-5667	-11.3	-12.5	-30.0
Derived gases, cokeries etc.	127920	71473	65511	57827	51350	42969	3268	37	-1709	6.0	0.1	-3.8
Energy Branch Consumption	81962	87583	93941	85246	83860	90938	-5227	-7680	-2354	-5.8	-8.4	-2.5
Non-Energy Uses	96068	109135	111706	120689	125115	130850	-306	-404	-364	-0.3	-0.3	-0.3
Final Energy Demand	1070684	1112182	1166880	1226876	1235591	1257768	-75160	-112216	-147913	-5.8	-8.3	-10.5
by sector												
Industry	367505	324835	324493	348353	351794	365970	-6996	-15898	-20409	-2.0	-4.3	-5.3
- energy intensive industries	236724	212264	209326	222008	220847	224930	-2909	-9490	-11919	-1.3	-4.1	-5.0
- other industrial sectors	130780	112571	115167	126344	130947	141040	-4087	-6408	-8490	-3.1	-4.7	-5.7
Residential	264548	287255	307013	310028	311772	308279	-19684	-24233	-35065	-6.0	-7.2	-10.2
Tertiary	159192	160963	173669	172931	172659	174073	-25740	-32810	-38805	-13.0	-16.0	-18.2
Transport	279440	339129	361705	395564	399366	409446	-22740	-39275	-53633	-5.4	-9.0	-11.6
by fuel												
Solids	130725	61781	53475	53429	50973	45065	-1874	-4467	-6263	-3.4	-8.1	-12.2
Oil	442561	477166	492540	488740	470053	456043	-40022	-69727	-93716	-7.6	-12.9	-17.0
Gas	227872	267506	287197	291126	286001	258327	-17710	-28215	-68050	-5.7	-9.0	-20.9
Electricity	184059	217155	237501	248350	261807	317459	-36902	-41322	-9346	-12.9	-13.6	-2.9
Heat (from CHP and District Heating)	48744	40988	41333	39747	42365	43684	-3648	-3789	-4701	-8.4	-8.2	-9.7
Renewable energy forms	36724	47586	54833	105413	124277	137033	24978	35297	34182	31.1	39.7	33.2
Other	0	0	0	71	115	156	18	6	-18	33.9	5.6	-10.4
RES in Gross Final Energy Consumption ^(A)		91114	104237	196042	254288	321014	44297	78221	107768	29.2	44.4	50.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4671.8	4465.5	3969.9	-717.4	-1030.9	-1409.7	-13.3	-18.8	-26.2
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3514.2	3335.4	2977.0	-642.5	-917.1	-1286.7	-15.5	-21.6	-30.2
Power generation/District heating	1468.7	1319.6	1374.9	965.8	881.9	670.4	-465.0	-600.8	-792.2	-32.5	-40.5	-54.2
Energy Branch	154.2	173.1	184.3	162.1	149.4	137.1	-10.1	-22.1	-27.6	-5.9	-12.9	-16.7
Industry	801.7	632.4	599.4	629.0	601.7	557.0	-1.4	-35.5	-76.3	-0.2	-5.6	-12.0
Residential	507.7	466.1	483.1	441.8	419.1	348.1	-45.2	-65.9	-135.2	-9.3	-13.6	-28.0
Tertiary	304.7	242.0	254.6	236.6	226.4	201.1	-28.5	-37.1	-59.0	-10.8	-14.1	-22.7
Transport	810.0	987.6	1050.6	1078.9	1056.9	1063.3	-92.3	-155.7	-196.5	-7.9	-12.8	-15.6
CO₂ Emissions (non energy related)	332.1	307.3	320.4	339.1	342.1	346.4	-4.5	-15.9	-28.4	-1.3	-4.4	-7.6
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	818.5	788.0	646.5	-70.3	-98.0	-94.5	-7.9	-11.1	-12.8
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	83.8	80.1	71.2	-12.9	-18.5	-25.3			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						EU27: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	126.5	113.0	96.9	-10.7	-12.5	-10.4	-7.8	-9.9	-9.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	1.98	1.88	1.64	-0.18	-0.28	-0.48	-8.3	-12.9	-22.7
Import Dependency %	44.4	46.7	52.4	57.8	59.2	59.3	-3.4	-5.0	-7.3			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1439.2	1624.3	1875.4	70.1	108.5	165.9	5.1	7.2	9.7
as % of GDP		9.7	9.9	10.2	10.4	10.0	0.5	0.7	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				71.6	111.2	169.4						
as % of GDP				0.51	0.71	0.91						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	79.8	72.3	63.7	-1.6	-3.3	-3.5	-2.0	-4.3	-5.3
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	77.7	70.5	58.8	-4.9	-5.5	-6.7	-6.0	-7.2	-10.2
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	75.0	66.9	56.4	-11.2	-12.7	-12.6	-13.0	-16.0	-18.2
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.2	33.3	30.4	-0.9	-1.5	-2.1	-2.4	-4.4	-6.4
Freight transport (toe/Mtkm)	49.2	50.5	51.7	47.8	45.1	41.9	-2.4	-4.1	-5.2	-4.7	-8.4	-11.0
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.25	0.22	0.14	-0.07	-0.10	-0.15	-23.0	-31.5	-52.9
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.95	1.86	1.72	-0.02	-0.06	-0.15	-0.8	-3.3	-8.0
Industry	2.18	1.95	1.85	1.81	1.71	1.52	0.03	-0.02	-0.12	1.8	-1.3	-7.1
Residential	1.92	1.62	1.57	1.43	1.34	1.13	-0.05	-0.10	-0.28	-3.5	-6.9	-19.8
Tertiary	1.91	1.50	1.47	1.37	1.31	1.16	0.03	0.03	-0.07	2.5	2.3	-5.4
Transport	2.90	2.91	2.90	2.73	2.65	2.60	-0.07	-0.12	-0.12	-2.6	-4.3	-4.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.5	20.0	24.6	4.2	7.3	9.9			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	8.5	11.8	13.4	2.8	4.4	3.9			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3337773	3506917	4327787	501636	-571320	-80246		-13.1	-14.0	-1.8
Nuclear energy	944823	997519	946823	855220	904228	-1886	-10356	31965		-0.2	-1.2	3.7
Solids	900381	918139	749250	651219	840712	-387597	-590227	-533483		-34.1	-47.5	-38.8
Oil (including refinery gas)	176516	150480	32260	30883	31174	-55887	-49168	-41512		-63.4	-61.4	-57.1
Gas (including derived gases)	535039	721024	789373	862560	965794	-185019	-204709	-117878		-19.0	-19.2	-10.9
Biomass-waste	54964	101813	189264	365143	593475	44034	168744	311621		30.3	85.9	110.6
Hydro (pumping excluded)	353182	306902	343387	348038	353049	13923	11647	2090		4.2	3.5	0.6
Wind	22246	70469	267830	361735	572463	65835	90566	230168		32.6	33.4	67.2
Solar	117	1489	6430	14811	44942	210	5342	28398		3.4	56.4	171.6
Geothermal and other renewables	4762	7525	13156	17308	21950	4752	6842	8384		56.5	65.4	61.8
Net Generation Capacity in MW_e	680864	739517	861980	894121	1079218	356	-7106	113100		0.0	-0.8	11.7
<u>Nuclear energy</u>	135806	134187	123772	113158	111017	119	470	8573		0.1	0.4	8.4
<u>Renewable energy</u>	120596	151902	238995	286619	402907	27259	41775	123650		12.9	17.1	44.3
Hydro (pumping excluded)	107638	109284	113415	114669	115682	376	366	162		0.3	0.3	0.1
Wind	12786	40822	117153	155313	245893	24915	34939	99953		27.0	29.0	68.5
Solar	172	1797	6275	12417	34579	133	3438	19185		2.2	38.3	124.6
Other renewables (tidal etc.)	0	0	2152	4221	6753	1835	3032	4350		578.8	255.0	181.0
<u>Thermal power</u>	424462	453429	499213	494344	565294	-27022	-49351	-19124		-5.1	-9.1	-3.3
of which cogeneration units	123462	133684	124903	150836	173437	-13605	-7484	3389		-9.8	-4.7	2.0
Solids fired	191258	188695	178402	149923	138732	-10042	-36350	-49614		-5.3	-19.5	-26.3
Gas fired	149738	181031	230357	228436	285371	-30743	-53399	-28023		-11.8	-18.9	-8.9
Oil fired	71858	67498	46114	34929	18696	-4075	-3394	-13822		-8.1	-8.9	-45.0
Biomass-waste fired	10810	15216	43245	79919	123040	17743	43685	72339		69.6	120.6	142.7
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	798	988	1096	1137	1256	95	107	-5		9.5	10.4	-0.4
Avg. Load factor of net power capacity (%)	47.4	47.8	42.3	42.9	43.1	-6.3	-6.4	-6.4				
Efficiency of gross thermal power generation (%)	37.6	38.6	47.4	49.2	53.0	1.4	1.4	1.8				
% of gross electricity from CHP	12.7	12.8	18.7	22.3	22.9	0.9	2.0	1.8				
Carbon free gross electricity generation (%)	46.1	45.4	52.9	56.0	57.5	10.2	14.5	14.9				
- nuclear	31.6	30.5	28.4	24.4	20.9	3.7	3.2	1.1				
- renewable energy forms	14.5	14.9	24.6	31.6	36.6	6.6	11.4	13.8				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	4784.5	5819.7	6245.4	7198.7	7656.3	8549.1	-151.3	-240.8	-311.6	-2.1	-3.0	-3.5
Private cars and motorcycles	555.6	514.0	529.0	569.3	598.1	639.4	11.8	18.0	22.0	2.1	3.1	3.6
Rail	3459.2	4375.8	4714.4	5359.9	5627.0	6149.6	-138.7	-222.3	-291.8	-2.5	-3.8	-4.5
Aviation	464.8	438.5	446.8	515.8	566.8	691.0	6.6	10.6	23.3	1.3	1.9	3.5
Inland navigation	247.9	442.0	506.3	704.0	813.4	1015.9	-30.4	-46.7	-64.7	-4.1	-5.4	-6.0
Freight transport activity (Gtkm)	57.0	49.4	48.9	49.6	51.0	53.4	-0.5	-0.4	-0.4	-1.0	-0.9	-0.8
Freight transport activity (Gtkm)												
Trucks	1878.9	2174.9	2463.9	2981.5	3202.1	3564.5	-79.9	-119.4	-152.7	-2.6	-3.6	-4.1
Rail	1096.9	1507.5	1790.0	2183.5	2343.8	2620.1	-95.5	-141.8	-182.9	-4.2	-5.7	-6.5
Inland navigation	524.8	396.1	393.9	482.0	521.8	582.8	12.5	17.2	23.8	2.7	3.4	4.3
Energy demand in transport (ktoe)	257.2	271.3	280.1	316.0	336.5	361.7	3.1	5.2	6.4	1.0	1.6	1.8
Energy demand in transport (ktoe)												
Public road transport	279440	339129	361705	395564	399366	409446	-22740	-39275	-53633	-5.4	-9.0	-11.6
Private cars and motorcycles	5216	4464	4316	4227	4147	3991	-48	-189	-289	-1.1	-4.4	-6.7
Trucks	148125	174735	175721	181958	180696	182466	-7811	-12647	-11382	-4.1	-6.5	-5.9
Rail	80641	99349	116963	130809	132626	139412	-11231	-19215	-25888	-7.9	-12.7	-15.7
Aviation	9605	9710	9605	10089	9682	7891	84	-6	205	0.8	-0.1	2.7
Inland navigation	28947	45368	49744	62708	66281	69718	-3702	-7151	-16186	-5.6	-9.7	-18.8
Inland navigation	6905	5503	5356	5771	5935	5968	-34	-68	-93	-0.6	-1.1	-1.5

Source: PRIMES

Austria: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10427	10741	10865	11264	11951	1.6	0.9	0.4	1.0	
Solids	644	305	293	0	0	0	0	0	0	-7.6				
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1341	1270	400	424	421	3.4	-1.3	-11.4	0.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8236	8851	10185	10610	11341	2.6	2.2	2.1	1.1	
Hydro	2709	3187	3598	3085	3262	3061	3297	3297	3297	2.9	-1.0	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4522	5117	6082	6388	7092	2.0	4.3	3.0	1.5	
Wind	0	0	6	114	267	395	409	461	456		46.8	4.3	1.1	
Solar and others	15	36	64	92	177	268	384	451	482	15.7	10.7	8.1	2.3	
Geothermal	4	3	14	35	7	10	12	13	13	14.2	-6.1	5.3	0.9	
Net Imports	17086	17769	18853	24392	23655	22666	21368	21090	20759	1.0	2.3	-1.0	-0.3	
Solids	3112	2543	3064	3958	3962	4142	2608	2522	2895	-0.2	2.6	-4.1	1.0	
Oil	9521	10012	10703	13028	12956	12049	11475	10888	10268	1.2	1.9	-1.2	-1.1	
- Crude oil and Feedstocks	7878	8068	7704	7964	8171	8021	8043	7864	7660	-0.2	0.6	-0.2	-0.5	
- Oil products	1643	1944	3000	5064	4785	4028	3432	3024	2608	6.2	4.8	-3.3	-2.7	
Natural gas	4443	5404	5253	7288	6558	6417	7322	7769	7704	1.7	2.2	1.1	0.5	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	34082	33407	32233	32354	32711	1.3	1.8	-0.6	0.1	
Solids	4042	3336	3637	4050	3962	4142	2608	2522	2895	-1.1	0.9	-4.1	1.0	
Oil	10596	11196	11882	14125	13806	12669	11755	11118	10458	1.2	1.5	-1.6	-1.2	
Natural gas	5184	6374	6519	8263	7899	7687	7722	8194	8125	2.3	1.9	-0.2	0.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8113	8713	10021	10437	11149	2.4	2.1	2.1	1.1	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.6	12.4	8.1	7.8	8.8					
Oil	42.4	41.9	41.7	41.6	40.5	37.9	36.5	34.4	32.0					
Natural gas	20.7	23.9	22.9	24.3	23.2	23.0	24.0	25.3	24.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	23.8	26.1	31.1	32.3	34.1					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62636	67057	70352	79457	88259	2.0	0.4	1.2	2.3	
Self consumption and grid losses	4886	4995	5404	7536	6270	6438	6615	7853	9962	1.0	1.5	0.5	4.2	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3442	4451	4049	5337	6494	-0.2	-1.3	1.6	4.8	
Solids	1510	1055	1236	1510	1325	1657	337	314	642	-2.0	0.7	-12.8	6.7	
Oil (including refinery gas)	488	489	287	270	370	385	278	282	226	-5.2	2.6	-2.8	-2.1	
Gas (including derived gases)	1776	2276	1974	2901	1655	1655	1600	2542	2831	1.1	-1.7	-0.3	5.9	
Biomass & Waste	237	455	428	786	89	748	1827	2191	2785	6.1	-14.5	35.2	4.3	
Geothermal heat	0	0	0	2	3	5	7	8	10			10.4	3.8	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12672	11986	11378	10819	10613	-0.2	1.2	-1.1	-0.7	
Refineries	9123	9170	8765	9080	9022	8642	8324	8095	7850	-0.4	0.3	-0.8	-0.6	
Biofuels and hydrogen production	2	5	9	42	335	561	844	917	1032	17.5	44.0	9.7	2.0	
District heating	347	438	566	612	1194	757	372	47	0	5.0	7.8	-11.0		
Derived gases, cokeries etc.	1971	1790	1910	2009	2121	2026	1839	1761	1731	-0.3	1.0	-1.4	-0.6	
Energy Branch Consumption	1639	1703	1750	2134	1898	1766	1647	1602	1624	0.7	0.8	-1.4	-0.1	
Non-Energy Uses	1401	1145	1386	1381	1408	1462	1513	1553	1585	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	28652	27756	27441	27202	27031	1.9	2.3	-0.4	-0.2	
by sector														
Industry	6153	6474	7528	8825	9341	9426	9308	9346	9376	2.0	2.2	0.0	0.1	
- energy intensive industries	4048	4038	4982	5533	5776	5776	5593	5545	5483	2.1	1.5	-0.3	-0.2	
- other industrial sectors	2105	2436	2546	3293	3564	3650	3715	3801	3894	1.9	3.4	0.4	0.5	
Residential	5755	6222	6042	6548	6720	6427	6407	6353	6301	0.5	1.1	-0.5	-0.2	
Tertiary	2544	3062	3304	3942	4139	3776	3769	3721	3646	2.6	2.3	-0.9	-0.3	
Transport	4603	5161	6038	7994	8453	8127	7958	7782	7707	2.7	3.4	-0.6	-0.3	
by fuel														
Solids	1718	1535	1415	1458	1458	1336	1192	1141	1077	-1.9	0.3	-2.0	-1.0	
Oil	7896	8728	9402	11774	11624	10548	9871	9352	8948	1.8	2.1	-1.6	-1.0	
Gas	2968	3607	4254	4936	5392	5421	5375	5085	4739	3.7	2.4	0.0	-1.3	
Electricity	3669	3953	4474	4884	5036	5302	5507	6142	6720	2.0	1.2	0.9	2.0	
Heat (from CHP and District Heating)	614	848	1052	1260	1335	1223	1253	1207	1184	5.5	2.4	-0.6	-0.6	
Renewable energy forms	2192	2248	2316	2996	3806	3924	4241	4272	4359	0.6	5.1	1.1	0.3	
Other	0	0	0	0	1	2	2	3	3			14.5	1.6	
RES in Gross Final Energy Consumption ^(A)			6285	6788	7813	8271	9584	9948	10550	2.2	2.1	1.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	95.3	89.6	79.8	77.4	73.7	0.5	1.2	-1.8	-0.8	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	71.3	67.9	59.1	57.8	54.9	1.0	1.6	-1.9	-0.7	
Power generation/District heating	12.8	12.1	11.6	15.0	12.3	12.9	7.3	8.8	8.4	-1.0	0.6	-5.1	1.4	
Energy Branch	3.8	4.0	4.2	4.6	4.2	4.0	3.7	3.5	3.3	1.0	0.1	-1.4	-1.2	
Industry	12.7	13.6	15.5	17.5	17.9	18.4	17.5	17.0	16.3	2.0	1.5	-0.3	-0.7	
Residential	9.8	9.7	8.8	9.0	8.5	7.1	6.7	6.0	5.4	-1.1	-0.4	-2.3	-2.2	
Tertiary	3.4	4.0	3.7	4.5	4.6	3.4	3.0	2.5	2.0	0.8	2.2	-4.1	-4.1	
Transport	12.7	14.6	17.2	23.1	23.7	22.1	20.9	20.2	19.6	3.1	3.3	-1.3	-0.7	
CO₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.4	8.9	8.7	8.5	0.2	1.6	-0.9	-0.5	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.2	11.9	10.8	10.3	-1.1	-0.7	-1.9	-1.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	118.5	111.5	99.3	96.3	91.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Austria: EC proposal without RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1	
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4	
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	122.9	109.1	96.1	89.1	84.6	-1.2	-0.2	-2.4	-1.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.09	2.03	1.83	1.79	1.68	-0.3	-0.2	-1.3	-0.9	
Import Dependency %	68.4	66.5	66.1	71.8	69.4	67.8	66.3	65.2	63.5					
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.7	31.3	35.4	37.8	39.7		3.4	2.9	1.2	
as % of GDP			8.4	9.5	9.6	10.2	10.6	10.4	10.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.8	90.6	81.5	75.3	70.9	-0.6	0.0	-2.0	-1.4	
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.1	81.0	74.0	67.9	63.5	-1.6	-0.7	-2.3	-1.5	
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.7	84.6	76.9	70.0	64.4	0.1	0.3	-2.9	-1.8	
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	36.8	34.8	32.1	30.5	0.1	2.3	-1.1	-1.3	
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	52.2	47.6	44.9	42.9	-0.8	2.4	-1.9	-1.0	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.15	0.16	0.08	0.09	0.08	-3.4	-0.2	-5.8	-0.3	
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.91	1.84	1.75	1.68	1.60	-0.3	-0.3	-0.9	-0.9	
Industry	2.06	2.10	2.06	1.98	1.92	1.95	1.88	1.81	1.74	0.0	-0.7	-0.2	-0.8	
Residential	1.71	1.55	1.46	1.37	1.27	1.10	1.05	0.95	0.86	-1.6	-1.4	-1.9	-2.0	
Tertiary	1.34	1.32	1.12	1.15	1.11	0.91	0.81	0.67	0.55	-1.8	-0.1	-3.2	-3.8	
Transport	2.75	2.82	2.85	2.89	2.81	2.72	2.63	2.59	2.54	0.3	-0.1	-0.7	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	26.7	29.1	34.1	35.6	37.8					
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.6	6.5	10.1	11.5	13.3					
Gross Electricity generation by source (in GWh)														
			60150	62969	62636	67057	70352	79457	88259		0.4	1.2	2.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			4642	5863	6114	7640	1550	1482	4472		2.8	-12.8	11.2	
Oil (including refinery gas)			1220	1452	3193	3191	2562	2517	2194		10.1	-2.2	-1.5	
Gas (including derived gases)			10541	14513	9843	10551	11665	18304	21372		-0.7	1.7	6.2	
Biomass-waste			1845	3929	2407	5401	11309	13196	16226		2.7	16.7	3.7	
Hydro (pumping excluded)			41832	35868	37928	35593	38342	38342	38342		-1.0	0.1	0.0	
Wind			67	1328	3109	4591	4759	5363	5300		46.8	4.3	1.1	
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1	
Geothermal and other renewables			0	3	4	7	9	11	13			8.2	3.4	
Net Generation Capacity in MW_e			16771	17685	20261	21923	23550	24302	24977		1.9	1.5	0.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			10792	11287	12003	13515	14248	15154	15797		1.1	1.7	1.0	
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3	
Wind			77	817	1353	2207	2297	2876	3223		33.2	5.4	3.4	
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5978	6397	8258	8408	9301	9148	9180		3.3	1.2	-0.1	
of which cogeneration units			3067	3657	3666	4099	5297	5824	5831		1.8	3.7	1.0	
Solids fired			1600	1587	1460	1460	1460	570	458		-0.9	0.0	-10.9	
Gas fired			2916	3267	4708	4699	4948	5486	5411		4.9	0.5	0.9	
Oil fired			1167	1158	1604	1357	803	652	470		3.2	-6.7	-5.2	
Biomass-waste fired			295	384	485	891	2088	2437	2838		5.1	15.7	3.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	1	1	2	2	2	3			6.1	2.8	
Avg. Load factor of net power capacity (%)			39.8	38.3	33.8	33.6	33.0	36.1	38.6					
Efficiency of gross thermal power generation (%)			40.0	40.5	53.9	51.8	57.5	57.2	58.6					
% of gross electricity from CHP			12.3	20.6	25.6	26.3	34.5	36.3	37.4					
Carbon free gross electricity generation (%)			72.7	65.3	69.4	68.1	77.6	71.9	68.2					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			72.7	65.3	69.4	68.1	77.6	71.9	68.2					
Transport sector														
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	134.7	140.7	147.0	151.8	1.9	1.3	0.8	0.8	
Public road transport	14.2	14.8	14.8	15.1	16.0	16.7	17.5	18.0	18.4	0.4	0.7	0.9	0.5	
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	92.7	94.8	97.5	99.0	2.2	1.2	0.3	0.4	
Rail	11.5	12.7	11.8	12.3	13.4	14.8	16.0	16.9	17.8	0.3	1.3	1.8	1.0	
Aviation	4.1	5.4	6.6	7.3	8.8	10.4	12.3	14.5	16.7	5.0	2.9	3.5	3.1	
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.5	0.7	
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	60.9	64.4	68.4	71.8	4.7	0.8	1.0	1.1	
Trucks	20.3	26.5	35.1	37.0	38.3	38.1	39.4	41.7	43.5	5.6	0.9	0.3	1.0	
Rail	12.2	13.2	16.6	17.1	18.5	20.8	22.9	24.5	26.0	3.2	1.1	2.2	1.3	
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.3	3.9	-3.1	1.6	0.8	
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8127	7958	7782	7707	2.7	3.4	-0.6	-0.3	
Public road transport	80	83	80	107	111	107	99	92	88	-0.1	3.4	-1.1	-1.2	
Private cars and motorcycles	2499	2643	2865	3890	4126	3912	3782	3518	3358	1.4	3.7	-0.9	-1.2	
Trucks	1350	1675	2167	3004	3087	2856	2747	2765	2806	4.8	3.6	-1.2	0.2	
Rail	357	292	333	310	322	339	333	317	289	-0.7	-0.3	0.3	-1.4	
Aviation	310	461	586	675	798	904	986	1080	1155	6.6	3.1	2.1	1.6	
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.0	0.4	

Source: PRIMES

Austria: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	10741	10865	11951	467	1291	1677	4.6	13.5	16.3
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1270	400	421	0	0	35	0.0	0.0	9.1
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	5168	6654	7422	8851	10185	11341	485	1309	1660	5.8	14.7	17.1
Hydro	2709	3598	3085	3061	3297	3297	63	0	0	2.1	0.0	0.0
Biomass & Waste	2440	2973	4097	5117	6082	7092	300	1169	1432	6.2	23.8	25.3
Wind	0	6	114	395	409	456	71	21	61	21.7	5.4	15.5
Solar and others	15	64	92	268	384	482	51	119	170	23.5	44.9	54.5
Geothermal	4	14	35	10	12	13	1	0	-3	6.6	-1.0	-18.4
Net Imports	17086	18853	24392	22666	21368	20759	-4014	-6934	-7625	-15.0	-24.5	-26.9
Solids	3112	3064	3958	4142	2608	2895	-155	-2173	-2698	-3.6	-45.5	-48.2
Oil	9521	10703	13028	12049	11475	10268	-1869	-2479	-3360	-13.4	-17.8	-24.7
- Crude oil and Feedstocks	7878	7704	7964	8021	8043	7660	-722	-941	-1278	-8.3	-10.5	-14.3
- Oil products	1643	3000	5064	4028	3432	2608	-1147	-1537	-2081	-22.2	-30.9	-44.4
Natural gas	4443	5253	7288	6417	7322	7704	-1982	-2251	-1528	-23.6	-23.5	-16.6
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	33407	32233	32711	-3547	-5643	-5948	-9.6	-14.9	-15.4
Solids	4042	3637	4050	4142	2608	2895	-173	-2191	-2716	-4.0	-45.7	-48.4
Oil	10596	11882	14125	12669	11755	10458	-1869	-2479	-3360	-12.9	-17.4	-24.3
Natural gas	5184	6519	8263	7687	7722	8125	-1982	-2251	-1493	-20.5	-22.6	-15.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	8713	10021	11149	477	1278	1621	5.8	14.6	17.0
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.4	8.1	8.8	0.7	-4.6	-5.7			
Oil	42.4	41.7	41.6	37.9	36.5	32.0	-1.4	-1.1	-3.8			
Natural gas	20.7	22.9	24.3	23.0	24.0	24.8	-3.2	-2.4	0.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	26.1	31.1	34.1	3.8	8.0	9.4			
Gross Electricity Generation in GWh_e	49287	60150	62969	67057	70352	88259	-5435	-7992	2387	-7.5	-10.2	2.8
Self consumption and grid losses	4886	5404	7536	6438	6615	9962	-431	-866	1025	-6.3	-11.6	11.5
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4451	4049	6494	-1190	-1797	-16	-21.1	-30.7	-0.2
Solids	1510	1236	1510	1657	337	642	17	-1835	-2292	1.0	-84.5	-78.1
Oil (including refinery gas)	488	287	270	385	278	226	-162	-37	-100	-29.6	-11.7	-30.6
Gas (including derived gases)	1776	1974	2901	1655	1600	2831	-1411	-1240	424	-46.0	-43.7	17.6
Biomass & Waste	237	428	786	748	1827	2785	365	1314	1952	95.0	256.3	234.4
Geothermal heat	0	0	2	5	7	10	1	1	0	28.3	12.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	11986	11378	10613	-682	-1203	-1781	-5.4	-9.6	-14.4
Refineries	9123	8765	9080	8642	8324	7850	-722	-941	-1278	-7.7	-10.2	-14.0
Biofuels and hydrogen production	2	9	42	561	844	1032	69	140	-12	14.0	19.8	-1.1
District heating	347	566	612	757	372	0	-67	-341	-432	-8.2	-47.8	-100.0
Derived gases, cokeries etc.	1971	1910	2009	2026	1839	1731	39	-60	-58	1.9	-3.2	-3.2
Energy Branch Consumption	1639	1750	2134	1766	1647	1624	-180	-266	-232	-9.2	-13.9	-12.5
Non-Energy Uses	1401	1386	1381	1462	1513	1585	-2	-3	-5	-0.2	-0.2	-0.3
Final Energy Demand	19057	22913	27309	27756	27441	27031	-2950	-4205	-5479	-9.6	-13.3	-16.9
by sector												
Industry	6153	7528	8825	9426	9308	9376	-228	-488	-578	-2.4	-5.0	-5.8
- energy intensive industries	4048	4982	5533	5776	5593	5483	-77	-267	-308	-1.3	-4.6	-5.3
- other industrial sectors	2105	2546	3293	3650	3715	3894	-151	-221	-270	-4.0	-5.6	-6.5
Residential	5755	6042	6548	6427	6407	6301	-836	-1112	-1460	-11.5	-14.8	-18.8
Tertiary	2544	3304	3942	3776	3769	3646	-991	-1206	-1469	-20.8	-24.2	-28.7
Transport	4603	6038	7994	8127	7958	7707	-896	-1399	-1972	-9.9	-15.0	-20.4
by fuel												
Solids	1718	1415	1458	1336	1192	1077	-102	-188	-180	-7.1	-13.6	-14.3
Oil	7896	9402	11774	10548	9871	8948	-1675	-2353	-3161	-13.7	-19.2	-26.1
Gas	2968	4254	4936	5421	5375	4739	-457	-846	-1579	-7.8	-13.6	-25.0
Electricity	3669	4474	4884	5302	5507	6720	-421	-599	136	-7.4	-9.8	2.1
Heat (from CHP and District Heating)	614	1052	1260	1223	1253	1184	-270	-311	-357	-18.1	-19.9	-23.2
Renewable energy forms	2192	2316	2996	3924	4241	4359	-25	92	-338	-0.6	2.2	-7.2
Other	0	0	0	2	2	3	1	0	0	58.9	6.8	-3.5
RES in Gross Final Energy Consumption ^(A)		6285	6788	8271	9584	10550	519	1142	1377	6.7	13.5	15.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	89.6	79.8	73.7	-12.9	-24.5	-29.9	-12.6	-23.5	-28.9
CO₂ Emissions (energy related)	55.2	61.0	73.7	67.9	59.1	54.9	-11.0	-21.4	-26.4	-13.9	-26.6	-32.5
Power generation/District heating	12.8	11.6	15.0	12.9	7.3	8.4	-4.1	-10.9	-11.7	-24.1	-60.0	-58.1
Energy Branch	3.8	4.2	4.6	4.0	3.7	3.3	-0.4	-0.6	-0.7	-9.0	-13.8	-17.9
Industry	12.7	15.5	17.5	18.4	17.5	16.3	0.1	-1.0	-1.5	0.4	-5.2	-8.6
Residential	9.8	8.8	9.0	7.1	6.7	5.4	-1.9	-2.3	-3.7	-21.5	-25.8	-40.9
Tertiary	3.4	3.7	4.5	3.4	3.0	2.0	-1.7	-2.0	-2.7	-33.6	-39.6	-57.7
Transport	12.7	17.2	23.1	22.1	20.9	19.6	-2.9	-4.6	-6.1	-11.6	-18.2	-23.7
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.4	8.9	8.5	-0.2	-0.7	-1.3	-2.3	-7.6	-12.9
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.2	11.9	10.3	-1.7	-2.3	-2.2	-12.0	-16.5	-17.8
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	111.5	99.3	91.7	-16.0	-30.5	-37.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	109.1	96.1	84.6	-11.6	-16.8	-15.4	-9.6	-14.9	-15.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	2.03	1.83	1.68	-0.10	-0.29	-0.43	-4.8	-13.8	-20.2
Import Dependency %	68.4	66.1	71.8	67.8	66.3	63.5	-4.4	-8.4	-10.0			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	31.3	35.4	39.7	2.0	3.4	4.5	7.0	10.5	12.7
as % of GDP		8.4	9.5	10.2	10.6	10.3	0.7	1.0	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				2.1	3.5	4.6						
as % of GDP				0.68	1.03	1.18						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	90.6	81.5	70.9	-2.2	-4.3	-4.4	-2.4	-5.0	-5.8
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	81.0	74.0	63.5	-10.5	-12.8	-14.7	-11.5	-14.8	-18.8
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	84.6	76.9	64.4	-22.2	-24.6	-25.9	-20.8	-24.2	-28.7
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	36.8	34.8	30.5	-1.5	-2.3	-3.6	-3.8	-6.2	-10.5
Freight transport (toe/Mtkm)	49.4	45.7	59.0	52.2	47.6	42.9	-5.9	-9.5	-12.1	-10.1	-16.7	-22.0
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.16	0.08	0.08	-0.03	-0.10	-0.11	-15.9	-54.4	-57.3
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.84	1.75	1.60	-0.04	-0.08	-0.16	-1.9	-4.4	-9.2
Industry	2.06	2.06	1.98	1.95	1.88	1.74	0.05	0.00	-0.05	2.8	-0.2	-2.9
Residential	1.71	1.46	1.37	1.10	1.05	0.86	-0.14	-0.15	-0.32	-11.3	-12.9	-27.2
Tertiary	1.34	1.12	1.15	0.91	0.81	0.55	-0.18	-0.20	-0.37	-16.2	-20.2	-40.6
Transport	2.75	2.85	2.89	2.72	2.63	2.54	-0.05	-0.10	-0.11	-1.9	-3.8	-4.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		26.8	24.2	29.1	34.1	37.8	4.4	8.1	10.3			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.5	10.1	13.3	1.4	3.1	2.9			
Gross Electricity generation by source (in GWh_e)												
	60150	62969	67057	70352	88259	88259	-5435	-7992	2387	-7.5	-10.2	2.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7640	1550	4472	0	-8725	-11279		0.0	-84.9	-71.6
Oil (including refinery gas)	1220	1452	3191	2562	2194		-974	-369	-663	-23.4	-12.6	-23.2
Gas (including derived gases)	10541	14513	10551	11665	21372		-7491	-5566	4166	-41.5	-32.3	24.2
Biomass-waste	1845	3929	5401	11309	16226		1473	6425	9452	37.5	131.6	139.5
Hydro (pumping excluded)	41832	35868	35593	38342	38342		737	0	0	2.1	0.0	0.0
Wind	67	1328	4591	4759	5300		820	242	713	21.7	5.4	15.5
Solar	3	14	83	156	340		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	7	9	13		1	1	0	22.4	10.7	0.0
Net Generation Capacity in MW_e												
	16771	17685	21923	23550	24977		-483	-4	-178	-2.2	0.0	-0.7
<u>Nuclear energy</u>	0	0	0	0	0		0	0	0			
<u>Renewable energy</u>	10792	11287	13515	14248	15797		530	126	515	4.1	0.9	3.4
Hydro (pumping excluded)	10709	10446	11169	11691	12004		0	0	0	0.0	0.0	0.0
Wind	77	817	2207	2297	3223		530	126	515	31.6	5.8	19.0
Solar	7	24	139	261	570		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	5978	6397	8408	9301	9180		-1013	-130	-693	-10.8	-1.4	-7.0
of which cogeneration units	3067	3657	4099	5297	5831		-563	128	217	-12.1	2.5	3.9
Solids fired	1600	1587	1460	1460	458		0	-88	-1415	0.0	-5.7	-75.5
Gas fired	2916	3267	4699	4948	5411		-1392	-1034	-755	-22.8	-17.3	-12.2
Oil fired	1167	1158	1357	803	470		-71	-112	-115	-5.0	-12.2	-19.6
Biomass-waste fired	295	384	891	2088	2838		449	1104	1593	101.4	112.2	127.8
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	1	2	2	3		0	0	0	16.4	8.6	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	33.6	33.0	38.6		-2.0	-3.7	1.0			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.8	57.5	58.6		0.3	5.6	2.4			
% of gross electricity from CHP	12.3	20.6	26.3	34.5	37.4		-5.6	1.9	1.2			
Carbon free gross electricity generation (%)	72.7	65.3	68.1	77.6	68.2		9.3	16.4	9.9			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	68.1	77.6	68.2		9.3	16.4	9.9			
Transport sector												
Passenger transport activity (Gpkm)												
	95.0	114.6	120.6	134.7	140.7	151.8	-4.7	-6.5	-8.3	-3.3	-4.4	-5.2
Public road transport	14.2	14.8	15.1	16.7	17.5	18.4	0.3	0.5	0.6	1.9	2.9	3.4
Private cars and motorcycles	65.2	81.3	85.8	92.7	94.8	99.0	-5.0	-7.1	-8.7	-5.2	-7.0	-8.1
Rail	11.5	11.8	12.3	14.8	16.0	17.8	0.5	0.8	0.9	3.7	5.0	5.4
Aviation	4.1	6.6	7.3	10.4	12.3	16.7	-0.4	-0.7	-1.1	-4.1	-5.4	-6.0
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-0.8	-0.6
Freight transport activity (Gtkm)												
	34.1	54.2	55.9	60.9	64.4	71.8	-2.8	-3.9	-5.0	-4.5	-5.7	-6.6
Trucks	20.3	35.1	37.0	38.1	39.4	43.5	-4.0	-5.5	-7.0	-9.6	-12.3	-13.9
Rail	12.2	16.6	17.1	20.8	22.9	26.0	1.2	1.6	2.0	6.0	7.7	8.1
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.3	0.0	0.0	0.0	1.0	1.5	1.9
Energy demand in transport (ktoe)												
	4603	6038	7994	8127	7958	7707	-896	-1399	-1972	-9.9	-15.0	-20.4
Public road transport	80	80	107	107	99	88	-3	-12	-13	-3.0	-10.4	-12.6
Private cars and motorcycles	2499	2865	3890	3912	3782	3358	-323	-468	-680	-7.6	-11.0	-16.8
Trucks	1350	2167	3004	2856	2747	2806	-528	-838	-1130	-15.6	-23.4	-28.7
Rail	357	333	310	339	333	289	6	1	-17	1.8	0.2	-5.7
Aviation	310	586	675	904	986	1155	-47	-82	-131	-4.9	-7.7	-10.2
Inland navigation	7	6	9	10	10	11	0	0	0	-0.5	-1.4	-3.3

Source: PRIMES

Belgium: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	12529	11336	13366	14064	14868	15023	13729	7782	5505	0.6	1.1	-0.8	-8.7	
Solids	1085	269	191	57	11	8	9	15	13	-16.0	-25.0	-1.8	3.6	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	1933	3311	4652	5127	5492	0.3	9.9	9.2	1.7	
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.2	-0.2	
Biomass & Waste	702	694	706	1675	1664	2538	3406	3745	4020	0.0	9.0	7.4	1.7	
Wind	1	1	1	20	197	422	700	805	815	7.9	65.3	13.5	1.5	
Solar and others	1	1	1	3	39	317	511	543	623	2.1	43.8	29.4	2.0	
Geothermal	1	1	4	1	2	3	3	4	4	14.0	-6.9	6.3	0.4	
Net Imports	38857	43775	48651	48968	48560	46629	47305	50815	52483	2.3	0.0	-0.3	1.0	
Solids	9492	9343	7566	5511	4957	4016	4439	6725	8564	-2.2	-4.1	-1.1	6.8	
Oil	21468	23579	27331	28425	28762	27454	26830	26480	26170	2.4	0.5	-0.7	-0.2	
- Crude oil and Feedstocks	26116	25674	32658	30565	31876	31305	31052	30971	30829	2.3	-0.2	-0.3	-0.1	
- Oil products	-4648	-2096	-5328	-2141	-3115	-3851	-4222	-4491	-4659					
Natural gas	8217	10418	13278	14191	13934	14104	14916	16462	16594	4.9	0.5	0.7	1.1	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	55647	53577	52548	49696	48714	1.9	-0.3	-0.6	-0.8	
Solids	10244	8551	8200	5450	4968	4024	4448	6740	8577	-2.2	-4.9	-1.1	6.8	
Oil	17730	19794	21949	20547	20981	19379	18343	17579	16895	2.2	-0.5	-1.3	-0.8	
Natural gas	8169	10611	13369	14113	13934	14104	14916	16462	16594	5.0	0.4	0.7	1.1	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2230	3765	5261	5796	6210	1.6	10.1	9.0	1.7	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	7.5	8.5	13.6	17.6					
Oil	37.5	39.2	38.4	37.4	37.7	36.2	34.9	35.4	34.7					
Natural gas	17.3	21.0	23.4	25.7	25.0	26.3	28.4	33.1	34.1					
Nuclear	22.7	20.5	21.7	22.3	23.2	21.8	17.3	5.3	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.0	7.0	10.0	11.7	12.7					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88237	92745	100116	113174	123191	1.6	0.7	1.3	2.1	
Self consumption and grid losses	7382	7778	7813	8244	7518	7838	8426	10721	12275	0.6	-0.4	1.1	3.8	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6165	6522	8908	14205	17239	1.3	-1.9	3.7	6.8	
Solids	3875	3764	3025	1889	1812	1043	1809	4194	6091	-2.4	-5.0	0.0	12.9	
Oil (including refinery gas)	318	232	172	411	0	1	4	4	134	-6.0			43.6	
Gas (including derived gases)	1983	2721	3790	4612	3363	3853	4908	7480	8121	6.7	-1.2	3.9	5.2	
Biomass & Waste	368	465	466	1388	990	1624	2188	2527	2893	2.4	7.8	8.2	2.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38290	37494	37028	36643	36435	1.5	-0.6	-0.3	-0.2	
Refineries	29036	28632	37085	35792	34899	33951	33445	33065	32818	2.5	-0.6	-0.4	-0.2	
Biofuels and hydrogen production	0	0	0	0	234	564	978	1064	1134			15.4	1.5	
District heating	10	5	41	27	69	49	40	36	35	15.2	5.4	-5.4	-1.2	
Derived gases, cokeries etc.	6109	4320	3612	3173	3089	2930	2566	2478	2448	-5.1	-1.6	-1.8	-0.5	
Energy Branch Consumption	2310	2273	2370	2127	1908	1830	1777	1817	1834	0.3	-2.1	-0.7	0.3	
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3988	3946	7.8	-3.1	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	37160	36429	36017	35245	34686	1.7	0.1	-0.3	-0.4	
by sector														
Industry	11886	12110	13636	11605	11802	11633	11350	11207	11218	1.4	-1.4	-0.4	-0.1	
- energy intensive industries	9285	9192	10043	8751	8876	8759	8443	8302	8215	0.8	-1.2	-0.5	-0.3	
- other industrial sectors	2600	2918	3593	2854	2926	2874	2906	2905	3003	3.3	-2.0	-0.1	0.3	
Residential	8337	9295	9465	9914	9786	9410	9370	8865	8482	1.3	0.3	-0.4	-1.0	
Tertiary	3370	4604	4158	5005	5082	4874	4806	4751	4692	2.1	2.0	-0.6	-0.2	
Transport	7704	8480	9672	9880	10491	10512	10491	10421	10293	2.3	0.8	0.0	-0.2	
by fuel														
Solids	3787	3306	3378	2080	1842	1732	1524	1499	1444	-1.1	-5.9	-1.9	-0.5	
Oil	14734	16248	16047	16443	16308	14975	14008	13437	12707	0.9	0.2	-1.5	-1.0	
Gas	7249	8517	10010	10009	10481	10141	9802	8619	8096	3.3	0.5	-0.7	-1.9	
Electricity	4986	5885	6667	6894	7256	7616	8118	9030	9724	2.9	0.9	1.1	1.8	
Heat (from CHP and District Heating)	213	220	490	427	341	420	443	465	492	8.7	-3.6	2.6	1.1	
Renewable energy forms	326	312	338	549	931	1544	2119	2191	2218	0.3	10.7	8.6	0.5	
Other	0	0	0	0	1	2	3	3	4			15.1	2.1	
RES in Gross Final Energy Consumption ^(A)			495	909	1900	3470	4835	5316	5673		14.4	9.8	1.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	139.6	127.2	125.5	136.0	141.6	0.4	-0.6	-1.1	1.2	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	102.5	94.9	95.5	106.1	111.7	0.8	-1.2	-0.7	1.6	
Power generation/District heating	21.8	23.1	22.5	20.6	16.1	14.2	19.6	35.0	44.4	0.3	-3.3	2.0	8.5	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.6	3.5	3.3	3.3	0.3	-3.8	-0.6	-0.9	
Industry	30.2	28.7	30.5	22.8	22.6	21.3	19.6	19.3	19.3	0.1	-3.0	-1.4	-0.2	
Residential	18.7	20.1	20.0	20.3	19.2	16.7	15.0	11.5	8.7	0.7	-0.4	-2.4	-5.3	
Tertiary	7.5	10.4	8.2	10.5	10.3	9.4	9.1	8.8	8.6	0.8	2.3	-1.2	-0.5	
Transport	22.6	24.9	28.6	29.4	30.6	29.8	28.6	28.1	27.5	2.4	0.7	-0.7	-0.4	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.1	10.0	9.8	9.6	0.9	-0.2	-0.1	-0.4	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	22.1	20.0	20.1	20.3	-1.4	1.6	-3.0	0.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.2	89.4	88.2	95.7	99.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.7	143.4	128.4	111.8	102.0	-0.4	-2.1	-2.5	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.84	1.77	1.82	2.14	2.29	-1.1	-0.9	-0.1	2.4
Import Dependency %	75.7	80.5	77.8	78.3	76.6	75.6	77.5	86.7	90.5				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.5	41.6	46.3	49.1	50.9		1.9	2.4	1.0
as % of GDP			10.9	10.6	10.9	11.1	11.3	11.0	10.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	70.5	64.0	58.8	55.0	-0.2	-2.4	-2.0	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	76.9	70.6	61.9	55.5	-0.9	-1.3	-2.2	-2.4
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.5	84.5	75.6	68.5	63.0	0.2	-0.2	-2.6	-1.8
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.3	41.1	38.0	35.2	0.1	-0.4	-1.0	-1.5
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.2	43.3	43.2	42.8	-0.7	0.0	-0.9	-0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.17	0.14	0.18	0.29	0.34	-1.7	-3.8	0.7	6.4
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.12	2.01	1.92	1.85	-0.7	-0.6	-1.0	-0.8
Industry	2.54	2.37	2.24	1.97	1.91	1.83	1.73	1.72	1.72	-1.3	-1.6	-1.0	-0.1
Residential	2.24	2.16	2.11	2.05	1.96	1.77	1.60	1.30	1.03	-0.6	-0.7	-2.0	-4.3
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.89	1.86	1.84	-1.3	0.3	-0.7	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.70	2.67	0.1	-0.2	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.0	9.3	13.1	14.7	15.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.4	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			82639	85694	88237	92745	100116	113174	123191		0.7	1.3	2.1
Nuclear energy			48148	47586	50094	45361	35148	10232	0	0.4	-3.5		
Solids			12953	8552	7971	4801	8285	24784	36177	-4.7	0.4	15.9	
Oil (including refinery gas)			865	1871	80	746	680	178	955	-21.1	23.8	3.5	
Gas (including derived gases)			18968	23608	22685	28084	36132	55196	61391	1.8	4.8	5.4	
Biomass-waste			1231	3561	4742	8440	11293	12959	14674	14.4	9.1	2.7	
Hydro (pumping excluded)			459	288	360	363	367	359	359	-2.4	0.2	-0.2	
Wind			15	227	2287	4910	8141	9356	9475	65.3	13.5	1.5	
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17883	19142	20244	23447	24295		2.2	1.2	1.8
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0	0.1	-3.5		
<u>Renewable energy</u>			319	467	1230	2286	3605	4343	4421	14.5	11.3	2.1	
Hydro (pumping excluded)			306	298	300	303	304	304	304	-0.2	0.1	0.0	
Wind			13	167	906	1932	3209	3898	3909	52.9	13.5	2.0	
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10779	11584	12543	17911	19873	2.6	1.5	4.7	
of which cogeneration units			1863	2324	2986	4192	4467	4709	4679	4.8	4.1	0.5	
Solids fired			1680	1392	1258	1182	1209	3148	4209	-2.8	-0.4	13.3	
Gas fired			5522	6360	7628	7845	8368	12024	13069	3.3	0.9	4.6	
Oil fired			615	641	588	546	523	169	293	-0.5	-1.2	-5.6	
Biomass-waste fired			515	551	1305	2011	2442	2571	2303	9.7	6.5	-0.6	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	54.3	53.5	54.8	53.0	55.6				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.5	55.5	54.4	56.4	56.5				
% of gross electricity from CHP			7.3	7.2	17.3	24.9	25.6	24.2	22.6				
Carbon free gross electricity generation (%)			60.3	60.3	65.2	63.7	55.0	29.2	20.0				
- nuclear			58.3	55.5	56.8	48.9	35.1	9.0	0.0				
- renewable energy forms			2.1	4.8	8.4	14.8	19.8	20.1	20.0				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	165.1	172.7	179.2	186.1	192.0	2.0	1.7	0.8	0.7
Public road transport	10.9	13.1	13.3	17.6	18.8	19.3	19.9	20.2	20.4	2.0	3.5	0.6	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	120.9	124.2	126.4	129.7	132.2	1.8	1.2	0.4	0.4
Rail	7.3	7.6	8.6	10.1	11.8	13.1	14.4	15.3	16.4	1.7	3.2	2.0	1.3
Aviation	4.6	6.4	9.3	10.8	13.3	15.7	18.1	20.5	22.6	7.2	3.6	3.1	2.2
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.3	0.3
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.3	67.1	72.2	77.6	82.5	3.2	-0.4	1.3	1.3
Trucks	34.2	45.6	51.0	43.8	45.4	48.2	52.5	57.5	62.1	4.1	-1.2	1.5	1.7
Rail	8.4	7.3	7.7	8.1	8.8	9.5	10.1	10.3	10.5	-0.9	1.4	1.3	0.4
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10491	10512	10491	10421	10293	2.3	0.8	0.0	-0.2
Public road transport	165	164	170	173	182	176	166	156	149	0.3	0.7	-0.9	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5692	5545	5377	5088	4837	1.6	1.7	-0.6	-1.1
Trucks	2205	2420	2858	2581	2657	2681	2772	2997	3199	2.6	-0.7	0.4	1.4
Rail	177	202	183	185	196	198	202	196	177	0.4	0.7	0.3	-1.3
Aviation	952	945	1530	1281	1536	1682	1741	1750	1699	4.9	0.0	1.3	-0.2
Inland navigation	129	247	136	217	227	231	233	234	233	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	15023	13729	5505	632	1411	1501	4.4	11.5	37.5
Solids	1085	191	57	8	9	13	-12	-9	0	-58.8	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	-274.7	-538.6	-67.4
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3311	4652	5492	644	1420	1501	24.1	43.9	37.6
Hydro	23	39	25	31	32	31	1	0	1	1.8	0.2	3.8
Biomass & Waste	702	706	1675	2538	3406	4020	310	787	766	13.9	30.0	23.5
Wind	1	1	20	422	700	815	88	241	285	26.3	52.6	53.7
Solar and others	1	1	3	317	511	623	245	389	447	336.2	320.4	254.7
Geothermal	1	4	1	3	3	4	1	2	2	86.0	140.8	156.1
Net Imports	38857	48651	48968	46629	47305	52483	-4402	-6257	-6863	-8.6	-11.7	-11.6
Solids	9492	7566	5511	4016	4439	8564	-1333	-2063	-2257	-24.9	-31.7	-20.9
Oil	21468	27331	28425	27454	26830	26170	-1696	-2419	-3477	-5.8	-8.3	-11.7
- Crude oil and Feedstocks	26116	32658	30565	31305	31052	30829	-948	-1363	-1996	-2.9	-4.2	-6.1
- Oil products	-4648	-5328	-2141	-3851	-4222	-4659	-748	-1055	-1481	24.1	33.3	46.6
Natural gas	8217	13278	14191	14104	14916	16594	-1428	-1916	-1267	-9.2	-11.4	-7.1
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	53577	52548	48714	-3767	-4834	-5340	-6.6	-8.4	-9.9
Solids	10244	8200	5450	4024	4448	8577	-1345	-2071	-2257	-25.1	-31.8	-20.8
Oil	17730	21949	20547	19379	18343	16895	-1693	-2406	-3455	-8.0	-11.6	-17.0
Natural gas	8169	13369	14113	14104	14916	16594	-1428	-1916	-1267	-9.2	-11.4	-7.1
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3765	5261	6210	699	1560	1638	22.8	42.2	35.8
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	7.5	8.5	17.6	-1.9	-2.9	-2.4			
Oil	37.5	38.4	37.4	36.2	34.9	34.7	-0.6	-1.3	-3.0			
Natural gas	17.3	23.4	25.7	26.3	28.4	34.1	-0.8	-0.9	1.0			
Nuclear	22.7	21.7	22.3	21.8	17.3	0.0	1.4	1.5	0.0			
Renewable energy forms	1.5	1.5	3.7	7.0	10.0	12.7	1.7	3.6	4.3			
Gross Electricity Generation in GWh_e	70202	82639	85694	92745	100116	123191	-8337	-8823	5443	-8.2	-8.1	4.6
Self consumption and grid losses	7382	7813	8244	7838	8426	12275	-796	-1016	598	-9.2	-10.8	5.1
Fuel Inputs to Thermal Power Generation	6544	7453	8299	6522	8908	17239	-1962	-2099	103	-23.1	-19.1	0.6
Solids	3875	3025	1889	1043	1809	6091	-1296	-1813	-2072	-55.4	-50.1	-25.4
Oil (including refinery gas)	318	172	411	1	4	134	-88	-77	37	-98.5	-95.5	37.5
Gas (including derived gases)	1983	3790	4612	3853	4908	8121	-882	-959	1221	-18.6	-16.3	17.7
Biomass & Waste	368	466	1388	1624	2188	2893	304	750	917	23.0	52.2	46.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37494	37028	36435	-839	-1328	-1966	-2.2	-3.5	-5.1
Refineries	29036	37085	35792	33951	33445	32818	-951	-1367	-2004	-2.7	-3.9	-5.8
Biofuels and hydrogen production	0	0	0	564	978	1134	62	191	79	12.3	24.2	7.5
District heating	10	41	27	49	40	35	1	-1	-8	2.1	-3.0	-17.8
Derived gases, cokeries etc.	6109	3612	3173	2930	2566	2448	49	-151	-33	1.7	-5.6	-1.3
Energy Branch Consumption	2310	2370	2127	1830	1777	1834	-85	-146	-177	-4.4	-7.6	-8.8
Non-Energy Uses	2739	5814	4583	4051	4024	3946	-3	-5	-13	-0.1	-0.1	-0.3
Final Energy Demand	31296	36931	36403	36429	36017	34686	-2509	-3596	-5184	-6.4	-9.1	-13.0
by sector												
Industry	11886	13636	11605	11633	11350	11218	-263	-558	-666	-2.2	-4.7	-5.6
- energy intensive industries	9285	10043	8751	8759	8443	8215	-142	-402	-457	-1.6	-4.5	-5.3
- other industrial sectors	2600	3593	2854	2874	2906	3003	-121	-156	-209	-4.0	-5.1	-6.5
Residential	8337	9465	9914	9410	9370	8482	-937	-1093	-1840	-9.1	-10.4	-17.8
Tertiary	3370	4158	5005	4874	4806	4692	-705	-905	-1053	-12.6	-15.8	-18.3
Transport	7704	9672	9880	10512	10491	10293	-604	-1041	-1626	-5.4	-9.0	-13.6
by fuel												
Solids	3787	3378	2080	1732	1524	1444	-94	-261	-236	-5.2	-14.6	-14.1
Oil	14734	16047	16443	14975	14008	12707	-1445	-2213	-3328	-8.8	-13.6	-20.8
Gas	7249	10010	10009	10141	9802	8096	-610	-973	-2444	-5.7	-9.0	-23.2
Electricity	4986	6667	6894	7616	8118	9724	-639	-656	443	-7.7	-7.5	4.8
Heat (from CHP and District Heating)	213	490	427	420	443	492	-18	-28	-41	-4.1	-5.9	-7.7
Renewable energy forms	326	338	549	1544	2119	2218	296	534	423	23.7	33.7	23.6
Other	0	0	0	2	3	4	1	0	-2	48.2	10.0	-29.5
RES in Gross Final Energy Consumption ^(A)		495	909	3470	4835	5673	997	1661	1650	40.3	52.3	41.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	127.2	125.5	141.6	-19.0	-27.0	-30.4	-13.0	-17.7	-17.7
CO₂ Emissions (energy related)	106.2	115.4	107.8	94.9	95.5	111.7	-13.9	-20.0	-22.4	-12.8	-17.3	-16.7
Power generation/District heating	21.8	22.5	20.6	14.2	19.6	44.4	-7.4	-9.6	-5.2	-34.5	-32.9	-10.5
Energy Branch	5.4	5.5	4.3	3.6	3.5	3.3	-0.2	-0.3	-0.4	-6.2	-7.3	-11.3
Industry	30.2	30.5	22.8	21.3	19.6	19.3	0.0	-0.9	-0.4	-0.2	-4.5	-1.8
Residential	18.7	20.0	20.3	16.7	15.0	8.7	-2.8	-3.9	-9.3	-14.5	-20.7	-51.5
Tertiary	7.5	8.2	10.5	9.4	9.1	8.6	-1.3	-1.6	-1.7	-12.3	-14.7	-16.6
Transport	22.6	28.6	29.4	29.8	28.6	27.5	-2.0	-3.7	-5.4	-6.3	-11.5	-16.5
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.1	10.0	9.6	-0.2	-0.3	-0.5	-1.5	-3.3	-5.3
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	22.1	20.0	20.3	-5.0	-6.6	-7.5	-18.3	-24.9	-26.9
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	89.4	88.2	99.6	-13.3	-19.0	-21.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	143.4	128.4	102.0	-10.1	-11.8	-11.2	-6.6	-8.4	-9.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.77	1.82	2.29	-0.13	-0.20	-0.19	-6.6	-9.7	-7.6
Import Dependency %	75.7	77.8	78.3	75.6	77.5	90.5	-2.4	-3.8	-3.2			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	41.6	46.3	50.9	2.3	3.4	4.4	5.9	7.9	9.4
as % of GDP		10.9	10.6	11.1	11.3	10.7	0.6	0.8	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				2.4	3.5	4.6						
as % of GDP				0.65	0.86	0.96						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	70.5	64.0	55.0	-1.6	-3.1	-3.3	-2.2	-4.7	-5.6
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	76.9	70.6	55.5	-7.7	-8.2	-12.0	-9.1	-10.4	-17.8
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	84.5	75.6	63.0	-12.2	-14.2	-14.1	-12.6	-15.8	-18.3
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.3	41.1	35.2	-1.2	-2.1	-3.5	-2.7	-4.8	-9.0
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.2	43.3	42.8	-2.7	-4.6	-6.2	-5.6	-9.6	-12.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.14	0.18	0.34	-0.06	-0.07	-0.06	-28.8	-27.1	-13.9
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.12	2.01	1.85	-0.02	-0.07	-0.18	-1.0	-3.5	-8.9
Industry	2.54	2.24	1.97	1.83	1.73	1.72	0.04	0.00	0.07	2.1	0.2	4.0
Residential	2.24	2.11	2.05	1.77	1.60	1.03	-0.11	-0.21	-0.71	-6.0	-11.5	-40.9
Tertiary	2.23	1.96	2.09	1.93	1.89	1.84	0.01	0.03	0.04	0.4	1.4	2.1
Transport	2.94	2.96	2.97	2.84	2.73	2.67	-0.03	-0.08	-0.09	-0.9	-2.7	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.3	13.1	15.9	3.1	5.3	6.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.4	11.2	0.8	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	92745	100116	123191	123191	-8337	-8823	5443	-8.2	-8.1	4.6
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	0.0
Solids	12953	8552	4801	8285	36177	36177	-5593	-9215	-11051	-53.8	-52.7	-23.4
Oil (including refinery gas)	865	1871	746	680	955	955	-391	-351	88	-34.4	-34.1	10.1
Gas (including derived gases)	18968	23608	28084	36132	61391	61391	-5038	-5660	9126	-15.2	-13.5	17.5
Biomass-waste	1231	3561	8440	11293	14674	14674	1655	3595	3957	24.4	46.7	36.9
Hydro (pumping excluded)	459	288	363	367	359	359	6	1	13	1.8	0.2	3.8
Wind	15	227	4910	8141	9475	9475	1023	2807	3310	26.3	52.6	53.7
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	14452	15254	19142	20244	24295	24295	256	-355	2186	1.4	-1.7	9.9
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	319	467	2286	3605	4421	4421	360	980	1339	18.7	37.3	43.4
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1932	3209	3909	3909	360	980	1339	22.9	44.0	52.1
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11584	12543	19873	19873	-103	-1335	848	-0.9	-9.6	4.5
of which cogeneration units	1863	2324	4192	4467	4679	4679	-343	-741	-673	-7.6	-14.2	-12.6
Solids fired	1680	1392	1182	1209	4209	4209	-292	-959	-1447	-19.8	-44.2	-25.6
Gas fired	5522	6360	7845	8368	13069	13069	-532	-1290	1401	-6.3	-13.4	12.0
Oil fired	615	641	546	523	293	293	-4	0	41	-0.7	0.0	16.3
Biomass-waste fired	515	551	2011	2442	2303	2303	724	914	853	56.2	59.8	58.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	53.5	54.8	55.6	55.6	-5.6	-3.6	-2.5			
Efficiency of gross thermal power generation (%)	39.3	39.0	55.5	54.4	56.5	56.5	3.3	1.3	0.7			
% of gross electricity from CHP	7.3	7.2	24.9	25.6	22.6	22.6	1.3	0.5	-4.3			
Carbon free gross electricity generation (%)	60.3	60.3	63.7	55.0	20.0	20.0	7.9	10.3	5.3			
- nuclear	58.3	55.5	48.9	35.1	0.0	0.0	4.0	2.8	0.0			
- renewable energy forms	2.1	4.8	14.8	19.8	20.0	20.0	3.9	7.5	5.3			
Transport sector												
Passenger transport activity (Gpkm)	113.7	139.3	153.2	172.7	179.2	192.0	-3.2	-5.0	-6.7	-1.8	-2.7	-3.4
Public road transport	10.9	13.3	17.6	19.3	19.9	20.4	0.4	0.6	0.7	2.1	3.1	3.7
Private cars and motorcycles	90.1	107.7	114.4	124.2	126.4	132.2	-3.1	-4.9	-6.1	-2.4	-3.7	-4.4
Rail	7.3	8.6	10.1	13.1	14.4	16.4	0.3	0.4	0.2	2.1	3.2	1.4
Aviation	4.6	9.3	10.8	15.7	18.1	22.6	-0.8	-1.1	-1.5	-4.5	-6.0	-6.3
Inland navigation	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.7	-0.5	-0.3
Freight transport activity (Gtkm)	48.0	65.9	60.5	67.1	72.2	82.5	-1.5	-2.5	-3.8	-2.2	-3.3	-4.4
Trucks	34.2	51.0	43.8	48.2	52.5	62.1	-2.2	-3.4	-4.8	-4.3	-6.1	-7.1
Rail	8.4	7.7	8.1	9.5	10.1	10.5	0.5	0.7	0.7	5.7	7.5	7.5
Inland navigation	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.2	0.2	1.3	2.0	2.5
Energy demand in transport (ktoe)	7704	9672	9880	10512	10491	10293	-604	-1041	-1626	-5.4	-9.0	-13.6
Public road transport	165	170	173	176	166	149	-2	-10	-13	-1.0	-5.6	-8.2
Private cars and motorcycles	4075	4794	5442	5545	5377	4837	-242	-369	-428	-4.2	-6.4	-8.1
Trucks	2205	2858	2581	2681	2772	3199	-257	-466	-718	-8.7	-14.4	-18.3
Rail	177	183	185	198	202	177	3	9	16	1.5	4.6	9.8
Aviation	952	1530	1281	1682	1741	1699	-107	-205	-486	-6.0	-10.5	-22.2
Inland navigation	129	136	217	231	233	233	0	0	4	0.2	-0.1	1.8

Source: PRIMES

Bulgaria: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	9136	10192	9845	10611	9236	8081	9934	10899	11248	0.8	-0.6	0.7	1.2
Solids	5121	5287	4310	4178	3842	2527	1973	644	268	-1.7	-1.1	-6.4	-18.1
Oil	60	43	42	30	34	37	40	41	41	-3.5	-2.2	1.7	0.3
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0
Renewable energy sources	161	370	792	1207	1603	1780	2279	2719	3465	17.2	7.3	3.6	4.3
Hydro	161	151	230	373	266	295	303	321	341	3.6	1.5	1.3	1.2
Biomass & Waste	0	219	562	801	1167	1281	1660	2057	2744		7.6	3.6	5.2
Wind	0	0	0	0	33	45	115	135	176			13.2	4.4
Solar and others	0	0	0	0	5	19	48	64	79			26.3	5.2
Geothermal	0	0	0	33	131	140	153	142	125			1.5	-2.0
Net Imports	17823	13475	8681	9416	9946	10510	11063	12105	12874	-6.9	1.4	1.1	1.5
Solids	3527	2424	2258	2550	2763	2689	2835	2914	2922	-4.4	2.0	0.3	0.3
Oil	8540	6511	4081	5086	5395	5903	6381	6796	6972	-7.1	2.8	1.7	0.9
- Crude oil and Feedstocks	8247	8003	5346	6328	7216	7871	8487	9021	9252	-4.2	3.0	1.6	0.9
- Oil products	292	-1492	-1265	-1242	-1821	-1968	-2106	-2225	-2280				
Natural gas	5430	4563	2742	2458	2034	2212	2554	3171	3835	-6.6	-2.9	2.3	4.2
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Gross Inland Consumption	27964	23305	18610	19885	19048	18438	20829	22825	23937	-4.0	0.2	0.9	1.4
Solids	8706	7673	6417	6892	6604	5215	4808	3559	3190	-3.0	0.3	-3.1	-4.0
Oil	9593	6245	4181	4847	5294	5787	6253	6659	6828	-8.0	2.4	1.7	0.9
Natural gas	5395	4584	2932	2804	2270	2411	2722	3315	3957	-5.9	-2.5	1.8	3.8
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Renewable energy forms	161	363	788	1181	1566	1739	2226	2654	3378	17.2	7.1	3.6	4.3
as % in Gross Inland Consumption													
Solids	31.1	32.9	34.5	34.7	34.7	28.3	23.1	15.6	13.3				
Oil	34.3	26.8	22.5	24.4	27.8	31.4	30.0	29.2	28.5				
Natural gas	19.3	19.7	15.8	14.1	11.9	13.1	13.1	14.5	16.5				
Nuclear	13.5	19.1	25.2	24.2	18.5	19.2	26.3	32.2	30.7				
Renewable energy forms	0.6	1.6	4.2	5.9	8.2	9.4	10.7	11.6	14.1				
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	33654	36354	44633	49219	53165	-0.4	-1.9	2.9	1.8
Self consumption and grid losses	8456	8102	7245	7081	5019	4955	5200	5102	5573	-1.5	-3.6	0.4	0.7
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	5004	3714	3655	2920	3555	-4.6	-2.3	-3.1	-0.3
Solids	6800	6734	5245	5675	4844	3612	3256	1998	1679	-2.6	-0.8	-3.9	-6.4
Oil (including refinery gas)	951	613	160	149	16	15	15	10	10	-16.3	-20.4	-0.8	-3.8
Gas (including derived gases)	2352	1835	884	697	144	131	126	426	852	-9.3	-16.6	-1.3	21.1
Biomass & Waste	0	0	3	2	0	-43	258	481	1014				14.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	13079	11635	7612	8839	9042	9609	10197	10765	10971	-5.3	1.7	1.2	0.7
Refineries	8341	8023	5406	6586	7444	8098	8713	9235	9444	-4.2	3.3	1.6	0.8
Biofuels and hydrogen production	0	0	0	0	34	75	122	221	359			13.7	11.4
District heating	2779	1544	324	370	604	616	663	667	591	-19.3	6.4	0.9	-1.1
Derived gases, cokeries etc.	1960	2069	1882	1883	960	820	699	642	577	-0.4	-6.5	-3.1	-1.9
Energy Branch Consumption	1359	1458	1146	1279	1388	1383	1458	1530	1610	-1.7	1.9	0.5	1.0
Non-Energy Uses	1427	1236	1261	1059	986	1047	1179	1289	1359	-1.2	-2.4	1.8	1.4
Final Energy Demand	16138	11575	8861	9682	10619	11560	12758	14019	15001	-5.8	1.8	1.9	1.6
by sector													
Industry	8966	6032	3637	3673	3641	3792	4156	4609	5095	-8.6	0.0	1.3	2.1
- energy intensive industries	5579	4837	2814	2809	2812	2887	3099	3385	3670	-6.6	0.0	1.0	1.7
- other industrial sectors	3387	1195	823	864	829	904	1057	1224	1425	-13.2	0.1	2.5	3.0
Residential	2264	2378	2363	2268	2423	2557	2810	3028	3227	0.4	0.3	1.5	1.4
Tertiary	2389	1189	1044	1181	1422	1551	1652	1770	1820	-7.9	3.1	1.5	1.0
Transport	2518	1976	1817	2560	3133	3660	4140	4611	4858	-3.2	5.6	2.8	1.6
by fuel													
Solids	1477	1280	860	936	1188	1140	1191	1222	1196	-5.3	3.3	0.0	0.0
Oil	4967	2893	2981	3599	4280	4819	5265	5668	5876	-5.0	3.7	2.1	1.1
Gas	2066	1787	1231	1025	1016	1092	1269	1454	1663	-5.0	-1.9	2.2	2.7
Electricity	3085	2639	2358	2383	2120	2310	2576	2895	3137	-2.7	-1.1	2.0	2.0
Heat (from CHP and District Heating)	4543	2798	877	939	812	885	1111	1292	1536	-15.2	-0.8	3.2	3.3
Renewable energy forms	0	178	555	800	1202	1313	1345	1485	1591		8.0	1.1	1.7
Other	0	0	0	0	0	1	1	2	2			16.2	3.8
RES in Gross Final Energy Consumption ^(A)			786	1182	1550	1715	2141	2519	3142		7.0	3.3	3.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	62.1	56.4	56.1	49.7	46.3	-5.4	-0.2	-1.0	-1.9
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	43.9	39.9	40.2	37.5	36.9	-5.3	0.4	-0.9	-0.9
Power generation/District heating	44.8	38.2	24.9	26.2	21.9	16.7	15.3	10.7	9.1	-5.7	-1.3	-3.5	-5.1
Energy Branch	1.6	1.4	1.3	1.6	1.8	1.5	1.3	1.3	1.4	-2.1	3.7	-3.7	0.8
Industry	11.2	9.3	8.3	7.6	8.3	8.1	8.3	8.6	9.1	-2.9	-0.1	0.1	0.9
Residential	3.0	2.2	1.2	1.2	1.4	1.3	1.3	1.4	1.5	-8.9	1.5	-0.7	1.5
Tertiary	4.7	1.4	1.2	1.1	1.5	1.8	2.3	2.5	2.6	-13.0	2.1	4.5	1.3
Transport	7.1	5.6	5.2	7.4	9.0	10.5	11.8	12.9	13.3	-3.0	5.7	2.7	1.2
CO ₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.4	4.6	5.2	5.9	6.5	-4.2	0.1	1.7	2.4
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	56.7	51.6	51.3	45.4	42.3				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: EC proposal without RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0	
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6	
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	682.3	501.3	422.6	350.2	281.9	-2.3	-4.7	-4.7	-4.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.30	2.17	1.93	1.64	1.54	-1.3	0.2	-1.8	-2.2	
Import Dependency %	63.6	57.2	46.5	47.1	51.9	56.5	52.7	52.6	53.4					
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	7.9	9.7	11.8	14.3	16.9		3.0	4.1	3.7	
as % of GDP			34.7	28.7	28.2	26.3	24.0	22.0	20.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.7	43.5	34.3	27.9	23.0	-3.0	-5.4	-5.1	-3.9	
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	60.5	49.0	40.7	33.6	27.7	1.5	-4.9	-3.9	-3.8	
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	83.9	69.5	55.8	45.8	36.5	-4.0	-1.7	-4.0	-4.2	
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.4	30.3	29.5	27.6	2.5	1.9	-0.6	-0.9	
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.5	61.7	60.0	60.0	59.9	2.1	-1.4	-0.7	0.0	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.45	0.32	0.24	0.15	0.12	0.2	-0.2	-6.1	-6.9	
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.90	1.88	1.85	1.81	1.76	1.1	0.6	-0.2	-0.5	
Industry	1.25	1.55	2.29	2.06	2.27	2.15	2.00	1.87	1.78	6.2	-0.1	-1.3	-1.2	
Residential	1.33	0.92	0.50	0.53	0.57	0.51	0.46	0.45	0.46	-9.3	1.3	-2.2	0.1	
Tertiary	1.98	1.16	1.13	0.91	1.03	1.16	1.37	1.41	1.41	-5.5	-1.0	3.0	0.3	
Transport	2.81	2.84	2.87	2.91	2.89	2.87	2.85	2.80	2.74	0.2	0.1	-0.1	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	13.8	14.1	16.0	17.3	20.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.1	2.2	3.2	5.2	8.0					
Gross Electricity generation by source (in GWh)														
			40639	43965	33654	36354	44633	49219	53165		-1.9	2.9	1.8	
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3	
Solids			16824	18120	14974	17092	14022	6553	6755		-1.2	-0.7	-7.0	
Oil (including refinery gas)			590	825	75	69	69	69	40		-18.6	-0.9	-5.3	
Gas (including derived gases)			2368	1963	1265	1235	1531	3655	5588		-6.1	1.9	13.8	
Biomass-waste			10	70	207	288	1899	2917	4029		35.8	24.8	7.8	
Hydro (pumping excluded)			2673	4336	3093	3427	3528	3736	3968		1.5	1.3	1.2	
Wind			0	2	387	521	1333	1572	2051			13.2	4.4	
Solar			0	0	2	5	9	19	33			17.5	13.5	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			10900	10201	9931	11076	11262	12647	12867		-0.9	1.3	1.3	
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9	
<u>Renewable energy</u>			1921	2005	2456	2579	3329	3576	4099		2.5	3.1	2.1	
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8	
Wind			0	1	277	372	1104	1306	1670			14.8	4.2	
Solar			0	0	2	4	8	15	27			17.5	13.5	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5505	5517	5590	6587	5063	5254	4951		0.2	-1.0	-0.2	
of which cogeneration units			2163	2183	592	1322	1575	2055	2754		-12.2	10.3	5.7	
Solids fired			4536	4527	4398	5549	4079	4064	2876		-0.3	-0.8	-3.4	
Gas fired			603	625	783	644	372	612	1104		2.6	-7.2	11.5	
Oil fired			355	355	373	347	275	56	25		0.5	-3.0	-21.3	
Biomass-waste fired			11	11	36	47	337	522	947		12.7	25.2	10.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			38.3	44.6	35.6	34.9	42.6	42.3	44.7					
Efficiency of gross thermal power generation (%)			27.0	27.7	28.4	43.3	41.2	38.9	39.7					
% of gross electricity from CHP			12.0	14.3	6.9	19.9	20.7	25.0	27.6					
Carbon free gross electricity generation (%)			51.3	52.4	51.5	49.4	65.0	79.1	76.7					
- nuclear			44.7	42.4	40.6	37.7	49.8	62.4	57.7					
- renewable energy forms			6.6	10.0	11.0	11.7	15.2	16.7	19.0					
Transport sector														
Passenger transport activity (Gpkm)	40.3	21.4	33.8	38.7	44.9	52.1	60.1	68.1	74.8		-1.7	2.9	2.9	
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8		-6.1	-2.8	-0.7	
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	48.9	54.0		11.2	6.6	3.7	
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0		-7.8	-3.3	3.4	
Aviation	0.8	0.9	0.9	1.6	2.5	3.4	4.4	5.3	6.0		0.6	10.6	5.8	
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-23.0	-2.4	-0.7	
Freight transport activity (Gtkm)	27.8	18.9	12.3	20.3	26.2	32.7	38.6	43.4	46.7		-7.9	7.9	4.0	
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.5	33.1	35.6		-6.1	11.9	4.1	
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4		-8.9	-0.1	3.5	
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7		-15.1	12.0	3.9	
Energy demand in transport (ktoe)	2518	1976	1817	2560	3133	3660	4140	4611	4858		-3.2	5.6	2.8	
Public road transport	318	152	158	97	82	72	68	66	62		-6.8	-6.4	-1.9	
Private cars and motorcycles	231	175	639	928	1096	1241	1363	1488	1492		10.7	5.5	2.2	
Trucks	1459	1223	842	1274	1629	1951	2245	2526	2727		-5.4	6.8	3.3	
Rail	216	144	77	60	61	72	75	77	69		-9.8	-2.3	2.1	
Aviation	276	276	101	200	263	321	387	452	505		-9.6	10.1	3.9	
Inland navigation	18	6	1	2	2	3	3	3	3		-25.5	8.4	3.4	

Source: PRIMES

Bulgaria: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8081	9934	11248	-1997	-2037	-1775	-19.8	-17.0	-13.6
Solids	5121	4310	4178	2527	1973	268	-2452	-2894	-3299	-49.3	-59.5	-92.5
Oil	60	42	30	37	40	41	1	0	0	3.8	0.4	0.0
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	1780	2279	3465	452	857	1523	34.0	60.3	78.4
Hydro	161	230	373	295	303	341	10	8	0	3.4	2.7	0.0
Biomass & Waste	0	562	801	1281	1660	2744	331	641	1300	34.8	62.9	90.1
Wind	0	0	0	45	115	176	8	72	98	23.3	170.7	125.2
Solar and others	0	0	0	19	48	79	5	22	29	36.1	83.9	59.3
Geothermal	0	0	33	140	153	125	98	114	96	231.8	290.2	325.6
Net Imports	17823	8681	9416	10510	11063	12874	270	-96	120	2.6	-0.9	0.9
Solids	3527	2258	2550	2689	2835	2922	-25	51	80	-0.9	1.8	2.8
Oil	8540	4081	5086	5903	6381	6972	228	30	-62	4.0	0.5	-0.9
- Crude oil and Feedstocks	8247	5346	6328	7871	8487	9252	286	37	-79	3.8	0.4	-0.8
- Oil products	292	-1265	-1242	-1968	-2106	-2280	-58	-7	16	3.1	0.3	-0.7
Natural gas	5430	2742	2458	2212	2554	3835	77	-157	143	3.6	-5.8	3.9
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18438	20829	23937	-1727	-2133	-1655	-8.6	-9.3	-6.5
Solids	8706	6417	6892	5215	4808	3190	-2477	-2843	-3219	-32.2	-37.2	-50.2
Oil	9593	4181	4847	5787	6253	6828	230	30	-61	4.1	0.5	-0.9
Natural gas	5395	2932	2804	2411	2722	3957	79	-157	143	3.4	-5.4	3.8
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	1739	2226	3378	441	837	1482	34.0	60.2	78.2
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	28.3	23.1	13.3	-9.9	-10.2	-11.7			
Oil	34.3	22.5	24.4	31.4	30.0	28.5	3.8	2.9	1.6			
Natural gas	19.3	15.8	14.1	13.1	13.1	16.5	1.5	0.5	1.6			
Nuclear	13.5	25.2	24.2	19.2	26.3	30.7	1.6	2.4	2.0			
Renewable energy forms	0.6	4.2	5.9	9.4	10.7	14.1	3.0	4.6	6.7			
Gross Electricity Generation in GWh_e	42133	40639	43965	36354	44633	53165	-9768	-12141	-13543	-21.2	-21.4	-20.3
Self consumption and grid losses	8456	7245	7081	4955	5200	5573	-1966	-2382	-2683	-28.4	-31.4	-32.5
Fuel Inputs to Thermal Power Generation	10103	6292	6523	3714	3655	3555	-2543	-2945	-2513	-40.6	-44.6	-41.4
Solids	6800	5245	5675	3612	3256	1679	-2463	-2976	-3361	-40.5	-47.8	-66.7
Oil (including refinery gas)	951	160	149	15	15	10	15	15	-1			-12.5
Gas (including derived gases)	2352	884	697	131	126	852	-52	-237	37	-28.4	-65.4	4.5
Biomass & Waste	0	3	2	-43	258	1014	-43	253	812		4846.2	403.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	9609	10197	10971	416	203	76	4.5	2.0	0.7
Refineries	8341	5406	6586	8098	8713	9444	284	33	-81	3.6	0.4	-0.8
Biofuels and hydrogen production	0	0	0	75	122	359	11	31	67	16.4	34.2	23.1
District heating	2779	324	370	616	663	591	111	139	82	22.1	26.5	16.0
Derived gases, cokeries etc.	1960	1882	1883	820	699	577	10	0	8	1.2	-0.1	1.4
Energy Branch Consumption	1359	1146	1279	1383	1458	1610	-79	-123	-117	-5.4	-7.8	-6.8
Non-Energy Uses	1427	1261	1059	1047	1179	1359	-15	-16	-13	-1.4	-1.4	-0.9
Final Energy Demand	16138	8861	9682	11550	12758	15001	27	-94	-100	0.2	-0.7	-0.7
by sector												
Industry	8966	3637	3673	3792	4156	5095	-76	-179	-186	-2.0	-4.1	-3.5
- energy intensive industries	5579	2814	2809	2887	3099	3670	-66	-155	-137	-2.2	-4.8	-3.6
- other industrial sectors	3387	823	864	904	1057	1425	-11	-24	-49	-1.2	-2.2	-3.4
Residential	2264	2363	2268	2557	2810	3227	67	83	127	2.7	3.0	4.1
Tertiary	2389	1044	1181	1551	1652	1820	54	43	36	3.6	2.7	2.0
Transport	2518	1817	2560	3660	4140	4858	-18	-40	-76	-0.5	-1.0	-1.5
by fuel												
Solids	1477	860	936	1140	1191	1196	36	128	139	3.3	12.0	13.1
Oil	4967	2981	3599	4819	5265	5876	196	5	-56	4.2	0.1	-0.9
Gas	2066	1231	1025	1092	1269	1663	61	129	167	5.9	11.3	11.2
Electricity	3085	2358	2383	2310	2576	3137	-675	-843	-938	-22.6	-24.7	-23.0
Heat (from CHP and District Heating)	4543	877	939	885	1111	1536	26	133	175	3.0	13.6	12.8
Renewable energy forms	0	555	800	1313	1345	1591	383	355	413	41.2	35.8	35.0
Other	0	0	0	1	1	2	0	0	0	0.7	1.1	2.0
RES in Gross Final Energy Consumption ^(A)		786	1182	1715	2141	3142	435	776	1332	34.0	56.8	73.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	56.4	56.1	46.3	-9.6	-12.3	-14.8	-14.5	-18.0	-24.2
CO₂ Emissions (energy related)	72.4	42.1	45.1	39.9	40.2	36.9	-9.4	-12.1	-14.4	-19.0	-23.1	-28.1
Power generation/District heating	44.8	24.9	26.2	16.7	15.3	9.1	-10.0	-12.5	-14.8	-37.5	-45.0	-62.0
Energy Branch	1.6	1.3	1.6	1.5	1.3	1.4	-0.3	-0.4	-0.3	-14.6	-22.8	-19.5
Industry	11.2	8.3	7.6	8.1	8.3	9.1	0.4	-0.1	-0.3	4.7	-1.0	-3.6
Residential	3.0	1.2	1.2	1.3	1.3	1.5	0.2	0.3	0.4	18.7	25.1	40.4
Tertiary	4.7	1.2	1.1	1.8	2.3	2.6	0.4	0.8	1.1	27.5	58.2	69.1
Transport	7.1	5.2	7.4	10.5	11.8	13.3	-0.1	-0.2	-0.4	-0.7	-1.7	-2.9
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.6	5.2	6.5	-0.2	-0.2	-0.4	-3.5	-4.3	-6.0
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	11.9	10.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	51.6	51.3	42.3	-8.7	-11.3	-13.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	501.3	422.6	281.9	-47.0	-43.3	-19.5	-8.6	-9.3	-6.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.17	1.93	1.54	-0.28	-0.35	-0.46	-11.5	-15.2	-23.1
Import Dependency %	63.6	46.5	47.1	56.5	52.7	53.4	6.1	4.4	3.9			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	9.7	11.8	16.9	0.0	0.3	1.0	-0.1	2.4	6.3
as % of GDP		34.7	28.7	26.3	24.0	20.0	0.0	0.6	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.3	1.0						
as % of GDP				0.00	0.58	1.21						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	43.5	34.3	23.0	-0.9	-1.5	-0.8	-2.0	-4.1	-3.5
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	49.0	40.7	27.7	1.3	1.2	1.1	2.7	3.0	4.1
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	69.5	55.8	36.5	2.4	1.4	0.7	3.6	2.7	2.0
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.4	30.3	27.6	-0.2	-0.3	-0.5	-0.7	-1.1	-1.7
Freight transport (toe/Mtkm)	60.4	74.4	65.7	61.7	60.0	59.9	0.0	-0.1	-0.1	0.0	-0.2	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.32	0.24	0.12	-0.11	-0.13	-0.15	-26.3	-35.9	-56.3
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.88	1.85	1.76	0.07	0.08	0.06	4.0	4.3	3.6
Industry	1.25	2.29	2.06	2.15	2.00	1.78	0.14	0.06	0.00	6.8	3.3	0.0
Residential	1.33	0.50	0.53	0.51	0.46	0.46	0.07	0.08	0.12	15.6	21.5	34.9
Tertiary	1.98	1.13	0.91	1.16	1.37	1.41	0.22	0.48	0.56	23.0	54.1	65.8
Transport	2.81	2.87	2.91	2.87	2.85	2.74	-0.01	-0.02	-0.04	-0.3	-0.8	-1.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	14.1	16.0	20.2	3.7	6.0	8.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.2	3.2	8.0	0.3	0.8	1.6			
Gross Electricity generation by source (in GWh_e)												
	40639	43965	36354	44633	53165	53165	-9768	-12141	-13543	-21.2	-21.4	-20.3
Nuclear energy	18175	18650	13718	22242	30700	30700	0	0	0	0.0	0.0	0.0
Solids	16824	18120	17092	14022	6755	6755	-9293	-12305	-17214	-35.2	-46.7	-71.8
Oil (including refinery gas)	590	825	69	69	40	40	69	69	11			38.8
Gas (including derived gases)	2368	1963	1235	1531	5588	5588	-859	-2492	-662	-41.0	-61.9	-10.6
Biomass-waste	10	70	288	1899	4029	4029	103	1654	3181	55.4	674.6	375.3
Hydro (pumping excluded)	2673	4336	3427	3528	3968	3968	114	92	0	3.4	2.7	0.0
Wind	0	2	521	1333	2051	2051	99	841	1140	23.3	170.7	125.2
Solar	0	0	5	9	33	33	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	10900	10201	11076	11262	12867	12867	1	757	308	0.0	7.2	2.5
<u>Nuclear energy</u>	3473	2678	1910	2870	3817	3817	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	2579	3329	4099	4099	64	746	1013	2.6	28.9	32.8
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	372	1104	1670	1670	64	746	1013	20.8	208.2	154.3
Solar	0	0	4	8	27	27	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6587	5063	4951	4951	-63	11	-706	-1.0	0.2	-12.5
of which cogeneration units	2163	2183	1322	1575	2754	2754	-243	-61	224	-15.5	-3.7	8.8
Solids fired	4536	4527	5549	4079	2876	2876	7	7	-989	0.1	0.2	-25.6
Gas fired	603	625	644	372	1104	1104	-100	-307	-311	-13.5	-45.2	-22.0
Oil fired	355	355	347	275	25	25	14	14	-166	4.1	5.2	-86.9
Biomass-waste fired	11	11	47	337	947	947	16	297	761	53.5	736.9	410.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	34.9	42.6	44.7	44.7	-9.0	-14.8	-12.1			
Efficiency of gross thermal power generation (%)	27.0	27.7	43.3	41.2	39.7	39.7	3.9	1.4	-4.4			
% of gross electricity from CHP	12.0	14.3	19.9	20.7	27.6	27.6	1.6	2.4	5.4			
Carbon free gross electricity generation (%)	51.3	52.4	49.4	65.0	76.7	76.7	11.1	18.5	22.1			
- nuclear	44.7	42.4	37.7	49.8	57.7	57.7	8.0	10.7	11.7			
- renewable energy forms	6.6	10.0	11.7	15.2	19.0	19.0	3.2	7.8	10.3			
Transport sector												
Passenger transport activity (Gpkm)												
	40.3	33.8	38.7	52.1	60.1	74.8	-0.2	-0.3	-0.7	-0.3	-0.5	-0.9
Public road transport	26.0	13.9	11.5	9.9	9.7	9.8	0.0	0.0	0.0	0.1	0.2	0.4
Private cars and motorcycles	5.4	15.5	23.1	36.0	42.5	54.0	0.0	0.0	-0.3	0.0	-0.1	-0.5
Rail	7.8	3.5	2.4	2.8	3.5	5.0	0.0	0.0	0.0	-0.1	-0.1	0.3
Aviation	0.8	0.9	1.6	3.4	4.4	6.0	-0.2	-0.3	-0.5	-5.0	-6.7	-7.2
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3
Freight transport activity (Gtkm)												
	27.8	12.3	20.3	32.7	38.6	46.7	0.0	-0.1	-0.3	-0.1	-0.2	-0.6
Trucks	12.0	6.4	14.3	24.9	29.5	35.6	0.0	-0.1	-0.3	-0.1	-0.2	-0.9
Rail	14.1	5.5	5.2	6.6	7.7	9.4	0.0	0.0	0.0	-0.2	-0.2	0.3
Inland navigation	1.6	0.3	0.8	1.2	1.4	1.7	0.0	0.0	0.0	0.1	0.2	0.5
Energy demand in transport (ktoe)												
	2518	1817	2560	3660	4140	4858	-18	-40	-76	-0.5	-1.0	-1.5
Public road transport	318	158	97	72	68	62	0	0	0	0.1	0.2	0.4
Private cars and motorcycles	231	639	928	1241	1363	1492	0	0	-6	0.0	0.0	-0.4
Trucks	1459	842	1274	1951	2245	2727	-1	-5	-22	-0.1	-0.2	-0.8
Rail	216	77	60	72	75	69	0	-5	0	0.2	-6.6	0.0
Aviation	276	101	200	321	387	505	-17	-30	-48	-5.0	-7.3	-8.7
Inland navigation	18	1	2	3	3	3	0	0	0	0.1	0.2	0.5

Source: PRIMES

Cyprus: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	6	42	44	51	128	162	212	237	272	23.0	11.2	5.2	2.5		
Solids	0	0	0	0	1	1	2	1	0			10.3	-13.0		
Oil	0	0	0	0	0	0	0	0	0						
Natural gas	0	0	0	0	0	0	0	0	0						
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	6	42	44	51	127	161	210	236	272	23.0	11.1	5.1	2.6		
Hydro	0	0	0	0	0	0	0	0	0						
Biomass & Waste	6	11	9	10	14	18	21	24	25	4.7	5.0	4.0	1.4		
Wind	0	0	0	0	9	12	45	61	88			17.3	7.0		
Solar and others	0	31	35	41	104	131	144	151	159		11.3	3.3	1.0		
Geothermal	0	0	0	0	0	0	0	0	0			11.6	-0.4		
Net Imports	1554	2017	2537	2808	2884	2733	2752	2779	2724	5.0	1.3	-0.5	-0.1		
Solids	68	17	36	44	34	33	32	32	33	-6.3	-0.6	-0.4	0.2		
Oil	1486	2000	2502	2764	2704	2176	2142	2091	1970	5.3	0.8	-2.3	-0.8		
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.2	-0.4		
- Oil products	761	1207	1353	2764	2701	2174	2140	2089	1968	5.9	7.2	-2.3	-0.8		
Natural gas	0	0	0	0	103	465	509	579	642			17.3	2.4		
Electricity	0	0	0	0	0	0	0	0	0						
Gross Inland Consumption	1500	1970	2381	2461	2678	2557	2624	2675	2653	4.7	1.2	-0.2	0.1		
Solids	60	13	35	36	34	34	34	34	33	-5.3	-0.2	-0.1	-0.1		
Oil	1434	1914	2302	2374	2369	1839	1803	1750	1627	4.8	0.3	-2.7	-1.0		
Natural gas	0	0	0	0	103	465	509	579	642			17.3	2.4		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	0	0	0	0	0	0	0	0	0						
Renewable energy forms	6	42	44	51	171	219	279	312	351	23.0	14.4	5.0	2.3		
as % in Gross Inland Consumption															
Solids	4.0	0.7	1.5	1.5	1.3	1.3	1.3	1.3	1.3						
Oil	95.6	97.2	96.7	96.5	88.5	71.9	68.7	65.4	61.3						
Natural gas	0.0	0.0	0.0	0.0	3.9	18.2	19.4	21.6	24.2						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	0.4	2.2	1.9	2.1	6.4	8.6	10.6	11.7	13.2						
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4049	4400	5136	5913	6474	5.5	1.9	2.4	2.3		
Self consumption and grid losses	207	236	353	410	395	316	353	397	408	5.5	1.1	-1.1	1.5		
Fuel Inputs to Thermal Power Generation	509	641	884	1077	951	754	783	849	819	5.7	0.7	-1.9	0.5		
Solids	0	0	0	0	0	0	0	0	0						
Oil (including refinery gas)	509	641	884	1077	847	289	274	264	171	5.7	-0.4	-10.7	-4.6		
Gas (including derived gases)	0	0	0	0	103	465	509	579	642			17.3	2.4		
Biomass & Waste	0	0	0	0	0	0	0	6	6						
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	725	824	1167	0	51	65	76	80	82	4.9	-26.8	4.1	0.7		
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.2	-0.4		
Biofuels and hydrogen production	0	0	0	0	49	63	74	78	80			4.3	0.8		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0						
Energy Branch Consumption	35	43	54	22	22	13	13	13	12	4.3	-8.8	-5.0	-1.0		
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6		
Final Energy Demand	1013	1306	1527	1691	1833	1937	1982	1998	2014	4.2	1.8	0.8	0.2		
by sector															
Industry	281	201	229	201	201	203	216	224	231	-2.0	-1.3	0.7	0.7		
- energy intensive industries	246	125	117	78	74	73	70	68	68	-7.2	-4.5	-0.5	-0.3		
- other industrial sectors	35	76	113	122	127	130	146	155	163	12.3	1.2	1.4	1.1		
Residential	102	172	215	234	263	274	279	264	266	7.8	2.0	0.6	-0.5		
Tertiary	151	186	233	289	308	354	377	397	407	4.4	2.8	2.0	0.8		
Transport	479	747	850	967	1062	1107	1111	1114	1110	5.9	2.3	0.5	0.0		
by fuel															
Solids	76	13	35	36	34	34	34	34	33	-7.5	-0.2	-0.1	-0.1		
Oil	781	1068	1190	1263	1336	1360	1328	1278	1242	4.3	1.2	-0.1	-0.7		
Gas	0	0	0	0	0	0	0	0	0			7.7	4.6		
Electricity	151	191	258	340	314	351	411	474	521	5.5	2.0	2.7	2.4		
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0						
Renewable energy forms	6	33	44	51	150	192	209	212	217	23.0	13.0	3.4	0.4		
Other	0	0	0	0	0	0	0	0	0			15.0	1.9		
RES in Gross Final Energy Consumption ^(A)			44	51	159	204	261	291	329		13.6	5.1	2.3		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.2	7.2	7.2	7.0	6.7	3.1	0.4	-1.3	-0.7		
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.1	6.2	6.2	6.1	5.9	4.3	0.6	-1.4	-0.5		
Power generation/District heating	1.6	2.1	2.8	3.5	3.0	2.0	2.1	2.2	2.0	5.7	0.4	-3.5	-0.1		
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8					
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.1	0.3	0.1		
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.6	-4.7	-13.4		
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	4.3	1.8	-1.0	-5.0		
Transport	1.4	2.2	2.5	2.9	3.0	3.1	3.1	3.1	3.1	6.0	1.8	0.3	-0.1		
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-0.8	-2.1		
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	142.2	125.6	125.0	122.5	116.8						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	163.8	130.8	112.3	99.7	88.5	0.2	-2.2	-3.7	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.64	2.43	2.35	2.30	2.22	-0.4	-0.5	-1.2	-0.6
Import Dependency %	100.1	99.1	98.8	100.7	95.7	94.4	92.8	92.1	90.9				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.4	2.6	2.8		5.4	2.5	1.6
as % of GDP			9.3	11.4	11.3	10.5	10.1	9.8	9.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.2	59.8	54.2	50.3	-3.1	-2.8	-2.3	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	84.7	73.5	62.4	51.7	47.2	1.6	-1.7	-3.0	-2.8
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	93.2	88.6	78.6	71.9	65.7	-1.4	-0.7	-1.7	-1.8
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	43.1	40.9	39.2	37.5	2.1	0.2	-0.8	-0.9
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	258.7	248.9	242.8	240.7	3.5	-0.7	-0.5	-0.3
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.40	0.37	0.32	0.2	-1.4	-5.8	-2.4
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.25	2.16	2.07	1.98	1.91	-0.8	-0.8	-0.8	-0.8
Industry	3.07	2.67	2.72	2.48	2.52	2.47	2.41	2.33	2.28	-1.2	-0.8	-0.4	-0.5
Residential	1.51	1.15	1.05	0.82	0.73	0.60	0.43	0.23	0.11	-3.6	-3.5	-5.2	-13.0
Tertiary	1.37	1.55	1.35	1.18	1.22	1.10	0.90	0.65	0.50	-0.1	-1.0	-3.0	-5.7
Transport	2.97	2.98	2.98	2.97	2.86	2.84	2.81	2.79	2.78	0.0	-0.4	-0.2	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	8.5	10.4	13.0	14.3	16.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	5.2	6.4	7.7	8.2	8.6				
Gross Electricity generation by source (in GWh)													
			3369	4377	4049	4400	5136	5913	6474		1.9	2.4	2.3
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3540	1368	1310	1270	826		0.5	-9.5	-4.5
Gas (including derived gases)			0	0	402	2897	3216	3730	4344			23.1	3.1
Biomass-waste			0	0	0	0	0	29	32				
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	134	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	53	127	179				13.0
Net Generation Capacity in MW_e			930	1155	1402	1390	1614	1749	2101		4.2	1.4	2.7
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	62	253	370	522		52.2	16.2	7.5
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	61	203	272	386			13.8	6.7
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	28	66	93				13.0
<u>Thermal power</u>			929	1154	1346	1328	1360	1379	1579		3.8	0.1	1.5
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	514	637	951				6.3
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	0	0	9	10				
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	31.0	35.0	35.3	37.6	34.5				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.7	48.6	49.7	51.0	54.6				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.6	3.1	11.9	15.4	20.2				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.6	3.1	11.9	15.4	20.2				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.6	17.6	18.5	19.1	3.5	3.4	1.4	0.8
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.6	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	4.9	5.1	2.5	3.9	1.0	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.5	11.2	11.8	12.2	4.0	3.3	1.5	0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1062	1107	1111	1114	1110	5.9	2.3	0.5	0.0
Public road transport	8	14	16	16	18	18	19	19	18	6.4	1.2	0.9	-0.8
Private cars and motorcycles	117	145	177	288	323	334	331	326	315	4.2	6.2	0.3	-0.5
Trucks	201	321	368	364	378	393	389	390	396	6.2	0.3	0.3	0.2
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	361	372	379	382	6.6	1.7	0.8	0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	162	212	272	54	59	72	49.8	38.7	36.1
Solids	0	0	0	1	2	0	0	0	-4	71.3	0.0	-90.7
Oil	0	0	0	0	0	0	0	0	0	11.8	-57.9	
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6	44	51	161	210	272	53	59	76	49.7	39.1	38.8
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	6	9	10	18	21	25	0	-1	-11	0.0	-5.4	-30.4
Wind	0	0	0	12	45	88	2	4	24	26.3	10.4	38.2
Solar and others	0	35	41	131	144	159	51	56	62	63.6	63.7	64.5
Geothermal	0	0	0	0	0	0	0	0	0	152.9	346.5	420.9
Net Imports	1554	2537	2808	2733	2752	2724	-335	-402	-490	-10.9	-12.8	-15.2
Solids	68	36	44	33	32	33	-1	-2	-2	-3.6	-5.5	-5.4
Oil	1486	2502	2764	2176	2142	1970	-330	-350	-301	-13.1	-14.1	-13.3
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.3	-3.9	-3.4
- Oil products	761	1353	2764	2174	2140	1968	-329	-350	-301	-13.2	-14.1	-13.3
Natural gas	0	0	0	465	509	642	-53	-93	-163	-10.2	-15.5	-20.2
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-100.0
Gross Inland Consumption	1500	2381	2461	2557	2624	2653	-281	-342	-416	-9.9	-11.5	-13.5
Solids	60	35	36	34	34	33	-1	-2	-6	-2.6	-5.3	-14.5
Oil	1434	2302	2374	1839	1803	1627	-329	-349	-299	-15.2	-16.2	-15.5
Natural gas	0	0	0	465	509	642	-53	-93	-163	-10.2	-15.5	-20.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-100.0
Renewable energy forms	6	44	51	219	279	351	101	102	52	86.4	58.1	17.4
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.3	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	71.9	68.7	61.3	-4.5	-3.9	-1.4			
Natural gas	0.0	0.0	0.0	18.2	19.4	24.2	-0.1	-0.9	-2.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	8.6	10.6	13.2	4.4	4.7	3.5			
Gross Electricity Generation in GWh_e	1974	3369	4377	4400	5136	6474	-1316	-1377	-1249	-23.0	-21.1	-16.2
Self consumption and grid losses	207	353	410	316	353	408	-120	-116	-118	-27.5	-24.7	-22.5
Fuel Inputs to Thermal Power Generation	509	884	1077	754	783	819	-312	-314	-307	-29.3	-28.7	-27.2
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	289	274	171	-255	-207	-63	-46.9	-43.0	-27.1
Gas (including derived gases)	0	0	0	465	509	642	-53	-93	-163	-10.2	-15.5	-20.2
Biomass & Waste	0	0	0	0	0	6	-4	-14	-80	-100.0	-100.0	-92.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	65	76	82	52	55	43	390.7	254.0	111.8
Refineries	725	1167	0	2	2	2	0	0	0	-3.3	-3.9	-3.4
Biofuels and hydrogen production	0	0	0	63	74	80	52	55	43	472.4	284.4	118.6
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	13	12	-6	-5	-5	-30.5	-27.5	-31.2
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1937	1982	2014	-87	-161	-262	-4.3	-7.5	-11.5
by sector												
Industry	281	229	201	203	216	231	-5	-9	-13	-2.4	-3.9	-5.3
- energy intensive industries	246	117	78	73	70	68	-1	-2	-1	-1.6	-2.4	-2.0
- other industrial sectors	35	113	122	130	146	163	-4	-7	-11	-2.8	-4.6	-6.6
Residential	102	215	234	274	279	266	0	-6	-28	-0.2	-2.2	-9.5
Tertiary	151	233	289	354	377	407	-49	-82	-124	-12.1	-17.9	-23.3
Transport	479	850	967	1107	1111	1110	-33	-64	-98	-2.9	-5.4	-8.1
by fuel												
Solids	76	35	36	34	34	33	-1	-2	-6	-2.6	-5.3	-14.5
Oil	781	1190	1263	1360	1328	1242	-74	-142	-236	-5.1	-9.7	-15.9
Gas	0	0	0	0	0	0	0	0	0	15.0	10.7	20.2
Electricity	151	258	340	351	411	521	-103	-108	-97	-22.7	-20.9	-15.7
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	-40.6	246.7	4338.7
Renewable energy forms	6	44	51	192	209	217	90	91	76	88.7	77.9	54.0
Other	0	0	0	0	0	0	0	0	0	8.3	6.1	-2.5
RES in Gross Final Energy Consumption ^(A)		44	51	204	261	329	91	97	88	80.6	59.0	36.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.2	7.2	6.7	-1.2	-1.4	-1.4	-14.5	-16.3	-17.1
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.2	6.2	5.9	-1.2	-1.3	-1.3	-15.8	-17.6	-18.2
Power generation/District heating	1.6	2.8	3.5	2.0	2.1	2.0	-0.9	-0.9	-0.6	-31.8	-29.9	-22.2
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-1.7	-6.1	-13.6
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	3.7	-11.8	-67.5
Tertiary	0.2	0.3	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-1.0	-15.9	-46.3
Transport	1.4	2.5	2.9	3.1	3.1	3.1	-0.2	-0.3	-0.4	-6.5	-9.3	-11.8
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-5.5	-7.7	-8.3
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	125.6	125.0	116.8	-21.3	-24.3	-24.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Cyprus: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	130.8	112.3	88.5	-14.4	-14.6	-13.9	-9.9	-11.5	-13.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.43	2.35	2.22	-0.17	-0.17	-0.13	-6.6	-6.8	-5.4
Import Dependency %	100.1	98.8	100.7	94.4	92.8	90.9	-2.2	-2.5	-3.2			
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.4	2.8	0.0	0.1	0.1	1.8	2.3	2.5
as % of GDP		9.3	11.4	10.5	10.1	9.3	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.1	0.1						
as % of GDP				0.19	0.23	0.23						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.2	59.8	50.3	-1.6	-2.4	-2.8	-2.4	-3.9	-5.3
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	73.5	62.4	47.2	-0.1	-1.4	-5.0	-0.2	-2.2	-9.5
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	88.6	78.6	65.7	-12.2	-17.2	-20.0	-12.1	-17.9	-23.3
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	43.1	40.9	37.5	-0.2	-0.7	-1.4	-0.6	-1.7	-3.7
Freight transport (toe/Mtkm)	199.1	280.6	261.2	258.7	248.9	240.7	-5.8	-12.6	-19.3	-2.2	-4.8	-7.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.40	0.32	-0.06	-0.05	-0.02	-11.5	-11.1	-7.2
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.16	2.07	1.91	-0.02	-0.05	-0.10	-0.8	-2.2	-5.0
Industry	3.07	2.72	2.48	2.47	2.41	2.28	0.02	-0.06	-0.22	0.7	-2.2	-8.8
Residential	1.51	1.05	0.82	0.60	0.43	0.11	0.02	-0.05	-0.19	3.8	-9.7	-64.1
Tertiary	1.37	1.35	1.18	1.10	0.90	0.50	0.12	0.02	-0.21	12.6	2.5	-30.0
Transport	2.97	2.98	2.97	2.84	2.81	2.78	-0.11	-0.12	-0.12	-3.7	-4.1	-4.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	10.4	13.0	16.1	4.9	5.5	5.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	7.7	8.6	5.3	5.7	4.9			
Gross Electricity generation by source (in GWh_e)												
	3369	4377	4400	5136	6474	6474	-1316	-1377	-1249	-23.0	-21.1	-16.2
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3369	4376	1368	1310	826	826	-993	-805	-307	-42.1	-38.1	-27.1
Gas (including derived gases)	0	0	2897	3216	4344	4344	-328	-633	-1063	-10.2	-16.4	-19.7
Biomass-waste	0	0	0	0	32	32	-23	-76	-407	-100.0	-100.0	-92.8
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	134	522	1029	1029	28	49	284	26.3	10.4	38.2
Solar	0	1	1	35	65	65	0	34	64	0.0	3301.2	6192.9
Geothermal and other renewables	0	0	0	53	179	179	0	53	179			79915.7
Net Generation Capacity in MW_e												
	930	1155	1390	1614	2101	2101	9	-66	36	0.7	-3.9	1.7
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1	1	62	253	522	522	12	41	207	23.6	19.1	66.0
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	61	203	386	386	12	-9	73	24.0	-4.4	23.2
Solar	1	1	1	23	43	43	0	22	42	0.0	2641.3	4955.0
Other renewables (tidal etc.)	0	0	0	28	93	93	0	28	93			79915.7
<u>Thermal power</u>	929	1154	1328	1360	1579	1579	-3	-107	-172	-0.2	-7.3	-9.8
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	429	514	951	951	0	-91	-111	0.0	-15.1	-10.5
Oil fired	929	1154	899	846	618	618	0	0	0	0.0	0.0	0.0
Biomass-waste fired	0	0	0	0	10	10	-3	-16	-60	-100.0	-100.0	-85.8
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	39.3	40.8	35.0	35.3	34.5	34.5	-10.6	-7.6	-7.2			
Efficiency of gross thermal power generation (%)	32.8	35.0	48.6	49.7	54.6	54.6	3.4	2.4	1.3			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.1	11.9	20.2	20.2	0.8	3.4	4.8			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.1	11.9	20.2	20.2	0.8	3.4	4.8			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	7.9	11.1	13.5	16.6	17.6	19.1	-0.3	-0.5	-0.6	-1.9	-2.8	-3.3
Private cars and motorcycles	0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	2.4	3.3	3.9
Rail	2.3	3.0	3.9	4.6	4.8	5.1	0.0	-0.1	-0.1	-0.2	-1.1	-1.9
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	4.7	7.0	8.4	10.5	11.2	12.2	-0.3	-0.5	-0.6	-3.2	-4.2	-4.8
Freight transport activity (Gtkm)	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-1.6	-2.6	-3.1
Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.6	-2.6	-3.1
Rail	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	479	850	967	1107	1111	1110	-33	-64	-98	-2.9	-5.4	-8.1
Private cars and motorcycles	8	16	16	18	19	18	0	0	-1	0.4	-0.6	-4.9
Trucks	117	177	288	334	331	315	-5	-10	-19	-1.4	-2.9	-5.6
Rail	201	368	364	393	389	396	-15	-30	-45	-3.8	-7.3	-10.3
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	152	290	299	361	372	382	-13	-23	-33	-3.5	-5.8	-7.9
	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Czech Republic: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	38484	31733	29788	32779	28148	25677	25775	26122	25118	-2.5	-0.6	-0.9	-0.3	
Solids	34715	27481	25002	23520	17097	14020	12014	11001	10086	-3.2	-3.7	-3.5	-1.7	
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0	
Natural gas	201	198	169	154	175	180	184	190	190	-1.7	0.3	0.5	0.3	
Nuclear	3246	3155	3506	6379	7479	7592	8731	9360	8742	0.8	7.9	1.6	0.0	
Renewable energy sources	100	627	727	2142	3196	3684	4645	5372	5900	22.0	16.0	3.8	2.4	
Hydro	100	172	151	205	212	213	218	221	230	4.2	3.4	0.3	0.5	
Biomass & Waste	0	455	576	1933	2900	3303	4204	4879	5352		17.5	3.8	2.4	
Wind	0	0	0	2	50	92	104	122	141			7.5	3.1	
Solar and others	0	0	0	2	34	77	119	150	177			13.5	4.0	
Geothermal	0	0	0	0	0	0	0	0	0			1.5	1.4	
Net Imports	7630	8417	9297	12271	19010	19347	21394	23586	27915	2.0	7.4	1.2	2.7	
Solids	-5685	-5784	-4751	-3489	1085	153	1140	2743	6998			0.5	19.9	
Oil	8589	7742	7428	9499	10828	11707	12427	13134	13443	-1.4	3.8	1.4	0.8	
- Crude oil and Feedstocks	7382	6798	5492	7539	8655	9319	9863	10397	10627	-2.9	4.7	1.3	0.7	
- Oil products	1207	944	1936	1960	2172	2387	2564	2737	2816	4.8	1.2	1.7	0.9	
Natural gas	4786	6424	7482	7535	8579	8834	9029	9302	9299	4.6	1.4	0.5	0.3	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Gross Inland Consumption	47380	40801	40307	44798	47158	45024	47169	49708	53033	-1.6	1.6	0.0	1.2	
Solids	29882	22556	21645	20099	18182	14173	13154	13744	17085	-3.2	-1.7	-3.2	2.6	
Oil	8964	7876	7790	9748	11028	11907	12627	13334	13643	-1.4	3.5	1.4	0.8	
Natural gas	5248	6552	7500	7703	8754	9015	9214	9492	9489	3.6	1.6	0.5	0.3	
Nuclear	3246	3155	3506	6379	7479	7592	8731	9360	8742	0.8	7.9	1.6	0.0	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Renewable energy forms	100	627	727	1955	3130	3608	4549	5259	5777	22.0	15.7	3.8	2.4	
as % in Gross Inland Consumption														
Solids	63.1	55.3	53.7	44.9	38.6	31.5	27.9	27.6	32.2					
Oil	18.9	19.3	19.3	21.8	23.4	26.4	26.8	26.8	25.7					
Natural gas	11.1	16.1	18.6	17.2	18.6	20.0	19.5	19.1	17.9					
Nuclear	6.9	7.7	8.7	14.2	15.9	16.9	18.5	18.8	16.5					
Renewable energy forms	0.2	1.5	1.8	4.4	6.6	8.0	9.6	10.6	10.9					
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	82391	85067	89382	102813	118346	1.6	1.2	0.8	2.8	
Self consumption and grid losses	8541	8837	10601	11632	10539	10312	10936	13109	18362	2.2	-0.1	0.4	5.3	
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13780	10246	10142	11473	15372	3.7	-1.4	-3.0	4.2	
Solids	9947	13571	14031	13955	12783	9044	8312	9226	13115	3.5	-0.9	-4.2	4.7	
Oil (including refinery gas)	741	311	203	126	11	28	1	0	0	-12.2	-25.0	-18.9		
Gas (including derived gases)	300	573	1270	1286	886	1077	1046	1041	928	15.5	-3.5	1.7	-1.2	
Biomass & Waste	0	119	369	224	100	97	783	1206	1329		-12.3	22.9	5.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	18634	14422	11312	13108	14146	14305	14774	15168	14984	-4.9	2.3	0.4	0.1	
Refineries	7946	7026	6047	7957	8911	9600	10162	10703	10946	-2.7	4.0	1.3	0.7	
Biofuels and hydrogen production	0	11	0	3	395	627	1015	1138	1236			9.9	2.0	
District heating	2138	1404	999	909	1543	1012	902	746	545	-7.3	4.4	-5.2	-4.9	
Derived gases, cokeries etc.	8549	5982	4266	4239	3297	3066	2695	2581	2257	-6.7	-2.5	-2.0	-1.8	
Energy Branch Consumption	2124	1866	1919	1915	2229	2215	2242	2394	2773	-1.0	1.5	0.1	2.1	
Non-Energy Uses	1680	2132	1962	2419	2804	3167	3543	3830	4071	1.6	3.6	2.4	1.4	
Final Energy Demand	36267	25697	23905	25801	28391	29943	31216	32582	33485	-4.1	1.7	1.0	0.7	
by sector														
Industry	19215	12191	10031	9439	10045	10292	10473	10785	10990	-6.3	0.0	0.4	0.5	
- energy intensive industries	8050	6719	6276	6588	6969	7040	6984	7104	7179	-2.5	1.1	0.0	0.3	
- other industrial sectors	11165	5472	3755	2851	3076	3251	3489	3680	3812	-10.3	-2.0	1.3	0.9	
Residential	8625	5796	5260	6063	6819	7113	7286	7530	7647	-4.8	2.6	0.7	0.5	
Tertiary	5622	4871	3893	3730	3978	4197	4500	4887	5229	-3.6	0.2	1.2	1.5	
Transport	2804	2840	4721	6569	7548	8342	8958	9380	9618	5.3	4.8	1.7	0.7	
by fuel														
Solids	17789	6457	5164	3619	3775	3511	3495	3366	2947	-11.6	-3.1	-0.8	-1.7	
Oil	6229	5018	5291	6913	7693	8256	8608	9030	9091	-1.6	3.8	1.1	0.5	
Gas	5146	6119	6419	6581	7274	7834	7890	8130	8312	2.2	1.3	0.8	0.5	
Electricity	4142	4129	4243	4750	4556	4954	5444	6037	6703	0.2	0.7	1.8	2.1	
Heat (from CHP and District Heating)	2959	3664	2624	2478	2554	2472	2631	2625	2627	-1.2	-0.3	0.3	0.0	
Renewable energy forms	0	309	165	1460	2538	2915	3145	3389	3800		31.5	2.2	1.9	
Other	0	0	0	0	1	1	3	5	5			15.2	7.3	
RES in Gross Final Energy Consumption ^(A)			610	1832	3013	3446	4228	4856	5356		17.3	3.4	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	145.4	131.5	127.9	126.9	102.8	-3.1	-0.2	-1.3	-2.2	
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	115.4	101.8	99.3	101.4	80.2	-2.8	-0.1	-1.5	-2.1	
Power generation/District heating	48.8	60.4	62.1	61.0	56.5	41.0	37.6	38.4	18.5	2.4	-0.9	-4.0	-6.9	
Energy Branch	2.3	1.5	2.2	2.3	2.8	2.8	2.8	2.7	2.7	-0.5	2.4	0.0	-0.3	
Industry	58.1	29.0	25.2	20.9	22.1	22.0	22.3	22.4	20.4	-8.0	-1.3	0.1	-0.9	
Residential	24.0	10.6	7.9	7.1	8.2	8.3	8.2	8.3	8.4	-10.5	0.3	0.0	0.2	
Tertiary	14.1	9.2	5.9	4.5	4.7	4.6	4.6	4.7	5.0	-8.4	-2.1	-0.3	0.7	
Transport	7.5	7.7	13.4	19.1	21.1	23.0	23.8	24.8	25.2	6.0	4.6	1.2	0.6	
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.4	11.4	11.4	11.1	-3.8	-0.8	0.0	-0.2	
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	71.2	64.4	62.7	62.2	50.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Czech Republic: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Int. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	378.6	303.2	264.7	243.9	233.6	-1.9	-2.4	-3.5	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.45	2.26	2.11	2.04	1.51	-1.2	-1.7	-1.5	-3.3
Import Dependency %	16.1	20.6	23.1	27.4	40.3	43.0	45.4	47.4	52.6				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	19.8	23.8	27.9	31.3	34.9		2.7	3.5	2.3
as % of GDP			18.3	16.9	15.9	16.0	15.7	15.4	15.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.6	51.7	44.7	40.6	37.4	-7.3	-5.0	-2.8	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	88.4	77.2	65.8	59.6	54.5	-5.8	-1.2	-2.9	-1.9
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	70.3	61.8	54.7	51.8	49.6	-7.4	-3.5	-2.5	-1.0
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.8	32.5	31.2	29.5	27.5	4.0	2.5	-0.5	-1.3
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.7	58.8	57.4	55.6	54.0	7.5	4.2	0.0	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.46	0.33	0.29	0.27	0.12	1.8	-2.0	-4.5	-8.6
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.98	1.93	1.89	1.85	1.76	-2.6	-1.0	-0.5	-0.7
Industry	3.03	2.38	2.51	2.21	2.20	2.14	2.13	2.08	1.86	-1.8	-1.3	-0.4	-1.3
Residential	2.78	1.84	1.50	1.16	1.20	1.17	1.12	1.10	1.10	-6.0	-2.2	-0.6	-0.3
Tertiary	2.51	1.89	1.51	1.21	1.19	1.11	1.02	0.96	0.95	-5.0	-2.3	-1.5	-0.8
Transport	2.68	2.71	2.85	2.90	2.79	2.75	2.66	2.64	2.62	0.6	-0.2	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	10.1	11.0	13.0	14.3	15.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.8	6.9	10.4	11.2	11.9				
Gross Electricity generation by source (in GWh)													
			72898	81916	82391	85067	89382	102813	118346		1.2	0.8	2.8
Nuclear energy			13588	24724	28995	29433	34341	37187	36930		7.9	1.7	0.7
Solids			50038	47938	43861	43982	41231	47973	63330		-1.3	-0.6	4.4
Oil (including refinery gas)			528	447	30	34	18	12	11		-24.8	-4.9	-4.7
Gas (including derived gases)			6087	5565	5502	7062	6403	8051	7499		-1.0	1.5	1.6
Biomass-waste			899	841	949	1015	3637	5587	6238		0.5	14.4	5.5
Hydro (pumping excluded)			1758	2380	2465	2472	2536	2568	2677		3.4	0.3	0.5
Wind			0	22	587	1064	1208	1418	1640			7.5	3.1
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14549	16845	17307	17237	17993		1.9	1.8	0.4
<u>Nuclear energy</u>			1661	3504	3519	3534	3998	4327	4281		7.8	1.3	0.7
<u>Renewable energy</u>			1148	1227	1638	1977	2090	2255	2428		3.6	2.5	1.5
Hydro (pumping excluded)			1142	1196	1244	1247	1251	1256	1262		0.9	0.1	0.1
Wind			7	30	392	725	827	977	1137		50.0	7.7	3.2
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9391	11334	11220	10655	11284		0.2	1.8	0.1
of which cogeneration units			3030	3110	2454	3817	4316	5217	5844		-2.1	5.8	3.1
Solids fired			7747	7661	7663	9577	8937	7970	8533		-0.1	1.5	-0.5
Gas fired			1208	1302	1377	1426	1473	1584	1579		1.3	0.7	0.7
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	226	214	753	1072	1160		3.2	12.8	4.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	60.2	54.3	55.7	64.0	68.1				
Efficiency of gross thermal power generation (%)			31.2	30.2	31.4	43.7	43.5	46.2	43.1				
% of gross electricity from CHP			21.1	16.7	12.4	27.7	28.3	31.6	32.7				
Carbon free gross electricity generation (%)			22.3	34.1	40.1	40.0	46.7	45.5	40.1				
- nuclear			18.6	30.2	35.2	34.6	38.4	36.2	31.2				
- renewable energy forms			3.6	4.0	4.9	5.4	8.3	9.3	8.9				
Transport sector													
Passenger transport activity (Gpkm)													
	92.9	95.4	101.3	105.1	116.3	129.5	145.6	160.4	172.7	0.9	1.4	2.3	1.7
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.1	17.1	17.8	-3.7	-0.8	0.8	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	91.2	103.8	115.0	124.3	3.7	1.8	2.6	1.8
Rail	20.6	15.7	15.4	15.6	15.9	16.6	17.5	18.3	19.1	-2.9	0.4	0.9	0.9
Aviation	1.9	2.1	2.5	3.5	4.9	6.4	8.2	9.9	11.5	2.8	6.9	5.3	3.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	64.2	53.9	55.6	59.3	64.7	70.3	76.8	83.5	90.1	-1.4	1.5	1.7	1.6
Trucks	26.3	31.3	37.3	43.4	51.5	58.3	64.6	70.7	76.7	3.6	3.3	2.3	1.7
Rail	38.0	22.6	17.5	14.8	12.9	11.8	12.1	12.8	13.3	-7.5	-3.0	-0.6	1.0
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.0
Energy demand in transport (ktoe)													
	2804	2840	4721	6569	7548	8342	8958	9380	9618	5.3	4.8	1.7	0.7
Public road transport	132	110	98	111	111	112	111	109	105	-2.9	1.3	0.0	-0.6
Private cars and motorcycles	1271	1373	2257	2850	3192	3491	3744	3885	3869	5.9	3.5	1.6	0.3
Trucks	956	971	1868	2987	3536	3958	4245	4483	4715	6.9	6.6	1.8	1.1
Rail	272	200	295	271	237	214	199	190	180	0.8	-2.2	-1.7	-1.0
Aviation	174	185	197	346	471	566	657	713	749	1.3	9.1	3.4	1.3
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.2	-5.2	

Source: PRIMES

Czech Republic: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	25677	25775	25118	58	1214	3617	0.2	4.9	16.8
Solids	34715	25002	23520	14020	12014	10086	-42	-26	0	-0.3	-0.2	0.0
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	180	184	190	13	16	10	7.8	9.2	5.8
Nuclear	3246	3506	6379	7592	8731	8742	0	892	3143	0.0	11.4	56.1
Renewable energy sources	100	727	2142	3684	4645	5900	87	332	464	2.4	7.7	8.5
Hydro	100	151	205	213	218	230	1	0	0	0.3	0.2	0.0
Biomass & Waste	0	576	1933	3303	4204	5352	74	309	426	2.3	7.9	8.7
Wind	0	0	2	92	104	141	1	1	4	1.2	0.9	3.0
Solar and others	0	0	2	77	119	177	11	22	33	16.7	22.6	23.3
Geothermal	0	0	0	0	0	0	0	0	0	21.2	22.5	25.1
Net Imports	7630	9297	12271	19347	21394	27915	-1712	-3260	-2382	-8.1	-13.2	-7.9
Solids	-5685	-4751	-3489	153	1140	6998	-2339	-3833	-2583	-93.9	-77.1	-27.0
Oil	8589	7428	9499	11707	12427	13443	-146	-345	-512	-1.2	-2.7	-3.7
- Crude oil and Feedstocks	7382	5492	7539	9319	9863	10627	-111	-261	-387	-1.2	-2.6	-3.5
- Oil products	1207	1936	1960	2387	2564	2816	-35	-84	-126	-1.5	-3.2	-4.3
Natural gas	4786	7482	7535	8834	9029	9299	637	760	513	7.8	9.2	5.8
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	45024	47169	53033	-1655	-2046	1235	-3.5	-4.2	2.4
Solids	29882	21645	20099	14173	13154	17085	-2381	-3859	-2583	-14.4	-22.7	-13.1
Oil	8964	7790	9748	11907	12627	13643	-146	-345	-512	-1.2	-2.7	-3.6
Natural gas	5248	7500	7703	9015	9214	9489	650	776	524	7.8	9.2	5.8
Nuclear	3246	3506	6379	7592	8731	8742	0	892	3143	0.0	11.4	56.1
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	3608	4549	5777	223	491	664	6.6	12.1	13.0
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	31.5	27.9	32.2	-4.0	-6.7	-5.8			
Oil	18.9	19.3	21.8	26.4	26.8	25.7	0.6	0.4	-1.6			
Natural gas	11.1	18.6	17.2	20.0	19.5	17.9	2.1	2.4	0.6			
Nuclear	6.9	8.7	14.2	16.9	18.5	16.5	0.6	2.6	5.7			
Renewable energy forms	0.2	1.8	4.4	8.0	9.6	10.9	0.8	1.4	1.0			
Gross Electricity Generation in GWh_e	62260	72898	81916	85067	89382	118346	-14018	-15003	-8126	-14.1	-14.4	-6.4
Self consumption and grid losses	8541	10601	11632	10312	10936	18362	-2196	-2459	1732	-17.6	-18.4	10.4
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10246	10142	15372	-2777	-3666	-2251	-21.3	-26.5	-12.8
Solids	9947	14031	13955	9044	8312	13115	-2638	-3991	-2602	-22.6	-32.4	-16.6
Oil (including refinery gas)	741	203	126	28	1	0	0	-27	0	0.0	-95.0	
Gas (including derived gases)	300	1270	1286	1077	1046	928	-158	-41	71	-12.8	-3.8	8.3
Biomass & Waste	0	369	224	97	783	1329	19	393	281	24.5	100.9	26.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	14305	14774	14984	453	154	-331	3.3	1.1	-2.2
Refineries	7946	6047	7957	9600	10162	10946	-112	-263	-388	-1.2	-2.5	-3.4
Biofuels and hydrogen production	0	0	3	627	1015	1236	88	259	235	16.3	34.2	23.5
District heating	2138	999	909	1012	902	545	174	127	7	20.8	16.3	1.4
Derived gases, cokeries etc.	8549	4266	4239	3066	2695	2257	303	32	-186	11.0	1.2	-7.6
Energy Branch Consumption	2124	1919	1915	2215	2242	2773	-49	-101	222	-2.2	-4.3	8.7
Non-Energy Uses	1680	1962	2419	3167	3543	4071	-37	-48	-37	-1.2	-1.3	-0.9
Final Energy Demand	36267	23905	25801	29943	31216	33485	-55	-428	-407	-0.2	-1.4	-1.2
by sector												
Industry	19215	10031	9439	10292	10473	10990	-44	-332	-429	-0.4	-3.1	-3.8
- energy intensive industries	8050	6276	6588	7040	6984	7179	-30	-299	-336	-0.4	-4.1	-4.5
- other industrial sectors	11165	3755	2851	3251	3489	3812	-14	-33	-93	-0.4	-0.9	-2.4
Residential	8625	5260	6063	7113	7286	7647	74	90	176	1.0	1.2	2.4
Tertiary	5622	3893	3730	4197	4500	5229	-36	-59	57	-0.9	-1.3	1.1
Transport	2804	4721	6569	8342	8958	9618	-48	-126	-210	-0.6	-1.4	-2.1
by fuel												
Solids	17789	5164	3619	3511	3495	2947	60	74	42	1.7	2.2	1.5
Oil	6229	5291	6913	8256	8608	9091	-101	-268	-468	-1.2	-3.0	-4.9
Gas	5146	6419	6581	7834	7890	8312	786	694	444	11.2	9.6	5.6
Electricity	4142	4243	4750	4954	5444	6703	-1022	-1080	-851	-17.1	-16.6	-11.3
Heat (from CHP and District Heating)	2959	2624	2478	2472	2631	2627	60	66	88	2.5	2.6	3.4
Renewable energy forms	0	165	1460	2915	3145	3800	163	86	339	5.9	2.8	9.8
Other	0	0	0	1	3	5	0	0	0	1.9	2.4	-0.4
RES in Gross Final Energy Consumption ^(A)		610	1832	3446	4228	5356	199	392	582	6.1	10.2	12.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	131.5	127.9	102.8	-8.2	-14.9	-48.6	-5.9	-10.4	-32.1
CO₂ Emissions (energy related)	154.8	116.7	114.8	101.8	99.3	80.2	-8.3	-14.4	-47.2	-7.5	-12.6	-37.1
Power generation/District heating	48.8	62.1	61.0	41.0	37.6	18.5	-10.3	-15.5	-46.8	-20.0	-29.2	-71.7
Energy Branch	2.3	2.2	2.3	2.8	2.8	2.7	0.1	0.0	-0.1	3.5	1.3	-2.1
Industry	58.1	25.2	20.9	22.0	22.3	20.4	0.9	0.9	-0.7	4.3	4.1	-3.5
Residential	24.0	7.9	7.1	8.3	8.2	8.4	0.5	0.5	0.6	7.0	6.8	7.2
Tertiary	14.1	5.9	4.5	4.6	4.6	5.0	0.8	0.8	1.0	20.6	19.5	26.4
Transport	7.5	13.4	19.1	23.0	23.8	25.2	-0.4	-1.0	-1.2	-1.5	-4.2	-4.6
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.4	11.4	11.1	0.1	-0.5	-1.3	0.9	-4.6	-10.5
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	18.3	17.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	64.4	62.7	50.4	-4.0	-7.3	-23.8			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Czech Republic: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	303.2	264.7	233.6	-11.1	-11.5	5.4	-3.5	-4.2	2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.26	2.11	1.51	-0.10	-0.20	-0.95	-4.1	-8.8	-38.5
Import Dependency %	16.1	23.1	27.4	43.0	45.4	52.6	-2.1	-4.7	-5.9			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	23.8	27.9	34.9	0.2	0.7	2.2	0.9	2.7	6.7
as % of GDP		18.3	16.9	16.0	15.7	15.4	0.1	0.4	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.8	2.3						
as % of GDP				0.16	0.43	0.99						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	51.7	44.7	37.4	-0.2	-1.4	-1.5	-0.4	-3.1	-3.8
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	77.2	65.8	54.5	0.8	0.8	1.3	1.0	1.2	2.4
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	61.8	54.7	49.6	-0.5	-0.7	0.5	-0.9	-1.3	1.1
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	32.5	31.2	27.5	-0.2	-0.4	-0.7	-0.6	-1.2	-2.4
Freight transport (toe/Mtkm)	18.5	38.3	54.3	58.8	57.4	54.0	0.0	-0.1	-0.1	0.0	-0.2	-0.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.33	0.29	0.12	-0.04	-0.08	-0.28	-11.6	-21.4	-70.4
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.93	1.89	1.76	0.07	0.06	0.01	3.5	3.3	0.6
Industry	3.03	2.51	2.21	2.14	2.13	1.86	0.10	0.15	0.01	4.7	7.4	0.3
Residential	2.78	1.50	1.16	1.17	1.12	1.10	0.07	0.06	0.05	5.9	5.5	4.7
Tertiary	2.51	1.51	1.21	1.11	1.02	0.95	0.20	0.18	0.19	21.7	21.0	25.0
Transport	2.68	2.85	2.90	2.75	2.66	2.62	-0.03	-0.08	-0.07	-1.0	-2.8	-2.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	11.0	13.0	15.2	0.7	1.4	1.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.9	10.4	11.9	1.0	2.7	2.4			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	85067	89382	118346	118346	-14018	-15003	-8126	-14.1	-14.4	-6.4
Nuclear energy	13588	24724	29433	34341	36930	36930	0	3953	14210	0.0	13.0	62.5
Solids	50038	47938	43982	41231	63330	63330	-12298	-18601	-24358	-21.9	-31.1	-27.8
Oil (including refinery gas)	528	447	34	18	11	11	-32	-18	7	-48.0	-50.0	142.6
Gas (including derived gases)	6087	5565	7062	6403	7499	7499	-1797	-1564	571	-20.3	-19.6	8.2
Biomass-waste	899	841	1015	3637	6238	6238	89	1213	1398	9.7	50.0	28.9
Hydro (pumping excluded)	1758	2380	2472	2536	2677	2677	7	5	0	0.3	0.2	0.0
Wind	0	22	1064	1208	1640	1640	13	10	47	1.2	0.9	3.0
Solar	0	0	4	8	20	20	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	12048	13981	16845	17307	17993	17993	-700	-324	-1455	-4.0	-1.8	-7.5
<u>Nuclear energy</u>	1661	3504	3534	3998	4281	4281	0	456	1641	0.0	12.9	62.2
<u>Renewable energy</u>	1148	1227	1977	2090	2428	2428	10	8	34	0.5	0.4	1.4
Hydro (pumping excluded)	1142	1196	1247	1251	1262	1262	1	0	0	0.1	0.0	0.0
Wind	7	30	725	827	1137	1137	9	7	34	1.3	0.9	3.1
Solar	0	1	6	12	29	29	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	9239	9250	11334	11220	11284	11284	-709	-788	-3130	-5.9	-6.6	-21.7
of which cogeneration units	3030	3110	3817	4316	5844	5844	-199	-255	251	-5.0	-5.6	4.5
Solids fired	7747	7661	9577	8937	8533	8533	-700	-1071	-2966	-6.8	-10.7	-25.8
Gas fired	1208	1302	1426	1473	1579	1579	-21	-10	-330	-1.4	-0.7	-17.3
Oil fired	118	122	118	57	11	11	0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	214	753	1160	1160	11	292	268	5.5	63.4	30.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	63.9	61.7	54.3	55.7	68.1	68.1	-6.2	-7.9	-1.3			
Efficiency of gross thermal power generation (%)	31.2	30.2	43.7	43.5	43.1	43.1	0.1	-0.3	-5.4			
% of gross electricity from CHP	21.1	16.7	27.7	28.3	32.7	32.7	1.1	0.3	6.4			
Carbon free gross electricity generation (%)	22.3	34.1	40.0	46.7	40.1	5.8	11.7	15.0				
- nuclear	18.6	30.2	34.6	38.4	31.2	4.9	9.3	13.2				
- renewable energy forms	3.6	4.0	5.4	8.3	8.9	0.9	2.4	1.7				
Transport sector												
Passenger transport activity (Gpkm)												
	92.9	101.3	105.1	129.5	145.6	172.7	-0.6	-1.3	-2.1	-0.4	-0.9	-1.2
Public road transport	23.6	16.2	14.7	15.4	16.1	17.8	0.0	0.1	0.1	0.2	0.5	0.6
Private cars and motorcycles	46.8	67.3	71.3	91.2	103.8	124.3	-0.2	-0.8	-1.4	-0.2	-0.7	-1.1
Rail	20.6	15.4	15.6	16.6	17.5	19.1	0.0	0.0	0.1	-0.3	-0.1	0.5
Aviation	1.9	2.5	3.5	6.4	8.2	11.5	-0.3	-0.6	-1.0	-5.0	-6.8	-7.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	64.2	55.6	59.3	70.3	76.8	90.1	-0.1	-0.3	-0.5	-0.2	-0.4	-0.6
Trucks	26.3	37.3	43.4	58.3	64.6	76.7	-0.1	-0.3	-0.6	-0.2	-0.5	-0.7
Rail	38.0	17.5	14.8	11.8	12.1	13.3	0.0	0.0	0.0	-0.2	0.0	0.3
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.4
Energy demand in transport (ktoe)												
	2804	4721	6569	8342	8958	9618	-48	-126	-210	-0.6	-1.4	-2.1
Public road transport	132	98	111	112	111	105	0	1	0	0.2	0.5	0.2
Private cars and motorcycles	1271	2257	2850	3491	3744	3869	-5	-23	-36	-0.2	-0.6	-0.9
Trucks	956	1868	2987	3958	4245	4715	-6	-22	-35	-0.1	-0.5	-0.7
Rail	272	295	271	214	199	180	0	-8	0	0.2	-4.0	0.2
Aviation	174	197	346	566	657	749	-37	-74	-140	-6.2	-10.1	-15.7
Inland navigation	0	5	5	1	1	0	0	0	0	0.1	0.3	0.4

Source: PRIMES

Denmark: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	28054	21741	19200	18697	18952	10.6	0.2	-3.7	-0.1
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	8238	4007	3718	3718	4247	10.3	1.1	-7.6	1.3
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3316	3734	4482	4979	5705	5.6	4.9	3.1	2.4
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.1	0.4	0.3
Biomass & Waste	1140	1423	1687	2313	2582	2908	3478	3743	4209	4.0	4.4	3.0	1.9
Wind	52	101	365	569	682	700	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	49	124	232	302	374	12.5	21.0	16.8	4.9
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.8	2.1	1.3
Net Imports	8605	7534	-7076	-10498	-8098	-3795	-1619	-1293	-1547				
Solids	6216	7664	3784	3505	3705	3691	3190	2589	1874	-4.8	-0.2	-1.5	-5.2
Oil	2711	1429	-8094	-9381	-7629	-5885	-3483	-2553	-1825				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8728	-6579	-3868	-2910	-2050				
- Oil products	679	627	1512	1804	1099	694	385	357	225	8.3	-3.1	-10.0	-5.2
Natural gas	-928	-1496	-2882	-5010	-4376	-2128	-1975	-1975	-2256				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19106	17070	16678	16476	16449	1.0	-0.3	-1.3	-0.1
Solids	6088	6498	3987	3715	3705	3691	3190	2589	1874	-4.1	-0.7	-1.5	-5.2
Oil	8144	9105	9043	8133	8022	7238	6615	6518	6219	1.1	-1.2	-1.9	-0.6
Natural gas	1818	3170	4449	4399	3862	1879	1743	1743	1991	9.4	-1.4	-7.6	1.3
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3618	4075	4890	5418	6199	5.9	5.5	3.1	2.4
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.4	21.6	19.1	15.7	11.4				
Oil	45.6	45.0	46.0	41.6	42.0	42.4	39.7	39.6	37.8				
Natural gas	10.2	15.7	22.6	22.5	20.2	11.0	10.5	10.6	12.1				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	18.9	23.9	29.3	32.9	37.7				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	37042	29675	29807	34047	37881	3.4	0.3	-2.1	2.4
Self consumption and grid losses	3290	4659	4046	3775	3672	3102	3151	3612	3938	2.1	-1.0	-1.5	2.3
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6261	4732	4585	4686	4687	2.7	-2.2	-3.1	0.2
Solids	5541	6061	3667	3444	3477	3431	2820	2022	1293	-4.0	-0.5	-2.1	-7.5
Oil (including refinery gas)	237	1008	1344	344	271	13	12	179	95	19.0	-14.8	-27.0	23.3
Gas (including derived gases)	174	975	2112	2003	1367	0	0	245	608	28.4	-4.3		
Biomass & Waste	65	378	699	1338	1145	1289	1753	2239	2692	26.9	5.1	4.3	4.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8717	8504	8374	8156	8021	-0.1	-0.3	-0.4	-0.4
Refineries	8027	9958	8452	7821	7772	7421	7132	7090	6950	0.5	-0.8	-0.9	-0.3
Biofuels and hydrogen production	0	0	0	0	192	362	542	551	591				10.9
District heating	1005	761	515	509	753	721	700	515	479	-6.5	3.9	-0.7	-3.7
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1148	794	725	719	731	4.7	-0.1	-4.5	0.1
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15266	14245	14105	13990	13947	0.8	0.4	-0.8	-0.1
by sector													
Industry	2711	3026	2935	2831	2905	2887	2868	2864	2922	0.8	-0.1	-0.1	0.2
- energy intensive industries	1076	1121	1243	1152	1173	1177	1154	1133	1134	1.5	-0.6	-0.2	-0.2
- other industrial sectors	1636	1905	1692	1679	1731	1710	1714	1731	1788	0.3	0.2	-0.1	0.4
Residential	3946	4468	4154	4398	4311	3753	3870	3905	3917	0.5	0.4	-1.1	0.1
Tertiary	2822	2779	2801	2840	2606	2349	2324	2293	2245	-0.1	-0.7	-1.1	-0.3
Transport	4012	4447	4720	5254	5444	5256	5042	4928	4862	1.6	1.4	-0.8	-0.4
by fuel													
Solids	396	405	290	236	227	261	370	566	581	-3.1	-2.4	5.0	4.6
Oil	7097	7132	6950	7204	7033	6541	6074	5886	5707	-0.2	0.1	-1.5	-0.6
Gas	1159	1691	1667	1701	1792	1570	1387	1233	1093	3.7	0.7	-2.5	-2.4
Electricity	2517	2655	2791	2882	2737	2440	2502	2796	3056	1.0	-0.2	-0.9	2.0
Heat (from CHP and District Heating)	1758	2242	2255	2408	2377	2136	2239	2052	1897	2.5	0.5	-0.6	-1.6
Renewable energy forms	566	595	657	892	1100	1296	1532	1456	1611	1.5	5.3	3.4	0.5
Other	0	0	0	0	0	1	2	2	2			13.2	4.5
RES in Gross Final Energy Consumption ^(A)			1919	2512	3249	3658	4379	4753	5432		5.4	3.0	2.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	63.1	54.4	49.8	46.3	42.6	0.1	-1.1	-2.3	-1.5
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.7	39.6	35.5	32.9	29.8	0.1	-1.2	-2.7	-1.7
Power generation/District heating	24.5	30.2	24.0	19.7	18.0	13.6	11.2	9.1	6.8	-0.2	-2.8	-4.7	-4.8
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.5	1.2	0.9	0.9	4.9	-0.5	-5.8	-3.4
Industry	5.4	6.0	5.4	5.0	5.0	4.9	4.9	5.2	5.1	-0.1	-0.7	-0.3	0.5
Residential	4.9	4.9	3.9	3.5	3.2	2.6	2.5	2.4	2.3	-2.3	-2.0	-2.5	-0.8
Tertiary	3.6	3.1	2.9	2.7	2.5	2.2	2.2	2.1	2.0	-2.1	-1.3	-1.6	-1.0
Transport	11.9	13.1	13.9	15.5	15.7	14.7	13.6	13.2	12.8	1.6	1.2	-1.4	-0.6
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.7	2.6	2.6	5.4	-0.3	-0.8	-0.2
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.1	11.6	10.7	10.2	-0.7	-1.2	-1.5	-1.3
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	90.4	78.0	71.3	66.3	61.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: EC proposal without RES trading						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.3	65.8	59.3	54.6	51.2	-1.6	-2.1	-3.1	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.44	2.32	2.13	2.00	1.81	-0.8	-0.9	-1.4	-1.6
Import Dependency %	45.7	34.5	-33.7	-51.6	-40.6	-21.1	-9.2	-7.4	-8.9				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	18.0	20.4	22.8	24.6	26.0		1.6	2.4	1.3
as % of GDP			7.8	8.0	7.6	7.9	8.1	8.1	8.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.0	83.8	77.2	72.4	69.6	-1.1	-0.8	-1.7	-1.0
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.6	66.8	64.0	60.6	57.4	-1.4	-1.8	-2.6	-1.1
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.9	61.8	56.3	51.7	47.5	-2.7	-2.7	-2.9	-1.7
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	36.6	33.7	31.2	29.5	0.0	0.6	-1.3	-1.3
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	67.2	62.2	59.1	56.0	0.1	0.5	-1.6	-1.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.23	0.18	0.15	0.11	-3.1	-3.2	-3.1	-5.1
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.73	1.72	1.64	1.64	1.59	-0.7	-0.3	-0.5	-0.3
Industry	2.00	1.98	1.83	1.76	1.72	1.71	1.69	1.82	1.74	-0.9	-0.6	-0.2	0.3
Residential	1.24	1.09	0.93	0.80	0.73	0.70	0.63	0.62	0.58	-2.8	-2.4	-1.5	-0.9
Tertiary	1.27	1.12	1.04	0.94	0.98	0.95	0.94	0.91	0.88	-2.0	-0.6	-0.4	-0.7
Transport	2.96	2.95	2.95	2.96	2.88	2.80	2.70	2.68	2.64	0.0	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	20.1	24.5	29.7	32.6	37.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	7.1	11.4	12.1	13.2				
Gross Electricity generation by source (in GWh)													
			36043	36269	37042	29675	29807	34047	37881		0.3	-2.1	2.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			14345	13553	15235	14639	12161	10274	7464		0.6	-2.2	-4.8
Oil (including refinery gas)			5222	1525	1541	176	175	1025	660		-11.5	-19.5	14.2
Gas (including derived gases)			9658	9549	8218	2149	2072	3130	5121		-1.6	-12.9	9.5
Biomass-waste			2548	5006	4084	4530	6386	8730	11541		4.8	4.6	6.1
Hydro (pumping excluded)			30	23	30	31	31	32	32		0.1	0.4	0.3
Wind			4240	6613	7928	8137	8957	10822	13019		6.5	1.2	3.8
Solar			0	0	6	13	24	34	42			15.8	5.8
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			11888	12794	12765	12344	11694	12251	12657		0.7	-0.9	0.8
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2311	3014	3663	3738	4023	4627	5246		4.7	0.9	2.7
Hydro (pumping excluded)			10	11	11	11	11	11	11		1.5	0.0	0.0
Wind			2300	3000	3636	3690	3944	4520	5115		4.7	0.8	2.6
Solar			2	3	16	37	68	97	120		24.9	15.8	5.8
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9577	9781	9102	8606	7671	7624	7411		-0.5	-1.7	-0.3
of which cogeneration units			7504	8538	5736	5079	4615	4553	4094		-2.7	-2.2	-1.2
Solids fired			5528	5566	4819	4425	3541	3032	2213		-1.4	-3.0	-4.6
Gas fired			2328	2485	2395	2411	2132	2284	2632		0.3	-1.2	2.1
Oil fired			1271	1236	1182	988	911	894	783		-0.7	-2.6	-1.5
Biomass-waste fired			450	494	707	782	1087	1415	1784		4.6	4.4	5.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			32.7	30.4	31.2	25.9	27.5	30.1	32.6				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.9	39.1	39.0	42.5	45.5				
% of gross electricity from CHP			63.9	68.3	61.6	63.5	64.4	56.9	48.2				
Carbon free gross electricity generation (%)			18.9	32.1	32.5	42.8	51.7	57.6	65.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	32.5	42.8	51.7	57.6	65.0				
Transport sector													
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	86.4	88.5	91.3	94.6	97.5	1.1	1.0	0.6	0.7
Public road transport	6.4	7.3	7.4	7.4	7.5	7.7	8.0	8.2	8.5	1.4	0.1	0.6	0.6
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.0	56.6	57.0	58.1	59.1	0.8	0.9	0.0	0.4
Rail	5.1	4.9	5.5	6.2	6.7	7.4	7.9	8.4	8.8	0.9	2.0	1.7	1.0
Aviation	5.5	7.0	9.0	9.8	11.4	13.0	14.4	15.8	16.9	5.0	2.4	2.4	1.6
Inland navigation	5.2	4.7	3.9	3.7	3.7	3.8	3.9	4.1	4.2	-2.9	-0.4	0.5	0.7
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.1	30.0	31.6	33.5	35.5	2.4	0.5	0.8	1.2
Trucks	18.1	22.4	24.0	23.3	25.0	25.3	26.5	28.1	29.7	2.9	0.4	0.6	1.1
Rail	1.7	2.0	2.0	2.0	2.2	2.5	2.7	2.9	3.1	1.6	0.8	2.2	1.3
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.2	2.4	2.5	2.7	-2.4	2.5	2.1	1.4
Energy demand in transport (ktoe)	4012	4447	4720	5254	5444	5256	5042	4928	4862	1.6	1.4	-0.8	-0.4
Public road transport	57	76	78	83	81	78	72	66	64	3.1	0.4	-1.2	-1.2
Private cars and motorcycles	1628	1709	1788	2034	2046	1896	1687	1523	1495	0.9	1.4	-1.9	-1.2
Trucks	1374	1690	1816	1952	2021	1907	1856	1880	1932	2.8	1.1	-0.8	0.4
Rail	113	117	103	106	109	113	109	100	53	-1.0	0.6	0.0	-7.0
Aviation	690	675	820	944	1049	1123	1177	1214	1174	1.7	2.5	1.2	0.0
Inland navigation	150	181	115	136	138	140	142	145	146	-2.6	1.8	0.3	0.3

Source: PRIMES

Denmark: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	21741	19200	18952	-2265	-1014	388	-9.4	-5.0	2.1
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	4007	3718	4247	-2539	-1659	-753	-38.8	-30.9	-15.1
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	3734	4482	5705	273	644	1141	7.9	16.8	25.0
Hydro	2	3	2	3	3	3	0	0	0	2.0	1.2	0.0
Biomass & Waste	1140	1687	2313	2908	3478	4209	226	539	791	8.4	18.3	23.1
Wind	52	365	569	700	770	1120	13	0	151	1.9	0.0	15.6
Solar and others	2	7	10	124	232	374	34	106	198	38.5	83.7	113.1
Geothermal	2	3	3	0	0	0	0	0	0	14.5	22.8	36.8
Net Imports	8605	-7076	-10498	-3795	-1619	-1547	-802	-2592	-3984	26.8	-266.6	-163.5
Solids	6216	3784	3505	3691	3190	1874	-694	-1563	-2080	-15.8	-32.9	-52.6
Oil	2711	-8094	-9381	-5885	-3483	-1825	-1132	-1685	-1912	23.8	93.7	-2194.6
- Crude oil and Feedstocks	2032	-9607	-11186	-6579	-3868	-2050	-633	-892	-1044	10.6	30.0	103.8
- Oil products	679	1512	1804	694	385	225	-499	-793	-868	-41.9	-67.3	-79.4
Natural gas	-928	-2882	-5010	-2128	-1975	-2256	998	593	-85	-31.9	-23.1	3.9
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	17070	16678	16449	-3066	-3603	-3591	-15.2	-17.8	-17.9
Solids	6088	3987	3715	3691	3190	1874	-694	-1563	-2080	-15.8	-32.9	-52.6
Oil	8144	9043	8133	7238	6615	6219	-1131	-1682	-1907	-13.5	-20.3	-23.5
Natural gas	1818	4449	4399	1879	1743	1991	-1541	-1066	-838	-45.1	-37.9	-29.6
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4075	4890	6199	300	708	1234	7.9	16.9	24.8
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	21.6	19.1	11.4	-0.2	-4.3	-8.3			
Oil	45.6	46.0	41.6	42.4	39.7	37.8	0.8	-1.2	-2.7			
Natural gas	10.2	22.6	22.5	11.0	10.5	12.1	-6.0	-3.4	-2.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	23.9	29.3	37.7	5.1	8.7	12.9			
Gross Electricity Generation in GWh_e	25733	36043	36269	29675	29807	37881	-9198	-9927	-4689	-23.7	-25.0	-11.0
Self consumption and grid losses	3290	4046	3775	3102	3151	3938	-953	-1189	-892	-23.5	-27.4	-18.5
Fuel Inputs to Thermal Power Generation	6016	7822	7129	4732	4585	4687	-1874	-1984	-1659	-28.4	-30.2	-26.1
Solids	5541	3667	3444	3431	2820	1293	-709	-1687	-2149	-17.1	-37.4	-62.4
Oil (including refinery gas)	237	1344	344	13	12	95	-265	-241	-98	-95.4	-95.4	-50.8
Gas (including derived gases)	174	2112	2003	0	0	608	-1018	-405	-40	-100.0	-100.0	-6.2
Biomass & Waste	65	699	1338	1289	1753	2692	119	349	628	10.2	24.9	30.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8504	8374	8021	-518	-702	-847	-5.7	-7.7	-9.6
Refineries	8027	8452	7821	7421	7132	6950	-633	-892	-1044	-7.9	-11.1	-13.1
Biofuels and hydrogen production	0	0	0	362	542	591	51	72	-18	16.5	15.2	-3.0
District heating	1005	515	509	721	700	479	64	118	215	9.7	20.3	81.3
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	794	725	731	-279	-249	-212	-26.0	-25.5	-22.4
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	14245	14105	13947	-2122	-2560	-2847	-13.0	-15.4	-17.0
by sector												
Industry	2711	2935	2831	2887	2868	2922	-117	-172	-176	-3.9	-5.7	-5.7
- energy intensive industries	1076	1243	1152	1177	1154	1134	-25	-49	-57	-2.1	-4.1	-4.8
- other industrial sectors	1636	1692	1679	1710	1714	1788	-91	-123	-119	-5.1	-6.7	-6.3
Residential	3946	4154	4398	3753	3870	3917	-837	-745	-700	-18.2	-16.1	-15.2
Tertiary	2822	2801	2840	2349	2324	2245	-644	-706	-790	-21.5	-23.3	-26.0
Transport	4012	4720	5254	5256	5042	4862	-524	-936	-1181	-9.1	-15.7	-19.5
by fuel												
Solids	396	290	236	261	370	581	15	123	69	6.3	50.1	13.4
Oil	7097	6950	7204	6541	6074	5707	-771	-1291	-1615	-10.5	-17.5	-22.1
Gas	1159	1667	1701	1570	1387	1093	-306	-501	-563	-16.3	-26.5	-34.0
Electricity	2517	2791	2882	2440	2502	3056	-707	-748	-322	-22.5	-23.0	-9.5
Heat (from CHP and District Heating)	1758	2255	2408	2136	2239	1897	-381	-261	-389	-15.1	-10.4	-17.0
Renewable energy forms	566	657	892	1296	1532	1611	26	117	-26	2.0	8.3	-1.6
Other	0	0	0	1	2	2	0	0	-1	56.6	2.9	-27.2
RES in Gross Final Energy Consumption ^(A)		1919	2512	3658	4379	5432	283	729	1210	8.4	20.0	28.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	54.4	49.8	42.6	-11.2	-15.7	-17.8	-17.1	-24.0	-29.4
CO₂ Emissions (energy related)	51.7	52.4	48.9	39.6	35.5	29.8	-9.8	-13.7	-15.9	-19.8	-27.9	-34.8
Power generation/District heating	24.5	24.0	19.7	13.6	11.2	6.8	-6.1	-8.6	-9.1	-31.1	-43.4	-57.2
Energy Branch	1.5	2.4	2.5	1.5	1.2	0.9	-0.6	-0.6	-0.8	-30.4	-32.1	-49.0
Industry	5.4	5.4	5.0	4.9	4.9	5.1	-0.1	-0.1	-0.2	-1.7	-2.3	-2.9
Residential	4.9	3.9	3.5	2.6	2.5	2.3	-0.7	-0.9	-1.3	-21.1	-26.6	-36.2
Tertiary	3.6	2.9	2.7	2.2	2.2	2.0	-0.5	-0.6	-0.9	-18.0	-20.7	-30.6
Transport	11.9	13.9	15.5	14.7	13.6	12.8	-1.7	-3.0	-3.6	-10.4	-18.2	-22.1
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.8	2.7	2.6	-0.1	-0.1	-0.1	-4.1	-4.6	-4.5
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.1	11.6	10.2	-1.3	-1.9	-1.8	-9.8	-13.9	-14.7
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	78.0	71.3	61.0	-16.0	-22.6	-25.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	65.8	59.3	51.2	-11.8	-12.8	-11.2	-15.2	-17.8	-17.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.32	2.13	1.81	-0.13	-0.30	-0.47	-5.4	-12.3	-20.6
Import Dependency %	45.7	-33.7	-51.6	-21.1	-9.2	-8.9	-6.9	-13.8	-20.5			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	20.4	22.8	26.0	0.8	1.4	2.3	3.9	6.4	9.5
as % of GDP		7.8	8.0	7.9	8.1	8.1	0.3	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.4	2.3						
as % of GDP				0.31	0.51	0.72						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	83.8	77.2	69.6	-3.4	-4.6	-4.2	-3.9	-5.7	-5.7
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	66.8	64.0	57.4	-14.9	-12.3	-10.2	-18.2	-16.1	-15.2
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	61.8	56.3	47.5	-17.0	-17.1	-16.7	-21.5	-23.3	-26.0
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	36.6	33.7	29.5	-1.3	-3.1	-3.2	-3.3	-8.5	-9.8
Freight transport (toe/Mtkm)	68.3	69.2	75.8	67.2	62.2	56.0	-5.6	-10.0	-13.7	-7.7	-13.9	-19.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.23	0.18	0.11	-0.04	-0.08	-0.11	-14.3	-30.7	-50.6
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.72	1.64	1.59	0.04	-0.02	-0.08	2.4	-1.4	-5.1
Industry	2.00	1.83	1.76	1.71	1.69	1.74	0.04	0.06	0.05	2.3	3.6	2.9
Residential	1.24	0.93	0.80	0.70	0.63	0.58	-0.03	-0.09	-0.19	-3.5	-12.5	-24.7
Tertiary	1.27	1.04	0.94	0.95	0.94	0.88	0.04	0.03	-0.06	4.5	3.4	-6.2
Transport	2.96	2.95	2.96	2.80	2.70	2.64	-0.04	-0.08	-0.09	-1.5	-3.0	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		12.4	15.5	24.5	29.7	37.5	4.9	8.8	13.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.1	11.4	13.2	1.6	3.3	2.6			
Gross Electricity generation by source (in GWh_e)												
	36043	36269	29675	29807	37881	37881	-9198	-9927	-4689	-23.7	-25.0	-11.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	14639	12161	7464	7464	-2805	-6748	-8301	-16.1	-35.7	-52.7
Oil (including refinery gas)	5222	1525	176	175	660	660	-1389	-1330	-702	-88.8	-88.4	-51.5
Gas (including derived gases)	9658	9549	2149	2072	5121	5121	-5513	-2836	149	-71.9	-57.8	3.0
Biomass-waste	2548	5006	4530	6386	11541	11541	354	988	2404	8.5	18.3	26.3
Hydro (pumping excluded)	30	23	31	31	32	32	1	0	0	2.0	1.2	0.0
Wind	4240	6613	8137	8957	13019	13019	154	0	1761	1.9	0.0	15.6
Solar	0	0	13	24	42	42	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	11888	12794	12344	11694	12657	12657	-368	-281	-306	-2.9	-2.3	-2.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3738	4023	5246	5246	52	0	589	1.4	0.0	12.6
Hydro (pumping excluded)	10	11	11	11	11	11	0	0	0	0.0	0.0	0.0
Wind	2300	3000	3690	3944	5115	5115	52	0	589	1.4	0.0	13.0
Solar	2	3	37	68	120	120	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8606	7671	7411	7411	-419	-281	-894	-4.6	-3.5	-10.8
of which cogeneration units	7504	8538	5079	4615	4094	4094	-1062	-108	-37	-17.3	-2.3	-0.9
Solids fired	5528	5566	4425	3541	2213	2213	0	0	-212	0.0	0.0	-8.7
Gas fired	2328	2485	2411	2132	2632	2632	-508	-508	-733	-17.4	-19.2	-21.8
Oil fired	1271	1236	988	911	783	783	0	0	-116	0.0	0.0	-12.9
Biomass-waste fired	450	494	782	1087	1784	1784	88	227	167	12.7	26.3	10.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	25.9	27.5	32.6	32.6	-7.1	-8.2	-2.8			
Efficiency of gross thermal power generation (%)	34.9	35.8	39.1	39.0	45.5	45.5	-1.1	-1.2	3.1			
% of gross electricity from CHP	63.9	68.3	63.5	64.4	48.2	48.2	1.3	5.6	-0.8			
Carbon free gross electricity generation (%)	18.9	32.1	42.8	51.7	65.0	65.0	11.4	15.4	16.9			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	42.8	51.7	65.0	65.0	11.4	15.4	16.9			
Transport sector												
Passenger transport activity (Gpkm)												
	70.1	77.8	81.6	88.5	91.3	97.5	-3.0	-4.3	-5.1	-3.3	-4.5	-5.0
Public road transport	6.4	7.4	7.4	7.7	8.0	8.5	0.3	0.4	0.5	3.7	5.2	5.7
Private cars and motorcycles	47.8	51.9	54.4	56.6	57.0	59.1	-3.0	-4.2	-5.0	-5.1	-6.8	-7.9
Rail	5.1	5.5	6.2	7.4	7.9	8.8	0.3	0.3	0.5	3.7	3.6	6.1
Aviation	5.5	9.0	9.8	13.0	14.4	16.9	-0.5	-0.8	-1.0	-3.7	-4.9	-5.6
Inland navigation	5.2	3.9	3.7	3.8	3.9	4.2	-0.1	0.0	0.0	-1.3	-1.0	-1.1
Freight transport activity (Gtkm)												
	21.7	27.5	27.0	30.0	31.6	35.5	-1.8	-2.4	-3.1	-5.6	-7.1	-7.9
Trucks	18.1	24.0	23.3	25.3	26.5	29.7	-2.1	-2.9	-3.6	-7.7	-9.7	-10.8
Rail	1.7	2.0	2.0	2.5	2.7	3.1	0.2	0.3	0.4	10.1	12.3	13.7
Inland navigation	1.9	1.5	1.7	2.2	2.4	2.7	0.1	0.1	0.2	4.7	6.0	6.7
Energy demand in transport (ktoe)												
	4012	4720	5254	5256	5042	4862	-524	-936	-1181	-9.1	-15.7	-19.5
Public road transport	57	78	83	78	72	64	-1	-7	-8	-1.2	-8.4	-11.8
Private cars and motorcycles	1628	1788	2034	1896	1687	1495	-166	-339	-276	-8.0	-16.7	-15.6
Trucks	1374	1816	1952	1907	1856	1932	-304	-499	-707	-13.8	-21.2	-26.8
Rail	113	103	106	113	109	53	4	5	5	4.1	4.3	10.7
Aviation	690	820	944	1123	1177	1174	-55	-92	-186	-4.6	-7.2	-13.7
Inland navigation	150	115	136	140	142	146	-3	-5	-9	-1.8	-3.2	-6.1

Source: PRIMES

Estonia: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	6249	3618	3332	4304	3312	3088	2685	2821	2933	-6.1	-0.1	-2.1	0.9
Solids	5798	3129	2830	3261	2516	2189	1518	1458	1366	-6.9	-1.2	-4.9	-1.1
Oil	0	0	2	331	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	450	489	500	712	796	898	1167	1363	1568	1.1	4.7	3.9	3.0
Hydro	0	0	0	2	2	2	2	3	3		16.8	1.9	0.3
Biomass & Waste	450	488	500	706	741	841	1067	1217	1387	1.0	4.0	3.7	2.7
Wind	0	0	0	5	51	52	92	133	164		89.4	6.1	6.0
Solar and others	0	0	0	0	2	3	6	10	13			13.9	8.9
Geothermal	0	0	0	0	0	0	0	0	0			2.1	1.0
Net Imports	4456	1987	1447	1463	2199	2457	2604	2593	2546	-10.6	4.3	1.7	-0.2
Solids	697	292	244	27	121	128	136	147	129	-10.0	-6.8	1.1	-0.5
Oil	3139	1178	626	867	1565	1743	1766	1775	1802	-14.9	9.6	1.2	0.2
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.2	0.2
- Oil products	3139	1178	626	867	1564	1742	1765	1774	1801	-14.9	9.6	1.2	0.2
Natural gas	1222	583	662	800	760	797	961	951	946	-5.9	1.4	2.4	-0.2
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Gross Inland Consumption	10642	5630	4712	5627	5359	5371	5102	5218	5278	-7.8	1.3	-0.5	0.3
Solids	6703	3598	3119	3255	2637	2317	1654	1606	1494	-7.4	-1.7	-4.6	-1.0
Oil	2858	1032	510	1090	1414	1570	1579	1579	1600	-15.8	10.7	1.1	0.1
Natural gas	1222	583	662	800	760	797	961	951	946	-5.9	1.4	2.4	-0.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Renewable energy forms	460	483	501	621	700	789	1029	1205	1388	0.9	3.4	3.9	3.0
as % in Gross Inland Consumption													
Solids	63.0	63.9	66.2	57.8	49.2	43.1	32.4	30.8	28.3				
Oil	26.9	18.3	10.8	19.4	26.4	29.2	30.9	30.3	30.3				
Natural gas	11.5	10.3	14.1	14.2	14.2	14.8	18.8	18.2	17.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	8.6	10.6	11.0	13.1	14.7	20.2	23.1	26.3				
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	11120	10864	12179	13566	15182	-6.8	2.7	0.9	2.2
Self consumption and grid losses	2615	1409	1247	1422	1439	1338	1383	1596	1794	-7.1	1.4	-0.4	2.6
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2759	2494	2269	2355	2475	-8.0	1.2	-1.9	0.9
Solids	5085	2499	2213	2297	2454	2134	1490	1448	1360	-8.0	1.0	-4.9	-0.9
Oil (including refinery gas)	210	80	12	10	23	53	51	49	49	-25.2	7.4	8.0	-0.3
Gas (including derived gases)	357	100	226	227	224	225	455	433	435	-4.5	-0.1	7.3	-0.4
Biomass & Waste	2	2	2	5	58	83	274	425	631	-0.3	39.6	16.7	8.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2285	1007	783	769	376	455	357	294	258	-10.2	-7.1	-0.5	-3.2
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.4	1.2	0.2
Biofuels and hydrogen production	0	0	0	0	45	73	109	118	129			9.4	1.7
District heating	1755	527	485	511	316	372	240	170	123	-12.1	-4.2	-2.7	-6.5
Derived gases, cokeries etc.	529	479	297	257	15	9	7	5	4	-5.6	-26.0	-7.4	-4.3
Energy Branch Consumption	295	148	179	209	208	199	192	202	207	-4.9	1.5	-0.8	0.7
Non-Energy Uses	69	225	219	230	224	216	217	217	216	12.2	0.2	-0.3	0.0
Final Energy Demand	6392	2627	2445	2854	3260	3459	3630	3786	3880	-9.2	2.9	1.1	0.7
by sector													
Industry	2742	794	531	654	773	825	870	929	967	-15.1	3.8	1.2	1.1
- energy intensive industries	738	430	203	215	227	239	253	267	276	-12.1	1.1	1.1	0.9
- other industrial sectors	2004	364	328	440	546	586	618	662	691	-16.6	5.2	1.2	1.1
Residential	1482	1054	984	977	985	983	1008	1044	1056	-4.0	0.0	0.2	0.5
Tertiary	1330	289	353	498	615	654	710	757	784	-12.4	5.7	1.4	1.0
Transport	839	490	577	725	886	998	1042	1056	1073	-3.7	4.4	1.6	0.3
by fuel													
Solids	1059	201	122	102	106	106	110	116	113	-19.5	-1.4	0.4	0.3
Oil	1803	855	748	960	1171	1275	1284	1295	1345	-8.4	4.6	0.9	0.5
Gas	439	202	134	207	259	309	324	350	343	-11.2	6.8	2.3	0.6
Electricity	608	510	506	584	648	682	773	870	967	-1.8	2.5	1.8	2.3
Heat (from CHP and District Heating)	2086	593	511	547	532	521	537	533	545	-13.1	0.4	0.1	0.1
Renewable energy forms	397	265	424	453	544	566	603	622	566	0.7	2.5	1.0	-0.6
Other	0	0	0	0	0	0	0	0	0			16.6	2.4
RES in Gross Final Energy Consumption ^(A)			538	564	673	750	962	1127	1286		2.3	3.6	2.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	20.0	19.4	17.2	16.5	15.7	-9.1	1.5	-1.5	-0.9
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.4	15.6	13.3	13.1	12.7	-9.7	1.5	-2.1	-0.5
Power generation/District heating	27.9	12.3	10.9	11.2	11.6	10.5	8.1	7.7	7.2	-9.0	0.6	-3.6	-1.1
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.2	-1.3	-0.9
Industry	4.6	1.7	0.8	0.8	1.1	1.1	1.2	1.2	1.3	-16.0	2.8	0.9	1.5
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.9	0.7	0.2
Tertiary	1.9	0.3	0.3	0.5	0.6	0.7	0.7	0.8	0.8	-17.6	8.9	1.2	0.7
Transport	2.4	1.4	1.7	2.1	2.5	2.8	2.8	2.8	2.8	-3.6	4.0	1.2	0.1
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.2	1.4	1.4	-5.3	9.7	3.3	1.4
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.6	2.7	2.0	1.6	-5.7	-0.3	-0.2	-5.2
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	44.5	43.0	38.3	36.6	34.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	330.6	270.0	216.5	192.1	176.3	-7.1	-6.3	-4.1	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.06	2.91	2.61	2.51	2.41	-2.1	0.2	-1.6	-0.8
Import Dependency %	41.2	34.8	30.0	25.5	39.9	44.3	49.2	47.9	46.5				
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	2.9	3.5	3.9	4.2		3.7	3.7	1.9
as % of GDP			22.2	16.8	14.8	14.7	14.7	14.3	14.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.7	49.4	44.1	40.6	38.2	-12.1	-5.5	-2.5	-1.4
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.2	38.8	33.9	30.7	28.3	-3.6	-7.2	-3.3	-1.8
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	82.9	72.0	66.1	61.1	57.1	-12.4	-1.9	-2.2	-1.5
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.3	28.9	27.4	25.8	24.9	0.2	-0.7	-0.7	-1.0
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.2	21.6	21.8	21.6	22.0	-7.9	1.1	0.8	0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.62	0.58	0.41	0.37	0.32	0.5	-0.9	-4.0	-2.4
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.39	1.44	1.39	1.37	1.37	-3.1	1.1	0.0	-0.2
Industry	1.67	2.20	1.51	1.28	1.37	1.39	1.32	1.28	1.38	-1.0	-1.0	-0.3	0.4
Residential	1.33	0.44	0.29	0.36	0.35	0.37	0.36	0.37	0.35	-14.2	1.9	0.4	-0.3
Tertiary	1.42	0.87	0.77	0.94	1.04	1.07	1.02	1.03	0.99	-5.9	3.1	-0.2	-0.3
Transport	2.89	2.90	2.92	2.94	2.82	2.78	2.70	2.67	2.63	0.1	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	19.4	20.5	25.2	28.4	31.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.4	6.4	9.1	9.8	10.7				
Gross Electricity generation by source (in GWh)													
			8511	10203	11120	10864	12179	13566	15182		2.7	0.9	2.2
Nuclear energy			0	0	0	0	0	0	0				
Solids			7611	8927	9252	8198	6687	7028	7289		2.0	-3.2	0.9
Oil (including refinery gas)			51	42	95	242	240	232	227		6.4	9.7	-0.6
Gas (including derived gases)			787	1000	882	1370	2815	2702	2692		1.2	12.3	-0.4
Biomass-waste			57	158	274	427	1338	2024	3034		17.0	17.2	8.5
Hydro (pumping excluded)			5	22	24	26	29	29	30		16.8	1.9	0.3
Wind			1	54	593	601	1070	1550	1910		89.4	6.1	6.0
Solar			0	0	0	0	0	0	0				4.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2999	2998	2706	2846	2440	2883	3361		-1.0	-1.0	3.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2	39	241	244	430	649	866		61.7	6.0	7.2
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1
Wind			1	32	234	237	423	641	858		74.9	6.1	7.3
Solar			0	0	0	0	1	1	1				4.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2997	2959	2465	2603	2010	2235	2495		-1.9	-2.0	2.2
of which cogeneration units			477	513	445	434	787	962	1150		-0.7	5.9	3.9
Solids fired			2738	2672	2159	2111	1155	939	937		-2.3	-6.1	-2.1
Gas fired			175	200	207	387	614	949	1050		1.7	11.5	5.5
Oil fired			65	65	66	45	47	53	85		0.2	-3.3	6.1
Biomass-waste fired			19	21	32	60	194	293	423		5.5	19.8	8.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			28.9	34.7	42.4	39.8	52.8	49.6	47.7				
Efficiency of gross thermal power generation (%)			29.8	34.3	32.7	35.3	42.0	43.8	46.0				
% of gross electricity from CHP			17.6	33.1	22.6	27.5	43.2	44.0	45.4				
Carbon free gross electricity generation (%)			0.7	2.3	8.0	9.7	20.0	26.6	32.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.7	2.3	8.0	9.7	20.0	26.6	32.8				
Transport sector													
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	16.9	17.7	18.4	18.8	-0.3	3.3	1.1	0.6
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.4	2.4	-5.1	-0.1	-0.6	-0.3
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.1	13.1	13.7	14.2	14.4	4.2	4.6	1.2	0.5
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.5	2.0
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.2	4.7
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.8	23.6	25.5	26.8	27.6	0.5	5.6	2.0	0.8
Trucks	4.5	1.5	3.9	5.8	8.6	10.7	12.3	13.5	14.2	-1.4	8.1	3.7	1.4
Rail	7.0	3.8	8.1	10.6	12.3	12.9	13.2	13.3	13.4	1.5	4.2	0.7	0.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	839	490	577	725	886	998	1042	1056	1073	-3.7	4.4	1.6	0.3
Public road transport	44	21	25	23	21	20	18	17	15	-5.5	-1.6	-1.3	-1.8
Private cars and motorcycles	273	263	307	338	384	400	395	381	364	1.2	2.3	0.3	-0.8
Trucks	414	139	167	263	367	455	507	536	581	-8.7	8.2	3.3	1.4
Rail	65	44	51	48	54	56	51	44	26	-2.4	0.6	-0.7	-6.5
Aviation	36	18	20	42	49	56	58	66	75	-5.9	9.6	1.8	2.5
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.7	0.3

Source: PRIMES

Estonia: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3088	2685	2933	-382	-762	-698	-11.0	-22.1	-19.2
Solids	5798	2830	3261	2189	1518	1366	-517	-1088	-1108	-19.1	-41.8	-44.8
Oil	0	2	331	0	0	0	0	0	0	80.3	-82.4	296.9
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	450	500	712	898	1167	1568	135	327	411	17.8	38.9	35.5
Hydro	0	0	2	2	2	3	0	0	0	2.2	0.6	0.0
Biomass & Waste	450	500	706	841	1067	1387	129	279	314	18.0	35.4	29.3
Wind	0	0	5	52	92	164	6	46	89	13.2	98.4	117.4
Solar and others	0	0	0	3	6	13	1	2	7	35.0	58.0	124.3
Geothermal	0	0	0	0	0	0	0	0	0	19.8	23.2	29.6
Net Imports	4456	1447	1463	2457	2604	2546	-146	44	-117	-5.6	1.7	-4.4
Solids	697	244	27	128	136	129	-1	-4	-5	-0.6	-3.0	-3.9
Oil	3139	626	867	1743	1766	1802	-30	-79	-151	-1.7	-4.3	-7.7
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-1.6	-4.1	-7.3
- Oil products	3139	626	867	1742	1765	1801	-30	-79	-151	-1.7	-4.3	-7.7
Natural gas	1222	662	800	797	961	946	-99	163	79	-11.0	20.5	9.1
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5371	5102	5278	-527	-718	-814	-8.9	-12.3	-13.4
Solids	6703	3119	3255	2317	1654	1494	-518	-1093	-1114	-18.3	-39.8	-42.7
Oil	2858	510	1090	1570	1579	1600	-30	-79	-150	-1.9	-4.7	-8.6
Natural gas	1222	662	800	797	961	946	-99	163	79	-11.0	20.5	9.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	789	1029	1388	119	290	370	17.7	39.4	36.3
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	43.1	32.4	28.3	-4.9	-14.8	-14.5			
Oil	26.9	10.8	19.4	29.2	30.9	30.3	2.1	2.5	1.6			
Natural gas	11.5	14.1	14.2	14.8	18.8	17.9	-0.3	5.1	3.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	14.7	20.2	26.3	3.3	7.5	9.6			
Gross Electricity Generation in GWh_e	17178	8511	10203	10864	12179	15182	-2078	-2443	-1906	-16.1	-16.7	-11.2
Self consumption and grid losses	2615	1247	1422	1338	1383	1794	-282	-570	-637	-17.4	-29.2	-26.2
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2494	2269	2475	-579	-682	-595	-18.8	-23.1	-19.4
Solids	5085	2213	2297	2134	1490	1360	-514	-1061	-1061	-19.4	-41.6	-43.8
Oil (including refinery gas)	210	12	10	53	51	49	11	8	1	26.3	19.8	1.2
Gas (including derived gases)	357	226	227	225	455	435	-102	218	207	-31.2	91.7	90.5
Biomass & Waste	2	2	5	83	274	631	26	154	259	46.4	127.7	69.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2285	783	769	455	357	258	-1	-47	-156	-0.2	-11.6	-37.6
Refineries	1	1	1	1	1	1	0	0	0	-1.6	-4.1	-7.3
Biofuels and hydrogen production	0	0	0	73	109	129	10	26	18	15.6	31.0	16.4
District heating	1755	485	511	372	240	123	-11	-73	-174	-2.9	-23.3	-58.6
Derived gases, cokeries etc.	529	297	257	9	7	4	1	0	0	6.5	5.1	3.1
Energy Branch Consumption	295	179	209	199	192	207	-21	-48	-59	-9.7	-20.1	-22.3
Non-Energy Uses	69	219	230	216	217	216	-1	-1	-1	-0.3	-0.4	-0.5
Final Energy Demand	6392	2445	2854	3459	3630	3880	-149	-221	-275	-4.1	-5.7	-6.6
by sector												
Industry	2742	531	654	825	870	967	-34	-62	-87	-4.0	-6.7	-8.3
- energy intensive industries	738	203	215	239	253	276	-13	-20	-23	-5.0	-7.5	-7.6
- other industrial sectors	2004	328	440	586	618	691	-21	-42	-65	-3.5	-6.4	-8.6
Residential	1482	984	977	983	1008	1056	-36	-54	-52	-3.5	-5.0	-4.7
Tertiary	1330	353	498	654	710	784	-61	-62	-63	-8.5	-8.1	-7.4
Transport	839	577	725	998	1042	1073	-18	-42	-72	-1.8	-3.9	-6.3
by fuel												
Solids	1059	122	102	106	110	113	-1	-6	-6	-1.3	-5.5	-4.9
Oil	1803	748	960	1275	1284	1345	-39	-89	-142	-3.0	-6.5	-9.6
Gas	439	134	207	309	324	343	16	3	-36	5.5	1.1	-9.4
Electricity	608	506	584	682	773	967	-154	-161	-108	-18.5	-17.2	-10.1
Heat (from CHP and District Heating)	2086	511	547	521	537	545	-55	-55	-39	-9.6	-9.3	-6.7
Renewable energy forms	397	424	453	566	603	566	85	87	56	17.8	16.9	11.1
Other	0	0	0	0	0	0	0	0	0	3.5	2.1	-1.7
RES in Gross Final Energy Consumption ^(A)		538	564	750	962	1286	117	266	348	18.5	38.3	37.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	19.4	17.2	15.7	-2.6	-4.6	-5.0	-11.8	-20.9	-24.3
CO₂ Emissions (energy related)	39.2	14.1	15.2	15.6	13.3	12.7	-2.5	-4.4	-4.9	-13.6	-24.8	-27.8
Power generation/District heating	27.9	10.9	11.2	10.5	8.1	7.2	-2.4	-4.1	-4.3	-18.4	-33.5	-37.4
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	-9.0	-15.0	-18.5
Industry	4.6	0.8	0.8	1.1	1.2	1.3	-0.1	-0.2	-0.3	-9.0	-14.5	-19.6
Residential	2.0	0.3	0.4	0.4	0.4	0.4	0.0	0.0	0.0	2.2	1.5	-0.6
Tertiary	1.9	0.3	0.5	0.7	0.7	0.8	0.1	0.1	0.1	15.0	14.1	7.5
Transport	2.4	1.7	2.1	2.8	2.8	2.8	-0.1	-0.2	-0.3	-2.7	-6.4	-8.8
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.2	1.4	0.0	-0.1	-0.1	-3.4	-4.4	-4.1
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.6	2.7	1.6	-0.1	-0.1	-0.1	-2.7	-3.8	-4.2
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	43.0	38.3	34.9	-5.7	-10.1	-11.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Estonia: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	270.0	216.5	176.3	-26.5	-30.5	-27.2	-8.9	-12.3	-13.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.91	2.61	2.41	-0.16	-0.43	-0.48	-5.2	-14.3	-16.7
Import Dependency %	41.2	30.0	25.5	44.3	49.2	46.5	1.4	6.6	4.2			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	2.9	3.5	4.2	0.1	0.2	0.3	2.9	6.0	7.5
as % of GDP		22.2	16.8	14.7	14.7	14.0	0.4	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.2	0.3						
as % of GDP				0.42	0.84	0.99						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	49.4	44.1	38.2	-2.0	-3.2	-3.5	-4.0	-6.7	-8.3
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	38.8	33.9	28.3	-1.4	-1.8	-1.4	-3.5	-5.0	-4.7
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	72.0	66.1	57.1	-6.7	-5.8	-4.6	-8.5	-8.1	-7.4
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	28.9	27.4	24.9	-0.3	-0.8	-1.3	-1.1	-3.0	-5.0
Freight transport (toe/Mtkm)	41.2	18.0	18.8	21.6	21.8	22.0	-0.3	-0.6	-1.1	-1.2	-2.7	-4.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.58	0.41	0.32	-0.03	-0.12	-0.14	-5.6	-22.7	-30.7
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.44	1.39	1.37	0.03	0.00	-0.04	2.4	0.2	-2.9
Industry	1.67	1.51	1.28	1.39	1.32	1.38	-0.08	-0.12	-0.19	-5.3	-8.4	-12.3
Residential	1.33	0.29	0.36	0.37	0.36	0.35	0.02	0.02	0.01	5.9	6.9	4.4
Tertiary	1.42	0.77	0.94	1.07	1.02	0.99	0.22	0.20	0.14	25.7	24.2	16.1
Transport	2.89	2.92	2.94	2.78	2.70	2.63	-0.03	-0.07	-0.07	-1.0	-2.6	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	20.5	25.2	31.6	4.0	8.2	10.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	9.1	10.7	0.9	2.4	2.0			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	10864	12179	15182	15182	-2078	-2443	-1906	-16.1	-16.7	-11.2
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	8198	6687	7289	7289	-1774	-5090	-5813	-17.8	-43.2	-44.4
Oil (including refinery gas)	51	42	242	240	227	227	70	68	39	40.6	39.4	20.6
Gas (including derived gases)	787	1000	1370	2815	2692	2692	-581	1312	1310	-29.8	87.3	94.8
Biomass-waste	57	158	427	1338	3034	3034	136	736	1527	46.6	122.3	101.3
Hydro (pumping excluded)	5	22	26	29	30	30	1	0	0	2.2	0.6	0.0
Wind	1	54	601	1070	1910	1910	70	531	1031	13.2	98.4	117.4
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2846	2440	3361	3361	-84	-173	274	-2.9	-6.6	8.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	244	430	866	866	34	217	558	16.2	102.1	181.3
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	237	423	858	858	34	217	558	16.7	105.8	185.9
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2603	2010	2495	2495	-118	-391	-284	-4.3	-16.3	-10.2
of which cogeneration units	477	513	434	787	1150	1150	-99	91	274	-18.6	13.1	31.3
Solids fired	2738	2672	2111	1155	937	937	-46	-485	-568	-2.1	-29.6	-37.7
Gas fired	175	200	387	614	1050	1050	-93	33	229	-19.4	5.8	27.9
Oil fired	65	65	45	47	85	85	4	-31	-24	9.2	-39.4	-22.0
Biomass-waste fired	19	21	60	194	423	423	18	91	79	41.8	89.4	22.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	39.8	52.8	47.7	47.7	-6.3	-5.2	-9.2			
Efficiency of gross thermal power generation (%)	29.8	34.3	35.3	42.0	46.0	46.0	0.6	1.0	0.7			
% of gross electricity from CHP	17.6	33.1	27.5	43.2	45.4	45.4	0.7	15.9	20.6			
Carbon free gross electricity generation (%)	0.7	2.3	9.7	20.0	32.8	32.8	3.2	12.0	18.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	9.7	20.0	32.8	32.8	3.2	12.0	18.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.9	17.7	18.8	-0.1	-0.2	-0.3	-0.7	-1.3	-1.7
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.4	0.0	0.0	0.0	0.5	1.0	1.3
Rail	5.1	7.7	10.1	13.1	13.7	14.4	-0.1	-0.2	-0.3	-0.8	-1.5	-2.0
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.1	0.5	1.1
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	-0.1	-5.3	-7.0	-7.6
Inland navigation	0.6	0.4	0.4	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.3	0.4
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.6	25.5	27.6	-0.1	-0.2	-0.4	-0.6	-1.0	-1.3
Rail	4.5	3.9	5.8	10.7	12.3	14.2	-0.2	-0.3	-0.4	-1.6	-2.4	-3.0
Inland navigation	7.0	8.1	10.6	12.9	13.2	13.4	0.0	0.1	0.1	0.3	0.5	0.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	839	577	725	998	1042	1073	-18	-42	-72	-1.8	-3.9	-6.3
Private cars and motorcycles	44	25	23	20	18	15	0	0	0	0.1	-0.1	-2.6
Trucks	273	307	338	400	395	364	-4	-8	-13	-1.0	-2.0	-3.4
Rail	414	167	263	455	507	581	-9	-21	-38	-2.0	-4.0	-6.1
Aviation	65	51	48	56	51	26	0	0	-1	0.3	0.2	-2.0
Inland navigation	36	20	42	56	58	75	-5	-13	-20	-7.8	-18.2	-21.1
Inland navigation	7	7	11	11	12	12	0	0	0	-0.1	0.1	0.0

Source: PRIMES

Finland: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16825	20315	22105	23276	24678	2.4	1.2	2.8	1.1	
Solids	1581	2061	1207	2129	1643	1584	1625	1293	1018	-2.7	3.1	-0.1	-4.6	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8817	1.5	0.4	4.0	-0.2	
Renewable energy sources	5273	6133	7959	8124	9129	9737	11487	12990	14843	4.2	1.4	2.3	2.6	
Hydro	934	1111	1261	1185	1199	1207	1213	1225	1234	3.0	-0.5	0.1	0.2	
Biomass & Waste	4338	5021	6691	6924	7838	8425	10059	11407	13022	4.4	1.6	2.5	2.6	
Wind	0	1	7	15	84	84	127	237	449		28.7	4.2	13.5	
Solar and others	0	0	1	1	7	20	89	121	139	3.8	29.6	28.2	4.6	
Geothermal	0	0	0	0	0	0	0	0	0			3.4	0.6	
Net Imports	18031	15542	18512	19163	18556	16953	14986	13202	11856	0.3	0.0	-2.1	-2.3	
Solids	4378	3774	3533	3338	3811	3437	3243	2563	1562	-2.1	0.8	-1.6	-7.0	
Oil	10477	8205	10535	10844	9579	9303	8580	8236	8033	0.1	-0.9	-1.1	-0.7	
- Crude oil and Feedstocks	8890	8548	12115	11017	11484	11316	10866	10646	10515	3.1	-0.5	-0.6	-0.3	
- Oil products	1587	-343	-1580	-173	-1905	-2012	-2286	-2410	-2482					
Natural gas	2261	2839	3422	3598	3875	3137	2657	1986	1781	4.2	1.2	-3.7	-3.9	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	34880	36766	36589	35974	36029	1.2	0.7	0.5	-0.2	
Solids	5327	5950	5087	4925	5454	5021	4868	3856	2581	-0.5	0.7	-1.1	-6.1	
Oil	9939	8344	9195	10482	9077	8802	8077	7732	7528	-0.8	-0.1	-1.2	-0.7	
Natural gas	2261	2839	3422	3598	3875	3137	2657	1986	1781	4.2	1.2	-3.7	-3.9	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8817	1.5	0.4	4.0	-0.2	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9040	9642	11373	12861	14696	3.8	1.3	2.3	2.6	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.6	13.7	13.3	10.7	7.2					
Oil	34.3	28.8	28.3	30.4	26.0	23.9	22.1	21.5	20.9					
Natural gas	7.8	9.8	10.5	10.4	11.1	8.5	7.3	5.5	4.9					
Nuclear	17.3	17.1	17.9	17.4	17.4	24.5	24.6	25.0	24.5					
Renewable energy forms	19.0	21.2	24.5	23.3	25.9	26.2	31.1	35.8	40.8					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	76392	83385	97447	101178	111381	2.6	0.9	2.5	1.3	
Self consumption and grid losses	5547	6510	5449	5710	6407	7243	8699	9502	11127	-0.2	1.6	3.1	2.5	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6916	6365	7678	7769	8380	2.4	0.0	1.0	0.9	
Solids	3216	3882	3168	2974	3553	3183	3157	2258	1077	-0.1	1.2	-1.2	-10.2	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8			
Gas (including derived gases)	1015	1581	2106	2384	2217	1406	1231	860	734	7.6	0.5	-5.7	-5.0	
Biomass & Waste	926	996	1518	2073	1146	1777	3290	4651	6568	5.1	-2.8	11.1	7.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15302	15223	14652	14244	13736	2.4	0.0	-0.4	-0.6	
Refineries	10689	12029	13200	13194	11918	11756	11312	11095	10963	2.1	-1.0	-0.5	-0.3	
Biofuels and hydrogen production	0	0	0	0	101	251	388	438	505			14.4	2.7	
District heating	573	548	803	954	2020	2004	1898	1801	1402	3.4	9.7	-0.6	-3.0	
Derived gases, cokeries etc.	793	1451	1306	1325	1263	1212	1055	910	867	5.1	-0.3	-1.8	-1.9	
Energy Branch Consumption	781	965	1285	1228	1206	1211	1248	1288	1329	5.1	-0.6	0.3	0.6	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26067	26244	26102	25583	25653	1.1	0.8	0.0	-0.2	
by sector														
Industry	9618	9988	12053	11988	12603	12613	12475	12635	12676	2.3	0.4	-0.1	0.2	
- energy intensive industries	7351	7628	9456	9067	9419	9335	9168	9269	9274	2.6	0.0	-0.3	0.1	
- other industrial sectors	2267	2359	2596	2921	3185	3277	3307	3367	3402	1.4	2.1	0.4	0.3	
Residential	5321	5418	4536	4846	4958	4999	5006	4472	4457	-1.6	0.9	0.1	-1.2	
Tertiary	2479	2484	3127	3471	3485	3570	3582	3462	3469	2.3	1.1	0.3	-0.3	
Transport	4309	4151	4443	4816	5021	5062	5038	5014	5051	0.3	1.2	0.0	0.0	
by fuel														
Solids	1621	1277	1099	966	1035	969	923	912	888	-3.8	-0.6	-1.1	-0.4	
Oil	8100	7563	7507	7890	7209	6910	6467	6185	6032	-0.8	-0.4	-1.1	-0.7	
Gas	1501	1523	1328	1156	1480	1606	1056	715	682	-1.2	1.1	-3.3	-4.3	
Electricity	5068	5608	6487	6959	7320	7641	8176	8354	9174	2.5	1.2	1.1	1.2	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3816	3983	4168	4108	3647	3.8	3.2	0.9	-1.3	
Renewable energy forms	3522	3944	4957	4552	5207	5135	5310	5307	5228	3.5	0.5	0.2	-0.2	
Other	0	0	0	0	0	1	1	2	2			13.2	2.0	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8546	8945	10551	11827	13437		1.0	2.1	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.6	63.0	58.3	50.4	42.7	-0.3	-0.3	-1.6	-3.1	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	53.9	49.5	45.6	39.0	32.4	-0.1	0.0	-1.6	-3.4	
Power generation/District heating	17.8	21.8	20.2	20.5	21.8	18.4	17.7	13.1	7.2	1.3	0.8	-2.1	-8.6	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	2.0	1.8	1.7	7.0	-1.7	-1.3	-1.4	
Industry	14.1	12.4	12.5	11.8	10.8	10.4	8.5	7.0	6.7	-1.2	-1.5	-2.4	-2.3	
Residential	6.4	5.9	2.3	2.1	1.8	1.5	1.1	0.9	0.8	-9.6	-2.7	-4.4	-3.8	
Tertiary	2.1	1.7	3.0	3.0	2.8	2.7	2.5	2.6	2.4	3.8	-0.7	-1.1	-0.3	
Transport	12.7	12.2	13.1	14.2	14.5	14.3	13.9	13.7	13.6	0.3	1.1	-0.5	-0.2	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.7	3.5	3.3	3.1	0.1	-0.1	-1.2	-1.2	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.8	9.2	8.1	7.2	-1.2	-1.6	-1.6	-2.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	94.6	86.9	80.4	69.4	58.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Int. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	190.4	181.4	165.4	150.0	141.3	-0.8	-2.0	-1.4	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.35	1.25	1.09	0.90	-1.3	-0.7	-2.1	-3.2
Import Dependency %	61.1	53.1	55.8	54.7	52.4	45.5	40.4	36.2	32.5				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.1	21.2	24.3	27.4	30.1		3.2	2.4	2.2
as % of GDP			10.1	10.5	10.4	10.4	11.0	11.4	11.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	65.8	59.8	56.2	53.6	-2.9	-3.1	-2.0	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	81.9	75.8	70.3	58.5	55.1	-2.7	-2.0	-1.5	-2.4
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	88.0	81.5	74.4	65.9	61.6	1.0	-1.3	-1.7	-1.9
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.2	31.2	29.9	29.5	-0.3	0.3	-0.7	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.0	43.0	41.3	40.1	39.3	-1.7	0.3	-0.6	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.14	0.12	0.09	0.05	-1.6	-1.0	-3.8	-9.0
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.15	1.10	1.00	0.94	0.92	-2.3	-1.1	-1.4	-0.8
Industry	1.46	1.24	1.03	0.98	0.85	0.83	0.68	0.55	0.53	-3.4	-1.9	-2.3	-2.4
Residential	1.21	1.09	0.52	0.43	0.36	0.29	0.23	0.21	0.17	-8.1	-3.5	-4.5	-2.7
Tertiary	0.84	0.70	0.96	0.86	0.80	0.76	0.70	0.75	0.70	1.4	-1.8	-1.4	0.1
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	31.7	32.9	38.9	44.4	50.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.2	8.2	9.4				
Gross Electricity generation by source (in GWh)													
			69976	70536	76392	83385	97447	101178	111381		0.9	2.5	1.3
Nuclear energy			22475	23267	23470	36243	36243	36243	36539		0.4	4.4	0.1
Solids			10359	9486	13718	10273	12747	9333	5255		2.8	-0.7	-8.5
Oil (including refinery gas)			444	419	471	350	267	267	125		0.6	-5.5	-7.3
Gas (including derived gases)			10776	11400	12100	7414	8143	6568	6925		1.2	-3.9	-1.6
Biomass-waste			11185	12010	11706	14080	24452	31741	42937		0.5	7.6	5.8
Hydro (pumping excluded)			14657	13782	13945	14039	14101	14240	14348		-0.5	0.1	0.2
Wind			78	170	975	975	1476	2759	5217		28.7	4.2	13.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18306	18510	19677	20376	23315		0.7	0.7	1.7
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	4236		0.0	4.6	0.1
<u>Renewable energy</u>			3057	3104	3457	3478	3710	4207	5095		1.2	0.7	3.2
Hydro (pumping excluded)			3016	3018	3079	3095	3120	3139	3154		0.2	0.1	0.1
Wind			38	82	370	370	567	1034	1897		25.5	4.4	12.8
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12158	10825	11759	11961	13984		0.7	-0.3	1.7
of which cogeneration units			7129	7583	6842	7089	9388	9625	10160		-0.4	3.2	0.8
Solids fired			5539	5687	5630	4647	3410	2639	1822		0.2	-4.9	-6.1
Gas fired			2479	2444	2753	2666	2637	2488	4471		1.1	-0.4	5.4
Oil fired			1341	1340	1341	602	552	454	176		0.0	-8.5	-10.8
Biomass-waste fired			1942	2247	2433	2909	5161	6380	7515		2.3	7.8	3.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.6	49.2	53.8	53.7	51.6				
Efficiency of gross thermal power generation (%)			40.7	38.0	47.2	43.4	51.1	53.0	56.7				
% of gross electricity from CHP			44.9	45.7	44.8	36.3	45.9	47.0	48.1				
Carbon free gross electricity generation (%)			69.2	69.8	65.6	78.4	78.3	84.0	89.0				
- nuclear			32.1	33.0	30.7	43.5	37.2	35.8	32.8				
- renewable energy forms			37.0	36.8	34.9	34.9	41.1	48.2	56.1				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.4	99.2	102.7	106.5	109.4	0.8	1.5	0.8	0.6
Public road transport	8.5	8.0	7.7	7.4	7.6	7.7	8.0	8.3	8.4	-1.0	-0.2	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.3	71.6	73.3	74.9	75.8	0.9	1.9	0.7	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.4	4.8	5.2	5.6	0.6	0.7	1.4	1.5
Aviation	5.3	6.1	7.9	8.6	9.7	10.7	11.9	13.3	14.7	4.1	2.1	2.1	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.2	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.3	43.4	44.4	45.7	46.6	1.7	0.0	0.5	0.5
Trucks	26.3	24.5	32.0	31.9	32.1	33.1	33.5	34.1	34.6	2.0	0.0	0.4	0.3
Rail	8.4	9.6	10.1	9.7	10.1	10.2	10.8	11.4	11.8	1.9	-0.1	0.7	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5021	5062	5038	5014	5051	0.3	1.2	0.0	0.0
Public road transport	97	84	55	57	58	57	57	57	56	-5.4	0.4	-0.1	-0.2
Private cars and motorcycles	1840	1867	1904	2137	2280	2277	2267	2215	2224	0.3	1.8	-0.1	-0.2
Trucks	1699	1557	1715	1764	1766	1770	1736	1739	1759	0.1	0.3	-0.2	0.1
Rail	99	102	94	97	101	102	101	99	73	-0.6	0.8	-0.1	-3.1
Aviation	459	408	505	565	624	665	686	715	747	1.0	2.1	0.9	0.9
Inland navigation	116	134	170	195	191	191	191	191	190	3.9	1.2	0.0	0.0

Source: PRIMES

Finland: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20315	22105	24678	847	1532	3407	4.4	7.4	16.0
Solids	1581	1207	2129	1584	1625	1018	-95	-128	-687	-5.7	-7.3	-40.3
Oil	0	37	205	0	0	0	0	0	0	-252.2	98.0	-45.5
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	5006	5799	6003	8994	8994	8817	0	0	1036	0.0	0.0	13.3
Renewable energy sources	5273	7959	8124	9737	11487	14843	942	1660	3057	10.7	16.9	25.9
Hydro	934	1261	1185	1207	1213	1234	13	10	0	1.1	0.9	0.0
Biomass & Waste	4338	6691	6924	8425	10059	13022	890	1525	2633	11.8	17.9	25.3
Wind	0	7	15	84	127	449	27	55	320	48.3	76.4	249.8
Solar and others	0	1	1	20	89	139	12	69	104	130.5	360.1	305.9
Geothermal	0	0	0	0	0	0	0	0	0	32.3	52.8	58.5
Net Imports	18031	18512	19163	16953	14986	11856	-2260	-3553	-5475	-11.8	-19.2	-31.6
Solids	4378	3533	3338	3437	3243	1562	-717	-781	-2014	-17.3	-19.4	-56.3
Oil	10477	10535	10844	9303	8580	8033	-347	-736	-1024	-3.6	-7.9	-11.3
- Crude oil and Feedstocks	8890	12115	11017	11316	10866	10515	-209	-455	-647	-1.8	-4.0	-5.8
- Oil products	1587	-1580	-173	-2012	-2286	-2482	-138	-281	-377	7.4	14.0	17.9
Natural gas	2261	3422	3598	3137	2657	1781	-1186	-2018	-2407	-27.4	-43.2	-57.5
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	36766	36589	36029	-1413	-2021	-2067	-3.7	-5.2	-5.4
Solids	5327	5087	4925	5021	4868	2581	-812	-910	-2701	-13.9	-15.7	-51.1
Oil	9939	9195	10482	8802	8077	7528	-347	-736	-1023	-3.8	-8.3	-12.0
Natural gas	2261	3422	3598	3137	2657	1781	-1186	-2018	-2407	-27.4	-43.2	-57.5
Nuclear	5006	5799	6003	8994	8994	8817	0	0	1036	0.0	0.0	13.3
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	9642	11373	14696	932	1643	3028	10.7	16.9	25.9
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	13.7	13.3	7.2	-1.6	-1.7	-6.7			
Oil	34.3	28.3	30.4	23.9	22.1	20.9	0.0	-0.8	-1.6			
Natural gas	7.8	10.5	10.4	8.5	7.3	4.9	-2.8	-4.8	-6.0			
Nuclear	17.3	17.9	17.4	24.5	24.6	24.5	0.9	1.3	4.0			
Renewable energy forms	19.0	24.5	23.3	26.2	31.1	40.8	3.4	5.9	10.2			
Gross Electricity Generation in GWh_e	54367	69976	70536	83385	97447	111381	-6159	-3557	3113	-6.9	-3.5	2.9
Self consumption and grid losses	5547	5449	5710	7243	8699	11127	-469	18	483	-6.1	0.2	4.5
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6365	7678	8380	-633	-707	-1192	-9.0	-8.4	-12.5
Solids	3216	3168	2974	3183	3157	1077	-812	-736	-2503	-20.3	-18.9	-69.9
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	8.7	-100.0
Gas (including derived gases)	1015	2106	2384	1406	1231	734	-827	-1502	-1752	-37.0	-55.0	-70.5
Biomass & Waste	926	1518	2073	1777	3290	6568	1006	1531	3063	130.5	87.1	87.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	12055	15309	15473	15223	14652	13736	-707	-1063	-1468	-4.4	-6.8	-9.7
Refineries	10689	13200	13194	11756	11312	10963	-209	-455	-647	-1.7	-3.9	-5.6
Biofuels and hydrogen production	0	0	0	251	388	505	27	77	54	12.0	24.9	12.1
District heating	573	803	954	2004	1898	1402	-563	-627	-799	-21.9	-24.8	-36.3
Derived gases, cokeries etc.	793	1306	1325	1212	1055	867	38	-58	-76	3.2	-5.2	-8.0
Energy Branch Consumption	781	1285	1228	1211	1248	1329	-51	-48	-63	-4.0	-3.7	-4.6
Non-Energy Uses	1441	896	1095	1212	1233	1258	0	-1	0	0.0	-0.1	0.0
Final Energy Demand	21727	24159	25121	26244	26102	25653	-1029	-1539	-2266	-3.8	-5.6	-8.1
by sector												
Industry	9618	12053	11988	12613	12475	12676	-324	-599	-486	-2.5	-4.6	-3.7
- energy intensive industries	7351	9456	9067	9335	9168	9274	-255	-484	-400	-2.7	-5.0	-4.1
- other industrial sectors	2267	2596	2921	3277	3307	3402	-69	-116	-87	-2.1	-3.4	-2.5
Residential	5321	4536	4846	4999	5006	4457	-256	-323	-919	-4.9	-6.1	-17.1
Tertiary	2479	3127	3471	3570	3582	3469	-275	-323	-492	-7.2	-8.3	-12.4
Transport	4309	4443	4816	5062	5038	5051	-174	-294	-368	-3.3	-5.5	-6.8
by fuel												
Solids	1621	1099	966	969	923	888	-42	-138	-145	-4.1	-13.0	-14.0
Oil	8100	7507	7890	6910	6467	6032	-299	-530	-867	-4.2	-7.6	-12.6
Gas	1501	1328	1156	1606	1056	682	50	-261	-311	3.2	-19.8	-31.3
Electricity	5068	6487	6959	7641	8176	9174	-488	-304	232	-6.0	-3.6	2.6
Heat (from CHP and District Heating)	1915	2780	3597	3983	4168	3647	-309	-536	-1145	-7.2	-11.4	-23.9
Renewable energy forms	3522	4957	4552	5135	5310	5228	58	230	-30	1.1	4.5	-0.6
Other	0	0	0	1	1	2	0	0	-1	4.1	2.6	-27.7
RES in Gross Final Energy Consumption ^(A)		7701	7458	8945	10551	13437	707	1498	2732	8.6	16.6	25.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	63.0	58.3	42.7	-8.2	-12.2	-21.7	-11.5	-17.3	-33.7
CO₂ Emissions (energy related)	54.4	53.8	54.1	49.5	45.6	32.4	-7.1	-10.5	-19.9	-12.5	-18.7	-38.0
Power generation/District heating	17.8	20.2	20.5	18.4	17.7	7.2	-6.1	-7.5	-15.6	-24.8	-29.8	-68.4
Energy Branch	1.4	2.7	2.5	2.2	2.0	1.7	-0.1	-0.2	-0.4	-3.5	-9.1	-17.2
Industry	14.1	12.5	11.8	10.4	8.5	6.7	-0.1	-1.2	-1.4	-0.7	-12.6	-17.2
Residential	6.4	2.3	2.1	1.5	1.1	0.8	-0.1	-0.2	-0.7	-9.2	-17.2	-47.4
Tertiary	2.1	3.0	3.0	2.7	2.5	2.4	-0.1	-0.2	-0.6	-4.5	-8.9	-18.8
Transport	12.7	13.1	14.2	14.3	13.9	13.6	-0.6	-1.1	-1.3	-4.0	-7.3	-8.7
CO₂ Emissions (non energy related)	3.9	3.9	3.9	3.7	3.5	3.1	-0.1	-0.4	-0.6	-2.9	-9.4	-16.4
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.8	9.2	7.2	-1.0	-1.3	-1.2	-9.3	-12.7	-14.5
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	86.9	80.4	58.9	-11.3	-16.8	-29.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	181.4	165.4	141.3	-7.0	-9.1	-8.1	-3.7	-5.2	-5.4
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.35	1.25	0.90	-0.14	-0.21	-0.47	-9.2	-14.2	-34.5
Import Dependency %	61.1	55.8	54.7	45.5	40.4	32.5	-4.2	-7.0	-12.4			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.2	24.3	30.1	0.4	0.8	1.6	2.1	3.5	5.5
as % of GDP		10.1	10.5	10.4	11.0	11.8	0.2	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.8	1.6						
as % of GDP				0.22	0.38	0.63						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	65.8	59.8	53.6	-1.7	-2.9	-2.1	-2.5	-4.6	-3.7
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	75.8	70.3	55.1	-3.9	-4.5	-11.4	-4.9	-6.1	-17.1
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	81.5	74.4	61.6	-6.3	-6.7	-8.7	-7.2	-8.3	-12.4
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.2	31.2	29.5	-0.6	-0.9	-1.3	-1.8	-2.7	-4.1
Freight transport (toe/Mtkm)	50.4	42.6	44.5	43.0	41.3	39.3	-1.3	-2.4	-2.3	-3.0	-5.6	-5.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.14	0.12	0.05	-0.03	-0.04	-0.09	-19.2	-25.1	-66.3
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.10	1.00	0.92	0.01	-0.05	-0.07	0.6	-4.4	-6.9
Industry	1.46	1.03	0.98	0.83	0.68	0.53	0.01	-0.06	-0.09	1.8	-8.5	-14.0
Residential	1.21	0.52	0.43	0.29	0.23	0.17	-0.01	-0.03	-0.10	-4.6	-11.9	-36.5
Tertiary	0.84	0.96	0.86	0.76	0.70	0.70	0.02	0.00	-0.06	2.8	-0.6	-7.3
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.05	-0.06	-0.7	-1.9	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	32.9	38.9	50.2	3.8	7.4	13.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.2	9.4	0.6	1.7	1.6			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	83385	97447	111381	111381	-6159	-3557	3113	-6.9	-3.5	2.9
Nuclear energy	22475	23267	36243	36243	36539	36539	0	0	4718	0.0	0.0	14.8
Solids	10359	9486	10273	12747	5255	5255	-4229	-2433	-9431	-29.2	-16.0	-64.2
Oil (including refinery gas)	444	419	350	267	125	125	-83	-61	25	-19.2	-18.7	25.4
Gas (including derived gases)	10776	11400	7414	8143	6925	6925	-4865	-8414	-9859	-39.6	-50.8	-58.7
Biomass-waste	11185	12010	14080	24452	42937	42937	2548	6590	13934	22.1	36.9	48.0
Hydro (pumping excluded)	14657	13782	14039	14101	14348	14348	153	122	0	1.1	0.9	0.0
Wind	78	170	975	1476	5217	5217	317	639	3725	48.3	76.4	249.8
Solar	2	3	11	18	35	35	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18510	19677	23315	23315	-95	-463	1900	-0.5	-2.3	8.9
<u>Nuclear energy</u>	2687	2690	4207	4207	4236	4236	0	0	545	0.0	0.0	14.8
<u>Renewable energy</u>	3057	3104	3478	3710	5095	5095	126	263	1339	3.7	7.6	35.7
Hydro (pumping excluded)	3016	3018	3095	3120	3154	3154	23	23	23	0.7	0.7	0.7
Wind	38	82	370	567	1897	1897	103	240	1316	38.6	73.6	226.9
Solar	3	4	14	23	44	44	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10825	11759	13984	13984	-221	-726	16	-2.0	-5.8	0.1
of which cogeneration units	7129	7583	7089	9388	10160	10160	-125	330	-530	-1.7	3.6	-5.0
Solids fired	5539	5687	4647	3410	1822	1822	-401	-433	-1109	-7.9	-11.3	-37.8
Gas fired	2479	2444	2666	2637	4471	4471	-325	-1781	-1072	-10.9	-40.3	-19.3
Oil fired	1341	1340	602	552	176	176	-98	-115	-189	-14.0	-17.3	-51.8
Biomass-waste fired	1942	2247	2909	5161	7515	7515	603	1604	2385	26.1	45.1	46.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.2	53.8	51.6	51.6	-3.4	-0.9	-3.0			
Efficiency of gross thermal power generation (%)	40.7	38.0	43.4	51.1	56.7	56.7	-4.2	-0.1	2.3			
% of gross electricity from CHP	44.9	45.7	36.3	45.9	48.1	48.1	-2.4	-0.6	-5.3			
Carbon free gross electricity generation (%)	69.2	69.8	78.4	78.3	89.0	89.0	8.8	10.0	18.1			
- nuclear	32.1	33.0	43.5	37.2	32.8	32.8	3.0	1.3	3.4			
- renewable energy forms	37.0	36.8	34.9	41.1	56.1	56.1	5.8	8.7	14.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	74.8	81.0	88.2	99.2	102.7	109.4	-1.1	-1.8	-2.5	-1.1	-1.7	-2.2
Private cars and motorcycles	8.5	7.7	7.4	7.7	8.0	8.4	0.1	0.2	0.2	1.4	2.0	2.4
Rail	51.9	56.6	63.4	71.6	73.3	75.8	-0.7	-1.2	-1.6	-0.9	-1.6	-2.1
Aviation	3.7	3.9	4.0	4.4	4.8	5.6	0.0	0.1	0.1	0.8	1.2	2.0
Inland navigation	5.3	7.9	8.6	10.7	11.9	14.7	-0.6	-0.8	-1.2	-5.0	-6.6	-7.3
Freight transport activity (Gtkm)	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.3	-0.2	-0.1
Trucks	35.8	42.4	41.8	43.4	44.4	46.6	-0.5	-0.9	-1.1	-1.2	-2.0	-2.4
Rail	26.3	32.0	31.9	33.1	33.5	34.6	-0.7	-1.1	-1.5	-2.1	-3.3	-4.1
Inland navigation	8.4	10.1	9.7	10.2	10.8	11.8	0.2	0.3	0.4	1.8	2.5	3.1
Energy demand in transport (ktoe)	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.4	0.5
Public road transport	4309	4443	4816	5062	5038	5051	-174	-294	-368	-3.3	-5.5	-6.8
Private cars and motorcycles	97	55	57	57	57	56	0	-1	-3	-0.5	-1.3	-4.9
Trucks	1840	1904	2137	2277	2267	2224	-51	-79	-117	-2.2	-3.4	-5.0
Rail	1699	1715	1764	1770	1736	1759	-82	-146	-152	-4.4	-7.8	-8.0
Aviation	99	94	97	102	101	73	0	-1	-2	0.4	-0.9	-2.9
Inland navigation	459	505	565	665	686	747	-40	-65	-90	-5.7	-8.7	-10.8
Inland navigation	116	170	195	191	191	190	-1	-2	-3	-0.6	-0.8	-1.5

Source: PRIMES

France: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	142471	154186	161455	166744	164580	1.8	0.8	1.3	0.2	
Solids	7625	5359	2267	383	384	212	0	0	0	-11.4	-16.3			
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	122699	116090	2.8	0.9	0.5	-0.5	
Renewable energy sources	15778	17903	18065	16695	25497	31699	39058	44045	48490	1.4	3.5	4.4	2.2	
Hydro	4635	6322	5822	4491	6068	6088	6110	6110	6110	2.3	0.4	0.1	0.0	
Biomass & Waste	11014	11434	12087	11968	17952	22440	28050	31364	32757	0.9	4.0	4.6	1.6	
Wind	0	0	7	82	810	1480	2263	3768	6532		61.7	10.8	11.2	
Solar and others	19	15	26	24	420	1408	2287	2474	2808	2.8	32.2	18.5	2.1	
Geothermal	110	132	124	130	248	283	348	330	283	1.2	7.2	3.5	-2.1	
Net Imports	120027	116049	133463	143600	135105	126557	119004	114956	110632	1.1	0.1	-1.3	-0.7	
Solids	13004	9010	13201	13660	13024	6928	6380	6012	5331	0.2	-0.1	-6.9	-1.8	
Oil	86558	85551	90452	94460	90315	88483	83658	82077	80947	0.4	0.0	-0.8	-0.3	
- Crude oil and Feedstocks	76007	78951	84375	84707	83870	82986	80660	79864	79289	1.0	-0.1	-0.4	-0.2	
- Oil products	10551	6600	6077	9753	6444	5497	2999	2213	1659	-5.4	0.6	-7.4	-5.7	
Natural gas	24371	27493	35778	40720	36274	34801	30644	26910	23288	3.9	0.1	-1.7	-2.7	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274666	277701	277313	278438	271832	1.3	0.6	0.1	-0.2	
Solids	19955	15287	15240	14428	13408	7141	6380	6012	5331	-2.7	-1.3	-7.2	-1.8	
Oil	87673	85826	88790	92086	87404	85442	80512	78814	77567	0.1	-0.2	-0.8	-0.4	
Natural gas	26032	29577	35766	40996	36274	34801	30644	26910	23288	3.2	0.1	-1.7	-2.7	
Nuclear	81018	97308	107093	116474	116590	122274	122397	122699	116090	2.8	0.9	0.5	-0.5	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	26220	33144	41659	46953	51526	1.4	3.8	4.7	2.1	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	4.9	2.6	2.3	2.2	2.0					
Oil	38.7	35.8	34.3	33.4	31.8	30.8	29.0	28.3	28.5					
Natural gas	11.5	12.3	13.8	14.9	13.2	12.5	11.1	9.7	8.6					
Nuclear	35.8	40.6	41.4	42.3	42.4	44.0	44.1	44.1	42.7					
Renewable energy forms	7.0	7.5	7.0	6.0	9.5	11.9	15.0	16.9	19.0					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	584160	600109	623384	680211	730142	2.6	0.9	0.7	1.6	
Self consumption and grid losses	48047	53203	56438	59733	57760	57949	60273	72976	84174	1.6	0.2	0.4	3.4	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	9626	5096	7430	11680	13123	1.7	-3.1	-2.6	5.9	
Solids	7334	5441	6231	6402	5703	1	1	15	25	-1.6	-0.9	-58.9	41.1	
Oil (including refinery gas)	1921	605	1272	1653	0	0	0	1	6	-4.0				
Gas (including derived gases)	1423	1216	4062	6291	1188	106	3	724	570	11.1	-11.6	-45.2	69.6	
Biomass & Waste	439	1224	1565	1640	2736	4990	7427	10940	12522	13.6	5.7	10.5	5.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	97237	98194	96904	96334	95875	0.8	0.0	0.0	-0.1	
Refineries	79634	83057	90084	87693	85455	84618	82332	81587	81054	1.2	-0.5	-0.4	-0.2	
Biofuels and hydrogen production	0	155	328	434	4704	6890	8826	9496	9997		30.5	6.5	1.3	
District heating	1019	605	312	273	266	262	270	247	217	-11.1	-1.6	0.2	-2.2	
Derived gases, cokeries etc.	8896	7079	6668	5837	6812	6423	5476	5004	4606	-2.8	0.2	-2.2	-1.7	
Energy Branch Consumption	9230	10345	10689	10095	9425	7641	7213	7533	7914	1.5	-1.3	-2.6	0.9	
Non-Energy Uses	13272	16593	15672	15786	16411	17110	17691	18244	18734	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	160198	163344	161151	159698	158454	1.1	0.5	0.1	-0.2	
by sector														
Industry	36205	36949	36579	35580	36333	37276	37038	36871	37029	0.1	-0.1	0.2	0.0	
- energy intensive industries	24279	21310	22143	20671	20827	20887	20339	19927	19739	-0.9	-0.6	-0.2	-0.3	
- other industrial sectors	11926	15639	14436	14909	15066	16389	16700	16943	17291	1.9	0.7	0.7	0.3	
Residential	36375	36198	42516	45491	46158	46471	45957	44452	42264	1.6	0.8	0.0	-0.8	
Tertiary	21726	24164	21620	25696	26581	26924	25813	25312	24434	0.0	2.1	-0.3	-0.5	
Transport	41908	44125	51599	49756	51125	52674	52343	53063	54726	2.1	-0.1	0.2	0.4	
by fuel														
Solids	9017	6905	5775	4685	4060	3694	3535	3428	2923	-4.4	-3.5	-1.4	-1.9	
Oil	67377	67964	71964	71245	69959	67883	63121	61048	59501	0.7	-0.3	-1.0	-0.6	
Gas	23400	27098	30880	33902	32917	32094	28962	24287	20613	2.8	0.6	-1.3	-3.3	
Electricity	25960	29456	33096	36330	37627	40453	43098	48221	52529	2.5	1.3	1.4	2.0	
Heat (from CHP and District Heating)	774	459	237	207	233	236	263	252	232	-11.1	-0.2	1.2	-1.3	
Renewable energy forms	9686	9553	10364	10153	15398	18976	22162	22444	22635	0.7	4.0	3.7	0.2	
Other	0	0	0	0	4	8	11	18	20			11.2	5.9	
RES in Gross Final Energy Consumption (A)			16928	15420	24744	30989	38755	43576	47850		3.9	4.6	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	519.7	477.6	445.1	419.4	397.4	-0.1	-0.8	-1.5	-1.1	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	348.2	312.3	283.7	267.3	251.3	0.6	-0.7	-2.0	-1.2	
Power generation/District heating	40.1	27.6	39.6	46.7	25.4	0.3	0.0	2.1	1.8	-0.1	-4.4			
Energy Branch	17.1	19.1	19.6	16.6	14.9	14.0	8.8	8.3	8.0	1.4	-2.7	-5.1	-0.9	
Industry	79.1	76.1	70.1	66.0	68.8	66.9	60.0	55.0	49.0	-1.2	-0.2	-1.4	-2.0	
Residential	55.2	52.2	61.5	64.8	60.9	56.3	50.8	41.2	32.1	1.1	-0.1	-1.8	-4.5	
Tertiary	39.2	40.9	32.1	39.2	38.9	36.3	31.7	28.0	24.6	-2.0	1.9	-2.0	-2.5	
Transport	122.1	129.0	150.6	145.2	139.3	138.6	132.5	132.8	135.9	2.1	-0.8	-0.5	0.3	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	31.2	30.1	29.2	28.5	27.9	-1.8	0.1	-0.7	-0.5	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	135.2	132.1	123.6	118.1	-1.1	-1.1	-0.6	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	92.0	84.6	78.8	74.2	70.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	France: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.9	127.5	113.9	103.8	93.5	-0.7	-1.3	-2.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.27	1.12	1.02	0.96	0.92	-0.8	-1.3	-2.1	-1.0
Import Dependency %	52.4	47.9	50.9	51.6	48.7	45.1	42.4	40.8	40.2				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	166.2	188.1	211.9	229.6	249.4		1.7	2.5	1.6
as % of GDP			8.9	8.6	8.6	8.6	8.7	8.6	8.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.1	75.1	66.7	60.2	55.8	-1.5	-1.8	-2.2	-1.8
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.3	80.3	72.4	64.6	57.3	-0.1	-1.2	-2.0	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	90.5	77.6	69.0	61.3	-2.3	0.1	-2.6	-2.3
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.5	27.5	26.0	25.2	-0.2	-1.8	-1.1	-0.9
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	73.7	70.6	68.2	66.2	0.8	0.7	-0.6	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.04	0.00	0.00	0.00	0.00	-2.4	-5.2		
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.92	1.82	1.71	1.61	1.52	-0.5	-0.7	-1.2	-1.1
Industry	2.18	2.06	1.92	1.85	1.89	1.80	1.62	1.49	1.32	-1.3	-0.1	-1.6	-2.0
Residential	1.52	1.44	1.45	1.43	1.32	1.21	1.10	0.93	0.76	-0.5	-0.9	-1.8	-3.7
Tertiary	1.81	1.69	1.48	1.53	1.46	1.35	1.23	1.11	1.01	-2.0	-0.1	-1.7	-2.0
Transport	2.91	2.92	2.92	2.92	2.73	2.63	2.53	2.50	2.48	0.0	-0.7	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	15.0	18.4	23.3	26.3	29.0				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	8.9	12.7	16.5	17.6	18.1				
Gross Electricity generation by source (in GWh)													
			536004	570542	584160	600109	623384	680211	730142		0.9	0.7	1.6
Nuclear energy			415087	451448	451980	475395	475869	480825	490511		0.9	0.5	0.3
Solids			25644	27018	24230	90	5	86	141		-0.6	-57.6	41.0
Oil (including refinery gas)			6896	7042	1838	1559	0	385	620		-12.4		
Gas (including derived gases)			16214	26341	14775	12613	8176	15995	11092		-0.9	-5.7	3.1
Biomass-waste			4381	5496	10850	21890	40404	65881	77846		9.5	14.1	6.8
Hydro (pumping excluded)			67698	52224	70554	70792	71050	71050	71050		0.4	0.1	0.0
Wind			77	959	9415	17208	26317	43809	75956		61.7	10.8	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1382	1882	2434			11.6	5.8
Net Generation Capacity in MW_e			111945	113154	115255	119299	124121	130179	152730		0.3	0.7	2.1
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	55993	56908		0.0	0.3	-1.3
<u>Renewable energy</u>			25092	26102	29671	32989	36582	43647	56205		1.7	2.1	4.4
Hydro (pumping excluded)			25016	25313	25659	25718	25782	25824	25889		0.3	0.0	0.0
Wind			66	756	3704	6914	9876	16518	28511		49.6	10.3	11.2
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	717	976	1263			11.6	5.8
<u>Thermal power</u>			24306	24482	22773	21743	22851	30539	39617		-0.6	0.0	5.7
of which cogeneration units			4205	5546	4696	5910	8908	13436	15158		1.1	6.6	5.5
Solids fired			9912	9150	4273	4039	3755	3670	2436		-8.1	-1.3	-4.2
Gas fired			4408	5210	8538	7922	7836	11887	20694		6.8	-0.9	10.2
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	2616	4682	9100	13335	15101		11.8	13.3	5.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	55.5	55.3	55.3	57.5	52.4				
Efficiency of gross thermal power generation (%)			34.8	35.5	46.2	61.0	56.2	60.6	58.8				
% of gross electricity from CHP			3.1	2.9	4.5	5.9	7.8	11.5	11.9				
Carbon free gross electricity generation (%)			90.9	89.4	93.0	97.6	98.7	97.6	98.4				
- nuclear			77.4	79.1	77.4	79.2	76.3	70.7	67.2				
- renewable energy forms			13.5	10.3	15.6	18.4	22.4	26.9	31.2				
Transport sector													
Passenger transport activity (Gpkm)													
	746.0	799.7	886.4	940.3	994.2	1051.6	1101.4	1162.4	1225.5	1.7	1.2	1.0	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	49.9	54.3	58.3	62.0	0.3	1.0	1.5	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	811.2	829.3	857.9	886.0	1.7	0.9	0.6	0.7
Rail	73.9	64.6	80.7	89.7	99.5	113.3	126.7	139.3	152.9	0.9	2.1	2.5	1.9
Aviation	26.1	34.1	46.0	53.1	62.0	73.5	87.0	102.8	120.0	5.8	3.0	3.5	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.3	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)													
	211.8	233.0	268.4	254.9	273.4	294.5	312.7	335.4	359.7	2.4	0.2	1.4	1.4
Trucks	153.5	178.2	204.0	205.3	228.6	249.3	265.1	284.6	304.9	2.9	1.1	1.5	1.4
Rail	50.7	48.1	55.3	40.7	35.9	36.4	38.6	41.6	45.5	0.9	-4.2	0.7	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.8	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)													
	41908	44125	51599	49756	51125	52674	52343	53063	54726	2.1	-0.1	0.2	0.4
Public road transport	384	403	417	424	425	436	453	441	427	0.8	0.2	0.6	-0.6
Private cars and motorcycles	23233	22171	24945	23052	22738	22582	21825	21526	21731	0.7	-0.9	-0.4	0.0
Trucks	12587	14909	17407	18419	19448	20660	21074	21920	22991	3.3	1.1	0.8	0.9
Rail	1150	1220	1373	1264	1171	1163	1126	1059	958	1.8	-1.6	-0.4	-1.6
Aviation	3839	4690	6683	6291	7047	7539	7562	7802	8299	5.7	0.5	0.7	0.9
Inland navigation	714	731	775	305	298	294	303	314	321	0.8	-9.1	0.2	0.6

Source: PRIMES

France: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	154186	161455	164580	9937	14187	22776	6.9	9.6	16.1
Solids	7625	2267	383	212	0	0	-4	-15	-14	-1.6	-100.0	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0		-100.0	-100.0
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	116090	0	0	2904	0.0	0.0	2.6
Renewable energy sources	15778	18065	16695	31699	39058	48490	9941	14202	19885	45.7	57.1	69.5
Hydro	4635	5822	4491	6088	6110	6110	637	543	0	11.7	9.8	0.0
Biomass & Waste	11014	12087	11968	22440	28050	32757	7794	11303	13239	53.2	67.5	67.8
Wind	0	7	82	1480	2263	6532	331	464	4510	28.8	25.8	223.1
Solar and others	19	26	24	1408	2287	2808	1031	1682	1986	273.0	278.0	241.9
Geothermal	110	124	130	283	348	283	148	210	150	110.1	152.7	112.4
Net Imports	120027	133463	143600	126557	119004	110632	-21379	-30958	-38948	-14.5	-20.6	-26.0
Solids	13004	13201	13660	6928	6380	5331	-7022	-6925	-2132	-50.3	-52.0	-28.6
Oil	86558	90452	94460	88483	83658	80947	-8343	-13867	-18766	-8.6	-14.2	-18.8
- Crude oil and Feedstocks	76007	84375	84707	82986	80660	79289	-4864	-7789	-11036	-5.5	-8.8	-12.2
- Oil products	10551	6077	9753	5497	2999	1659	-3479	-6078	-7731	-38.8	-67.0	-82.3
Natural gas	24371	35778	40720	34801	30644	23288	-7527	-12844	-21177	-17.8	-29.5	-47.6
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	277701	277313	271832	-11435	-16753	-16143	-4.0	-5.7	-5.6
Solids	19955	15240	14428	7141	6380	5331	-7025	-6940	-2145	-49.6	-52.1	-28.7
Oil	87673	88790	92086	85442	80512	77567	-8336	-13848	-18738	-8.9	-14.7	-19.5
Natural gas	26032	35766	40996	34801	30644	23288	-7527	-12844	-21177	-17.8	-29.5	-47.6
Nuclear	81018	107093	116474	122274	122397	116090	0	0	2904	0.0	0.0	2.6
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	33144	41659	51526	11453	16879	23012	52.8	68.1	80.7
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	2.6	2.3	2.0	-2.3	-2.2	-0.6			
Oil	38.7	34.3	33.4	30.8	29.0	28.5	-1.7	-3.1	-4.9			
Natural gas	11.5	13.8	14.9	12.5	11.1	8.6	-2.1	-3.7	-6.9			
Nuclear	35.8	41.4	42.3	44.0	44.1	42.7	1.7	2.5	3.4			
Renewable energy forms	7.0	7.0	6.0	11.9	15.0	19.0	4.4	6.6	9.1			
Gross Electricity Generation in GWh_e	416667	536004	570542	600109	623384	730142	-24941	-13866	98568	-4.0	-2.2	15.6
Self consumption and grid losses	48047	56438	59733	57949	60273	84174	-5784	-4582	14939	-9.1	-7.1	21.6
Fuel Inputs to Thermal Power Generation	11117	13129	15985	5096	7430	13123	-7424	-5703	4543	-59.3	-43.4	53.0
Solids	7334	6231	6402	1	1	25	-6875	-6441	-1263	-100.0	-100.0	-98.1
Oil (including refinery gas)	1921	1272	1653	0	0	6	0	-13	3		-100.0	99.4
Gas (including derived gases)	1423	4062	6291	106	3	570	-4363	-4308	-2525	-97.6	-99.9	-81.6
Biomass & Waste	439	1565	1640	4990	7427	12522	3815	5058	8328	324.7	213.6	198.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	98194	96904	95875	-997	-3194	-7022	-1.0	-3.2	-6.8
Refineries	79634	90084	87693	84618	82332	81054	-4864	-7789	-11035	-5.4	-8.6	-12.0
Biofuels and hydrogen production	0	328	434	6890	8826	9997	3652	4650	4384	112.8	111.3	78.1
District heating	1019	312	273	262	270	217	-29	-33	-95	-9.8	-10.9	-30.4
Derived gases, cokeries etc.	8896	6668	5837	6423	5476	4606	244	-22	-276	4.0	-0.4	-5.7
Energy Branch Consumption	9230	10689	10095	7641	7213	7914	-381	-530	149	-4.8	-6.8	1.9
Non-Energy Uses	13272	15672	15786	17110	17691	18734	0	2	4	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	163344	161151	158454	-7154	-13281	-20950	-4.2	-7.6	-11.7
by sector												
Industry	36205	36579	35580	37276	37038	37029	-455	-1610	-2763	-1.2	-4.2	-6.9
- energy intensive industries	24279	22143	20671	20887	20339	19739	-232	-875	-1411	-1.1	-4.1	-6.7
- other industrial sectors	11926	14436	14909	16389	16700	17291	-223	-735	-1352	-1.3	-4.2	-7.3
Residential	36375	42516	45491	46471	45957	42264	-1565	-2280	-6061	-3.3	-4.7	-12.5
Tertiary	21726	21620	25696	26924	25813	24434	-2615	-4374	-6127	-8.9	-14.5	-20.0
Transport	41908	51599	49756	52674	52343	54726	-2519	-5017	-6030	-4.6	-8.7	-9.9
by fuel												
Solids	9017	5775	4685	3694	3535	2923	-351	-617	-891	-8.7	-14.9	-23.4
Oil	67377	71964	71245	67883	63121	59501	-8156	-13227	-17670	-10.7	-17.3	-22.9
Gas	23400	30880	33902	32094	28962	20613	-2985	-6899	-17459	-8.5	-19.2	-45.9
Electricity	25960	33096	36330	40453	43098	52529	-1629	-763	7229	-3.9	-1.7	16.0
Heat (from CHP and District Heating)	774	237	207	236	263	232	-26	-14	-61	-10.0	-5.1	-20.9
Renewable energy forms	9686	10364	10153	18976	22162	22635	5992	8242	7871	46.1	59.2	53.3
Other	0	0	0	8	11	20	1	-3	2	14.3	-21.0	8.8
RES in Gross Final Energy Consumption ^(A)		16928	15420	30989	38755	47850	10209	15423	20941	49.1	66.1	77.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	477.6	445.1	397.4	-78.1	-110.7	-125.9	-14.1	-19.9	-24.1
CO₂ Emissions (energy related)	352.9	373.5	378.4	312.3	283.7	251.3	-70.5	-99.1	-113.9	-18.4	-25.9	-31.2
Power generation/District heating	40.1	39.6	46.7	0.3	0.0	1.8	-38.7	-36.9	-11.9	-99.4	-100.0	-87.2
Energy Branch	17.1	19.6	16.6	14.0	8.8	8.0	0.1	-4.4	-4.6	1.0	-33.2	-36.6
Industry	79.1	70.1	66.0	66.9	60.0	49.0	-2.2	-8.4	-19.4	-3.1	-12.3	-28.3
Residential	55.2	61.5	64.8	56.3	50.8	32.1	-7.6	-12.7	-30.9	-11.9	-20.0	-49.0
Tertiary	39.2	32.1	39.2	36.3	31.7	24.6	-5.5	-9.6	-16.3	-13.1	-23.2	-39.9
Transport	122.1	150.6	145.2	138.6	132.5	135.9	-16.7	-27.2	-30.7	-10.8	-17.1	-18.5
CO ₂ Emissions (non energy related)	36.8	30.7	31.1	30.1	29.2	27.9	-0.2	-1.1	-2.1	-0.5	-3.7	-7.1
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	135.2	132.1	118.1	-7.5	-10.5	-9.8	-5.2	-7.3	-7.7
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	84.6	78.8	70.3	-13.8	-19.6	-22.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							France: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	127.5	113.9	93.5	-5.2	-6.9	-5.6	-4.0	-5.7	-5.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.12	1.02	0.92	-0.20	-0.28	-0.34	-15.1	-21.4	-27.1
Import Dependency %	52.4	50.9	51.6	45.1	42.4	40.2	-5.6	-8.0	-11.1			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	188.1	211.9	249.4	10.2	16.8	29.0	5.7	8.6	13.1
as % of GDP		8.9	8.6	8.6	8.7	8.6	0.5	0.7	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				10.3	17.0	29.2						
as % of GDP				0.47	0.70	1.00						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.1	66.7	55.8	-0.9	-2.9	-4.2	-1.2	-4.2	-6.9
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	80.3	72.4	57.3	-2.7	-3.6	-8.2	-3.3	-4.7	-12.5
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	90.5	77.6	61.3	-8.8	-13.2	-15.4	-8.9	-14.5	-20.0
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.5	27.5	25.2	-0.7	-1.4	-0.6	-2.4	-4.9	-2.4
Freight transport (toe/Mtkm)	65.0	70.2	76.8	73.7	70.6	66.2	-2.4	-4.8	-7.5	-3.1	-6.3	-10.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.00	0.00	0.00	-0.06	-0.06	-0.02	-99.3	-100.0	-88.9
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.82	1.71	1.52	-0.11	-0.20	-0.36	-5.7	-10.6	-19.3
Industry	2.18	1.92	1.85	1.80	1.62	1.32	-0.04	-0.15	-0.39	-1.9	-8.5	-23.0
Residential	1.52	1.45	1.43	1.21	1.10	0.76	-0.12	-0.21	-0.54	-8.9	-16.0	-41.7
Tertiary	1.81	1.48	1.53	1.35	1.23	1.01	-0.07	-0.14	-0.33	-4.6	-10.1	-24.8
Transport	2.91	2.92	2.92	2.63	2.53	2.48	-0.18	-0.25	-0.26	-6.5	-9.1	-9.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	18.4	23.3	29.0	6.6	10.3	14.4			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	12.7	16.5	18.1	7.0	9.3	8.9			
Gross Electricity generation by source (in GWh_e)												
	536004	570542	600109	623384	730142	730142	-24941	-13866	98568	-4.0	-2.2	15.6
Nuclear energy	415087	451448	475395	475869	490511	490511	0	0	13195	0.0	0.0	2.8
Solids	25644	27018	90	5	141	141	-31848	-29963	-7188	-99.7	-100.0	-98.1
Oil (including refinery gas)	6896	7042	1559	0	620	620	-163	-1640	-2863	-9.5	-100.0	-82.2
Gas (including derived gases)	16214	26341	12613	8176	11092	11092	-20449	-23786	-17109	-61.9	-74.4	-60.7
Biomass-waste	4381	5496	21890	40404	77846	77846	16266	28894	58115	289.2	251.0	294.5
Hydro (pumping excluded)	67698	52224	70792	71050	71050	71050	7404	6313	0	11.7	9.8	0.0
Wind	77	959	17208	26317	75956	75956	3848	5396	52447	28.8	25.8	223.1
Solar	6	15	99	181	492	492	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	1382	2434	2434	0	919	1971	0.0	198.7	426.2
Net Generation Capacity in MW_e	111945	113154	119299	124121	152730	152730	1120	5926	37645	0.9	5.0	32.7
<u>Nuclear energy</u>	62547	62570	64567	64687	56908	56908	0	0	1536	0.0	0.0	2.8
<u>Renewable energy</u>	25092	26102	32989	36582	56205	56205	1605	2722	20897	5.1	8.0	59.2
Hydro (pumping excluded)	25016	25313	25718	25782	25889	25889	312	312	111	1.2	1.2	0.4
Wind	66	756	6914	9876	28511	28511	1292	1932	19763	23.0	24.3	225.9
Solar	11	33	117	207	542	542	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	717	1263	1263	0	477	1023	0.0	198.7	426.2
<u>Thermal power</u>	24306	24482	21743	22851	39617	39617	-485	3204	15212	-2.2	16.3	62.3
of which cogeneration units	4205	5546	5910	8908	15158	15158	-1587	891	3649	-21.2	11.1	31.7
Solids fired	9912	9150	4039	3755	2436	2436	0	-19	-19	0.0	-0.5	-0.8
Gas fired	4408	5210	7922	7836	20694	20694	-3607	-3506	7194	-31.3	-30.9	53.3
Oil fired	9128	8975	5100	2160	1387	1387	0	0	-2795	0.0	0.0	-66.8
Biomass-waste fired	860	1147	4682	9100	15101	15101	3122	6729	10831	200.1	283.7	253.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	52.2	54.9	55.3	55.3	52.4	52.4	-2.8	-4.0	-7.7			
Efficiency of gross thermal power generation (%)	34.8	35.5	61.0	56.2	58.8	58.8	11.3	7.1	-0.1			
% of gross electricity from CHP	3.1	2.9	5.9	7.8	11.9	11.9	-0.4	1.3	3.8			
Carbon free gross electricity generation (%)	90.9	89.4	97.6	98.7	98.4	98.4	8.3	8.7	4.6			
- nuclear	77.4	79.1	79.2	76.3	67.2	67.2	3.2	1.7	-8.4			
- renewable energy forms	13.5	10.3	18.4	22.4	31.2	31.2	5.1	7.0	12.9			
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1051.6	1101.4	1225.5	-18.4	-35.2	-48.0	-1.7	-3.1	-3.8
Public road transport	41.3	42.4	44.0	49.9	54.3	62.0	0.8	1.5	2.1	1.6	2.8	3.4
Private cars and motorcycles	599.7	713.2	749.5	811.2	829.3	886.0	-19.1	-37.4	-53.0	-2.3	-4.3	-5.6
Rail	73.9	80.7	89.7	113.3	126.7	152.9	3.3	5.7	10.3	3.0	4.7	7.2
Aviation	26.1	46.0	53.1	73.5	87.0	120.0	-3.4	-4.9	-7.3	-4.4	-5.4	-5.8
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-0.8	-0.4	-0.2
Freight transport activity (Gtkm)	211.8	268.4	254.9	294.5	312.7	359.7	-6.5	-12.5	-18.2	-2.2	-3.8	-4.8
Trucks	153.5	204.0	205.3	249.3	265.1	304.9	-8.3	-15.2	-22.3	-3.2	-5.4	-6.8
Rail	50.7	55.3	40.7	36.4	38.6	45.5	1.7	2.6	3.9	4.9	7.1	9.5
Inland navigation	7.6	9.1	8.9	8.8	9.0	9.3	0.1	0.2	0.2	0.8	1.8	2.3
Energy demand in transport (ktoe)	41908	51599	49756	52674	52343	54726	-2519	-5017	-6030	-4.6	-8.7	-9.9
Public road transport	384	417	424	436	453	427	-1	-3	-26	-0.3	-0.7	-5.8
Private cars and motorcycles	23233	24945	23052	22582	21825	21731	-778	-1364	-144	-3.3	-5.9	-0.7
Trucks	12587	17407	18419	20660	21074	22991	-1212	-2462	-4065	-5.5	-10.5	-15.0
Rail	1150	1373	1264	1163	1126	958	11	18	20	0.9	1.6	2.1
Aviation	3839	6683	6291	7539	7562	8299	-536	-1205	-1814	-6.6	-13.7	-17.9
Inland navigation	714	775	305	294	303	321	-2	-1	0	-0.6	-0.5	0.0

Source: PRIMES

Germany: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	117419	111223	96555	93380	94555	-3.3	-1.3	-1.9	-0.2	
Solids	125210	78868	59628	56514	42607	37368	33017	37298	36597	-7.2	-3.3	-2.5	1.0	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	24731	33187	41541	46082	49459	5.4	8.8	5.3	1.8	
Hydro	1498	1873	1869	1684	1889	1889	1889	1889	1889	2.2	0.1	0.0	0.0	
Biomass & Waste	4797	5351	7877	12190	17411	22815	28571	31310	32445	5.1	8.3	5.1	1.3	
Wind	6	147	804	2341	3660	4486	6224	7882	9717	62.9	16.4	5.5	4.6	
Solar and others	11	41	96	365	1438	3589	4454	4616	5054	24.3	31.1	12.0	1.3	
Geothermal	7	9	10	138	334	410	404	385	353	3.4	42.4	1.9	-1.3	
Net Imports	164822	195060	204678	214351	204814	203600	206599	207060	205509	2.2	0.0	0.1	-0.1	
Solids	2881	10931	21576	26781	31469	33123	37651	39890	40290	22.3	3.8	1.8	0.7	
Oil	120126	130810	125974	122228	109372	106625	103121	102331	98656	0.5	-1.4	-0.6	-0.4	
- Crude oil and Feedstocks	88505	101168	101801	113120	108639	107346	105766	106500	104660	1.4	0.7	-0.3	-0.1	
- Oil products	31621	29643	24173	9108	733	-721	-2646	-4168	-6004	-2.7	-29.5			
Natural gas	41747	52904	56865	65734	63438	62914	61710	60386	61985	3.1	1.1	-0.3	0.0	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319678	312192	300449	297665	297229	-0.4	-0.6	-0.6	-0.1	
Solids	131510	92177	83727	82805	74076	70491	70669	77188	76887	-4.4	-1.2	-0.5	0.8	
Oil	124248	133627	129918	123409	109677	106525	102615	99556	95820	0.4	-1.7	-0.7	-0.7	
Natural gas	54976	67298	71853	80856	76938	74914	72710	70386	70485	2.7	0.7	-0.6	-0.3	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	24731	33187	44295	49100	52586	5.4	8.8	6.0	1.7	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.2	22.6	23.5	25.9	25.9					
Oil	35.0	39.5	38.2	35.7	34.3	34.1	34.2	33.4	32.2					
Natural gas	15.5	19.9	21.1	23.4	24.1	24.0	24.2	23.6	23.7					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.4	2.9	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	7.7	10.6	14.7	16.5	17.7					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	582935	572189	575801	632157	736486	0.4	0.3	-0.1	2.5	
Self consumption and grid losses	65998	62673	74099	72965	66691	63596	64922	76172	115922	1.2	-1.0	-0.3	6.0	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72183	71577	79754	91927	98286	-0.9	-1.7	1.0	2.1	
Solids	75843	69147	68066	66172	57736	55088	56285	63359	64381	-1.1	-1.6	-0.3	1.4	
Oil (including refinery gas)	2871	2083	1108	2038	197	62	114	111	50	-9.1	-15.8	-5.3	-7.8	
Gas (including derived gases)	12676	11982	12906	19233	9799	9983	11645	12783	15830	0.2	-2.7	1.7	3.1	
Biomass & Waste	1824	2665	3174	5102	4402	6387	11648	15611	17962	5.7	3.3	10.2	4.4	
Geothermal heat	0	0	0	0	49	57	61	63	63			2.4	0.3	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	140674	139053	137627	134378	130897	-1.8	0.3	-0.2	-0.5	
Refineries	106658	116715	119856	127082	119031	117285	115010	113111	110817	1.2	-0.1	-0.3	-0.4	
Biofuels and hydrogen production	0	31	222	1942	4948	6857	8922	9022	9209		36.4	6.1	0.3	
District heating	6389	3638	1435	873	3212	2174	2292	1783	1579	-13.9	8.4	-3.3	-3.7	
Derived gases, cokeries etc.	51565	19819	15423	14625	13484	12737	11404	10461	9292	-11.4	-1.3	-1.7	-2.0	
Energy Branch Consumption	15384	14906	14242	15144	13233	12379	11665	11735	14303	-0.8	-0.7	-1.3	2.1	
Non-Energy Uses	23249	22912	25272	24779	24685	24676	24600	24173	23814	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	222379	220163	218010	217856	218526	215172	213203	211195	-0.4	-0.1	-0.1	-0.2	
by sector														
Industry	72116	61981	59715	56706	57082	55303	52284	51335	51246	-1.9	-0.4	-0.9	-0.2	
- energy intensive industries	49422	42778	40359	38652	38647	37266	34671	33499	32978	-2.0	-0.4	-1.1	-0.5	
- other industrial sectors	22693	19203	19356	18053	18435	18038	17612	17836	18268	-1.6	-0.5	-0.5	0.4	
Residential	58400	62212	61905	65931	66045	67152	67181	66712	66049	0.6	0.6	0.2	-0.2	
Tertiary	39361	35275	32547	33416	32010	31977	31606	30929	30155	-1.9	-0.2	-0.1	-0.5	
Transport	58494	62910	65997	61958	62719	64094	64101	64227	63745	1.2	-0.5	0.2	-0.1	
by fuel														
Solids	38693	14917	10951	9639	9986	9352	8884	8738	7895	-11.9	-0.9	-1.2	-1.2	
Oil	96422	104474	98052	87411	79939	77296	73210	71202	68765	0.2	-2.0	-0.9	-0.6	
Gas	42724	52595	58030	61814	63786	63141	60161	56899	53493	3.1	1.0	-0.6	-1.2	
Electricity	38391	38912	41496	44497	43536	43410	44331	48441	54036	0.8	0.5	0.2	2.0	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7444	7351	7544	7734	7515	-2.9	0.9	0.1	0.0	
Renewable energy forms	2991	2734	4804	7222	13160	17967	21021	20166	19468	4.9	10.6	4.8	-0.8	
Other	0	0	0	0	5	8	20	23	23			15.5	1.8	
RES in Gross Final Energy Consumption (A)			8812	13195	22796	30955	40586	44769	48057	10.0	5.9	1.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	920.4	881.6	857.0	847.7	706.8	-1.7	-1.2	-0.7	-1.9	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	724.2	697.0	682.8	697.3	576.2	-1.5	-1.3	-0.6	-1.7	
Power generation/District heating	375.1	328.9	316.2	325.0	267.0	253.7	263.0	293.2	192.3	-1.7	-1.7	-0.2	-3.1	
Energy Branch	26.2	27.7	27.1	28.9	23.4	21.5	19.5	18.3	17.4	0.3	-1.5	-1.8	-1.1	
Industry	170.5	130.6	118.3	105.6	103.4	98.4	88.6	85.6	81.4	-3.6	-1.3	-1.5	-0.8	
Residential	134.3	127.4	117.7	120.0	112.0	107.2	102.3	94.8	86.5	-1.3	-0.5	-0.9	-1.7	
Tertiary	84.7	64.1	53.1	51.1	48.7	46.8	44.5	40.7	36.5	-4.6	-0.8	-0.9	-2.0	
Transport	168.9	181.9	190.9	174.3	169.8	169.4	164.9	164.7	162.2	1.2	-1.2	-0.3	-0.2	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.4	76.5	73.9	71.9	68.2	-0.2	-0.8	-0.3	-0.8	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	108.1	100.2	78.4	62.4	-3.7	-1.1	-1.8	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.2	71.1	69.1	68.4	57.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Germany: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.4	115.1	102.6	95.5	90.7	-2.1	-1.9	-2.3	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.27	2.23	2.27	2.34	1.94	-1.1	-0.7	0.0	-1.6
Import Dependency %	46.1	57.3	59.8	61.6	63.6	64.7	68.1	68.9	68.5				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	259.0	279.8	303.5	316.9	331.2		2.6	1.6	0.9
as % of GDP			9.2	10.5	10.5	10.3	10.4	10.2	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	70.6	61.4	56.3	53.2	-2.8	-2.2	-2.6	-1.4
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.8	90.6	84.5	79.1	74.5	-1.3	-0.3	-1.3	-1.3
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.0	75.5	68.8	62.9	58.1	-4.3	-1.7	-2.0	-1.7
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	36.0	34.0	32.2	30.5	-1.2	-1.6	-1.1	-1.1
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	31.2	30.2	29.5	28.6	0.6	-2.4	-0.7	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.39	0.38	0.39	0.40	0.23	-1.4	-2.0	0.0	-5.1
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	1.99	1.93	1.86	1.81	1.74	-1.1	-0.9	-0.7	-0.7
Industry	2.36	2.11	1.98	1.86	1.81	1.78	1.70	1.67	1.59	-1.8	-0.9	-0.7	-0.6
Residential	2.30	2.05	1.90	1.82	1.70	1.60	1.52	1.42	1.31	-1.9	-1.1	-1.1	-1.5
Tertiary	2.15	1.82	1.63	1.53	1.52	1.46	1.41	1.31	1.21	-2.7	-0.7	-0.8	-1.5
Transport	2.89	2.89	2.89	2.81	2.71	2.64	2.57	2.56	2.55	0.0	-0.7	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	10.2	13.8	18.3	20.3	21.7				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	7.9	10.8	14.0	14.3	14.8				
Gross Electricity generation by source (in GWh)													
			567219	613054	582935	572189	575801	632157	736486	0.3	-0.1	2.5	
Nuclear energy			169575	163026	130723	101327	34100	0	0	-2.6	-12.6		
Solids			286571	262420	293285	280826	289735	334761	386956	0.2	-0.1	2.9	
Oil (including refinery gas)			5476	23814	1038	1037	6830	6663	6375	-15.3	20.7	-0.7	
Gas (including derived gases)			64676	96524	72082	77906	84720	92669	116278	1.1	1.6	3.2	
Biomass-waste			9782	19186	18732	33539	62013	79892	86964	6.7	12.7	3.4	
Hydro (pumping excluded)			21728	19577	21960	21960	21960	21960	21960	0.1	0.0	0.0	
Wind			9350	27224	42553	52161	72374	91653	112990	16.4	5.5	4.6	
Solar			60	1282	2505	3366	3997	4486	4891	45.2	4.8	2.0	
Geothermal and other renewables			0	0	56	66	71	73	73		2.4	0.3	
Net Generation Capacity in MW_e			112509	122874	130673	128312	136751	149844	163537	1.5	0.5	1.8	
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0	-3.1	-12.5		
<u>Renewable energy</u>			9611	23545	30334	34410	42355	49717	54486	12.2	3.4	2.6	
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862	0.7	0.3	0.2	
Wind			6113	18428	23976	27055	34262	41060	45359	14.6	3.6	2.8	
Solar			90	1537	2697	3624	4303	4829	5266	40.5	4.8	2.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	84731	81737	90290	100127	109051	0.4	0.6	1.9	
of which cogeneration units			40073	37870	29521	29675	35096	36274	34082	-3.0	1.7	-0.3	
Solids fired			47883	45326	47523	47104	45909	49305	53732	-0.1	-0.3	1.6	
Gas fired			24817	24439	27678	26317	31114	35148	38820	1.1	1.2	2.2	
Oil fired			7114	6403	5466	1860	2099	1722	1620	-2.6	-9.1	-2.6	
Biomass-waste fired			1783	2481	4053	6443	11155	13938	14865	8.6	10.7	2.9	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	11	13	14	14	14		2.4	0.3	
Avg. Load factor of net power capacity (%)			53.7	53.1	47.6	47.9	45.2	45.1	46.2				
Efficiency of gross thermal power generation (%)			37.0	37.4	45.9	47.3	47.8	48.1	52.2				
% of gross electricity from CHP			16.9	15.5	20.5	22.9	27.6	27.2	26.7				
Carbon free gross electricity generation (%)			37.1	37.6	37.1	37.1	33.8	31.3	30.8				
- nuclear			29.9	26.6	22.4	17.7	5.9	0.0	0.0				
- renewable energy forms			7.2	11.0	14.7	19.4	27.9	31.3	30.8				
Transport sector													
Passenger transport activity (Gpkm)													
	889.5	1041.7	1081.9	1142.4	1224.8	1317.6	1388.5	1458.1	1515.9	2.0	1.2	1.3	0.9
Public road transport	73.1	68.5	69.0	68.2	67.1	70.5	75.7	80.2	84.3	-0.6	-0.3	1.2	1.1
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1045.4	1084.7	1119.8	1143.9	2.0	1.3	1.0	0.5
Rail	76.1	85.4	90.0	90.2	94.0	99.5	108.0	121.1	137.5	1.7	0.4	1.4	2.4
Aviation	34.3	46.2	62.0	70.5	83.8	99.9	117.5	134.4	147.5	6.1	3.1	3.4	2.3
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.6	2.7	2.7	-3.6	-1.0	0.6	0.7
Freight transport activity (Gtkm)													
	352.9	371.3	424.7	463.9	497.9	533.6	561.0	588.2	612.4	1.9	1.6	1.2	0.9
Trucks	196.4	237.8	280.7	310.1	327.5	352.1	371.7	392.7	411.2	3.6	1.6	1.3	1.0
Rail	101.7	69.5	77.5	89.7	103.6	110.7	114.1	116.3	118.4	-2.7	2.9	1.0	0.4
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.7	75.2	79.2	82.8	1.9	0.0	1.2	1.0
Energy demand in transport (ktoe)													
	58494	62910	65997	61958	62719	64094	64101	64227	63745	1.2	-0.5	0.2	-0.1
Public road transport	656	611	612	529	478	473	485	483	493	-0.7	-2.4	0.2	0.2
Private cars and motorcycles	38247	40001	39981	36421	36047	35920	34843	34110	33463	0.4	-1.0	-0.3	-0.4
Trucks	11518	13643	15834	14528	14193	14568	14873	15376	15815	3.2	-1.1	0.5	0.6
Rail	2111	2126	1946	1858	2015	2026	1973	1843	1596	-0.8	0.3	-0.2	-2.1
Aviation	5307	5975	7345	8304	9658	10765	11569	12043	11993	3.3	2.8	1.8	0.4
Inland navigation	656	554	279	318	327	342	357	372	384	-8.2	1.6	0.9	0.7

Source: PRIMES

Germany: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	111223	96555	94555	1842	8540	16320	1.7	9.7	20.9
Solids	125210	59628	56514	37368	33017	36597	-6898	-4980	-455	-15.6	-13.1	-1.2
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	33187	41541	49459	8740	13521	16775	35.7	48.3	51.3
Hydro	1498	1869	1684	1889	1889	1889	101	88	0	5.6	4.9	0.0
Biomass & Waste	4797	7877	12190	22815	28571	32445	5584	9493	10755	32.4	49.8	49.6
Wind	6	804	2341	4486	6224	9717	309	581	2419	7.4	10.3	33.2
Solar and others	11	96	365	3589	4454	5054	2512	3148	3467	233.4	241.0	218.4
Geothermal	7	10	138	410	404	353	235	211	133	134.4	108.7	60.6
Net Imports	164822	204678	214351	203600	206599	205509	-21676	-32739	-39582	-9.6	-13.7	-16.2
Solids	2881	21576	26781	33123	37651	40290	-5578	-10575	-9175	-14.4	-21.9	-18.5
Oil	120126	125974	122228	106625	103121	98656	-7599	-11049	-14020	-6.7	-9.7	-12.4
- Crude oil and Feedstocks	88505	101801	113120	107346	105766	104660	-3775	-5531	-7194	-3.4	-5.0	-6.4
- Oil products	31621	24173	9108	-721	-2646	-6004	-3825	-5518	-6826	-123.2	-192.1	-829.6
Natural gas	41747	56865	65734	62914	61710	61985	-8498	-13868	-19514	-11.9	-18.3	-23.9
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	312192	300449	297229	-19832	-24188	-23247	-6.0	-7.5	-7.3
Solids	131510	83727	82805	70491	70669	76887	-12476	-15555	-9631	-15.0	-18.0	-11.1
Oil	124248	129918	123409	106525	102615	95820	-7597	-11040	-14005	-6.7	-9.7	-12.8
Natural gas	54976	71853	80856	74914	72710	70485	-8498	-13868	-19514	-10.2	-16.0	-21.7
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	33187	44295	52586	8740	16275	19902	35.7	58.1	60.9
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	22.6	23.5	25.9	-2.4	-3.0	-1.1			
Oil	35.0	38.2	35.7	34.1	34.2	32.2	-0.2	-0.9	-2.0			
Natural gas	15.5	21.1	23.4	24.0	24.2	23.7	-1.1	-2.5	-4.4			
Nuclear	10.6	12.9	12.2	8.4	2.9	0.0	0.5	0.2	0.0			
Renewable energy forms	1.8	3.1	4.8	10.6	14.7	17.7	3.3	6.1	7.5			
Gross Electricity Generation in GWh_e	547549	567219	613054	572189	575801	736486	-92074	-96977	42669	-13.9	-14.4	6.1
Self consumption and grid losses	65998	74099	72965	63596	64922	115922	-12108	-11735	35094	-16.0	-15.3	43.4
Fuel Inputs to Thermal Power Generation	93214	85253	92546	71577	79754	98286	-17527	-18827	-2674	-19.7	-19.1	-2.6
Solids	75843	68066	66172	55088	56285	64381	-12649	-15079	-7384	-18.7	-21.1	-10.3
Oil (including refinery gas)	2871	1108	2038	62	114	50	-2069	-2009	-1696	-97.1	-94.6	-97.1
Gas (including derived gases)	12676	12906	19233	9983	11645	15830	-4280	-7679	-4545	-30.0	-39.7	-22.3
Biomass & Waste	1824	3174	5102	6387	11648	17962	1434	5915	10951	29.0	103.2	156.2
Geothermal heat	0	0	0	57	61	63	36	25	0	175.9	68.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	139053	137627	130897	-2114	-2538	-7696	-1.5	-1.8	-5.6
Refineries	106658	119856	127082	117285	115010	110817	-3814	-5594	-7241	-3.1	-4.6	-6.1
Biofuels and hydrogen production	0	222	1942	6857	8922	9209	1421	2487	1671	26.1	38.6	22.2
District heating	6389	1435	873	2174	2292	1579	-724	-6	-2178	-25.0	-0.3	-58.0
Derived gases, cokeries etc.	51565	15423	14625	12737	11404	9292	1002	575	51	8.5	5.3	0.6
Energy Branch Consumption	15384	14242	15144	12379	11665	14303	-866	-1050	1888	-6.5	-8.3	15.2
Non-Energy Uses	23249	25272	24779	24676	24600	23814	-108	-182	-147	-0.4	-0.7	-0.6
Final Energy Demand	228372	220163	218010	215526	215172	211195	-9694	-14288	-20671	-4.2	-6.2	-8.9
by sector												
Industry	72116	59715	56706	55303	52284	51246	-802	-2722	-3362	-1.4	-4.9	-6.2
- energy intensive industries	49422	40359	38652	37266	34671	32978	-181	-1715	-2216	-0.5	-4.7	-6.3
- other industrial sectors	22693	19356	18053	18038	17612	18268	-621	-1007	-1146	-3.3	-5.4	-5.9
Residential	58400	61905	65931	67152	67181	66049	-2047	-2729	-5568	-3.0	-3.9	-7.8
Tertiary	39361	32547	33416	31977	31606	30155	-4505	-4908	-6120	-12.3	-13.4	-16.9
Transport	58494	65997	61958	64094	64101	63745	-2340	-3929	-5620	-3.5	-5.8	-8.1
by fuel												
Solids	38693	10951	9639	9352	8884	7895	-407	-855	-902	-4.2	-8.8	-10.3
Oil	96422	98052	87411	77296	73210	68765	-4400	-8319	-12002	-5.4	-10.2	-14.9
Gas	42724	58030	61814	63141	60161	53493	-3340	-5011	-12639	-5.0	-7.7	-19.1
Electricity	38391	41496	44497	43410	44331	54036	-6859	-7294	716	-13.6	-14.1	1.3
Heat (from CHP and District Heating)	9150	6831	7428	7351	7544	7515	-880	-1089	-1247	-10.7	-12.6	-14.2
Renewable energy forms	2991	4804	7222	17967	21021	19468	6191	8280	5411	52.6	65.0	38.5
Other	0	0	0	8	20	23	1	2	-6	6.6	8.3	-19.9
RES in Gross Final Energy Consumption ^(A)		8812	13195	30955	40586	48057	9083	14900	18082	41.5	58.0	60.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	881.6	857.0	706.8	-101.5	-142.4	-253.8	-10.3	-14.2	-26.4
CO₂ Emissions (energy related)	959.8	823.3	804.8	697.0	682.8	576.2	-93.5	-128.0	-236.9	-11.8	-15.8	-29.1
Power generation/District heating	375.1	316.2	325.0	253.7	263.0	192.3	-69.5	-85.0	-164.0	-21.5	-24.4	-46.0
Energy Branch	26.2	27.1	28.9	21.5	19.5	17.4	-1.8	-3.4	-3.8	-7.7	-14.7	-18.1
Industry	170.5	118.3	105.6	98.4	88.6	81.4	3.5	-0.4	-1.3	3.7	-0.5	-1.5
Residential	134.3	117.7	120.0	107.2	102.3	86.5	-10.2	-15.1	-32.4	-8.7	-12.9	-27.3
Tertiary	84.7	53.1	51.1	46.8	44.5	36.5	-5.2	-6.1	-12.6	-10.0	-12.1	-25.6
Transport	168.9	190.9	174.3	169.4	164.9	162.2	-10.3	-18.0	-22.7	-5.7	-9.8	-12.3
CO₂ Emissions (non energy related)	84.5	82.9	75.8	76.5	73.9	68.2	0.5	-3.1	-8.5	0.7	-4.1	-11.1
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	108.1	100.2	62.4	-8.5	-11.3	-8.5	-7.3	-10.1	-12.0
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	71.1	69.1	57.0	-8.2	-11.5	-20.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Germany: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	115.1	102.6	90.7	-7.3	-8.3	-7.1	-6.0	-7.5	-7.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.23	2.27	1.94	-0.15	-0.22	-0.60	-6.2	-9.0	-23.6
Import Dependency %	46.1	59.8	61.6	64.7	68.1	68.5	-2.6	-5.0	-7.3			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	279.8	303.5	331.2	9.0	14.8	25.6	3.3	5.1	8.4
as % of GDP		9.2	10.5	10.3	10.4	10.1	0.3	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				9.1	15.1	26.2						
as % of GDP				0.34	0.52	0.80						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	70.6	61.4	53.2	-1.0	-3.2	-3.5	-1.4	-4.9	-6.2
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	90.6	84.5	74.5	-2.8	-3.4	-6.3	-3.0	-3.9	-7.8
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	75.5	68.8	58.1	-10.6	-10.7	-11.8	-12.3	-13.4	-16.9
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	36.0	34.0	30.5	-0.7	-1.1	-1.8	-2.0	-3.1	-5.6
Freight transport (toe/Mtkm)	39.2	41.5	35.3	31.2	30.2	28.6	-0.9	-1.5	-1.5	-2.7	-4.7	-5.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.38	0.39	0.23	-0.04	-0.05	-0.21	-9.4	-12.0	-47.8
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.93	1.86	1.74	-0.02	-0.06	-0.14	-0.8	-3.0	-7.6
Industry	2.36	1.98	1.86	1.78	1.70	1.59	0.09	0.08	0.07	5.2	4.7	4.9
Residential	2.30	1.90	1.82	1.60	1.52	1.31	-0.10	-0.16	-0.35	-5.9	-9.3	-21.1
Tertiary	2.15	1.63	1.53	1.46	1.41	1.21	0.04	0.02	-0.14	2.7	1.5	-10.5
Transport	2.89	2.89	2.81	2.64	2.57	2.55	-0.06	-0.12	-0.12	-2.3	-4.3	-4.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	13.8	18.3	21.7	4.5	7.5	9.2			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	10.8	14.0	14.8	2.5	4.4	3.6			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	0.0
Solids	286571	262420	280826	289735	386956	-65127	-77812	-2269	-18.8	-21.2	-0.6	
Oil (including refinery gas)	5476	23814	1037	6830	6375	-14784	-9605	-8574	-93.4	-58.4	-57.4	
Gas (including derived gases)	64676	96524	77906	84720	116278	-24077	-49767	-25398	-23.6	-37.0	-17.9	
Biomass-waste	9782	19186	33539	62013	86964	7114	32394	50779	26.9	109.4	140.3	
Hydro (pumping excluded)	21728	19577	21960	21960	21960	1170	1027	0	5.6	4.9	0.0	
Wind	9350	27224	52161	72374	112990	3588	6757	28131	7.4	10.3	33.2	
Solar	60	1282	3366	3997	4891	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	66	71	73	42	29	0	175.9	68.5	0.0	
Net Generation Capacity in MW_e	112509	122874	128312	136751	163537	-14454	-14266	11492	-10.1	-9.4	7.6	
<u>Nuclear energy</u>	21301	20680	12165	4105	0	0	0	0	0.0	0.0		
<u>Renewable energy</u>	9611	23545	34410	42355	54486	1348	1816	10105	4.1	4.5	22.8	
Hydro (pumping excluded)	3408	3580	3732	3790	3862	0	0	0	0.0	0.0	0.0	
Wind	6113	18428	27055	34262	45359	1348	1816	10105	5.2	5.6	28.7	
Solar	90	1537	3624	4303	5266	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
<u>Thermal power</u>	81597	78649	81737	90290	109051	-15802	-16082	1387	-16.2	-15.1	1.3	
of which cogeneration units	40073	37870	29675	35096	34082	-4461	-5734	-2118	-13.1	-14.0	-5.9	
Solids fired	47883	45326	47104	45909	53732	-5853	-7592	1577	-11.1	-14.2	3.0	
Gas fired	24817	24439	26317	31114	38820	-9410	-12112	-7593	-26.3	-28.0	-16.4	
Oil fired	7114	6403	1860	2099	1620	-3260	-2278	-1718	-63.7	-52.0	-51.5	
Biomass-waste fired	1783	2481	6443	11155	14865	2712	5895	9121	72.7	112.1	158.8	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	13	14	14	8	6	0	173.4	67.9	0.0	
Avg. Load factor of net power capacity (%)	53.7	53.1	47.9	45.2	46.2	-1.9	-2.5	-2.6				
Efficiency of gross thermal power generation (%)	37.0	37.4	47.3	47.8	52.2	0.0	0.0	2.6				
% of gross electricity from CHP	16.9	15.5	22.9	27.6	26.7	0.5	-1.4	-1.8				
Carbon free gross electricity generation (%)	37.1	37.6	37.1	33.8	30.8	6.9	10.8	9.5				
- nuclear	29.9	26.6	17.7	5.9	0.0	2.5	0.9	0.0				
- renewable energy forms	7.2	11.0	19.4	27.9	30.8	4.5	10.0	9.5				
Transport sector												
Passenger transport activity (Gpkm)	889.5	1081.9	1142.4	1317.6	1388.5	1515.9	-18.6	-33.6	-43.2	-1.4	-2.4	-2.8
Public road transport	73.1	69.0	68.2	70.5	75.7	84.3	1.1	1.8	2.2	1.6	2.4	2.7
Private cars and motorcycles	702.1	858.2	911.1	1045.4	1084.7	1143.9	-14.5	-27.1	-36.3	-1.4	-2.4	-3.1
Rail	76.1	90.0	90.2	99.5	108.0	137.5	0.0	-0.4	1.8	0.0	-0.3	1.3
Aviation	34.3	62.0	70.5	99.9	117.5	147.5	-5.1	-7.8	-11.0	-4.9	-6.3	-6.9
Inland navigation	3.8	2.7	2.5	2.5	2.6	2.7	0.0	0.0	0.0	-0.2	0.3	0.4
Freight transport activity (Gtkm)	352.9	424.7	463.9	533.6	561.0	612.4	-7.1	-13.0	-17.4	-1.3	-2.3	-2.8
Trucks	196.4	280.7	310.1	352.1	371.7	411.2	-9.1	-16.1	-22.0	-2.5	-4.2	-5.1
Rail	101.7	77.5	89.7	110.7	114.1	118.4	1.8	2.5	3.7	1.7	2.2	3.3
Inland navigation	54.8	66.5	64.1	70.7	75.2	82.8	0.2	0.6	0.8	0.3	0.9	1.0
Energy demand in transport (ktoe)	58494	65997	61958	64094	64101	63745	-2340	-3929	-5620	-3.5	-5.8	-8.1
Public road transport	656	612	529	473	485	493	-2	-4	-23	-0.3	-0.7	-4.4
Private cars and motorcycles	38247	39981	36421	35920	34843	33463	-946	-1504	-1808	-2.6	-4.1	-5.1
Trucks	11518	15834	14528	14568	14873	15815	-690	-1341	-1643	-4.5	-8.3	-9.4
Rail	2111	1946	1858	2026	1973	1596	-12	66	160	-0.6	3.5	11.2
Aviation	5307	7345	8304	10765	11569	11993	-689	-1146	-2304	-6.0	-9.0	-16.1
Inland navigation	656	279	318	342	357	384	-1	-1	-3	-0.3	-0.2	-0.8

Source: PRIMES

Greece: EC proposal without RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	9152	9740	10010	10315	10906	5953	5393	5904	6776	0.9	0.9	-6.8	2.3		
Solids	7077	7911	8222	8538	8336	2467	1070	1048	1549	1.5	0.1	-18.6	3.8		
Oil	832	459	280	100	97	100	99	0	0	-10.3	-10.1	0.2			
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7				
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	1105	1326	1466	1659	2444	3386	4225	4856	5226	2.9	5.2	5.6	2.1		
Hydro	152	303	318	431	423	428	435	438	442	7.6	2.9	0.3	0.2		
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2785	2870	1.2	4.2	4.6	1.9		
Wind	0	3	39	109	254	486	693	862	1079	74.8	20.7	10.5	4.5		
Solar and others	56	82	99	102	226	513	633	670	720	5.8	8.6	10.9	1.3		
Geothermal	3	3	2	1	19	56	87	100	116	-4.7	27.9	16.6	2.9		
Net Imports	15415	18207	21982	23336	24850	28601	29493	29966	29362	3.6	1.2	1.7	0.0		
Solids	988	925	768	371	226	1061	1062	1073	1077	-2.5	-11.5	16.7	0.1		
Oil	14366	17214	19527	20307	20627	21513	20877	20486	19996	3.1	0.5	0.1	-0.4		
- Crude oil and Feedstocks	14757	16955	20439	19352	20476	21312	20994	20843	20594	3.3	0.0	0.3	-0.2		
- Oil products	-391	259	-912	955	150	201	-117	-357	-598						
Natural gas	0	0	1689	2332	3722	5531	6310	7009	6873		8.2	5.4	0.9		
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Gross Inland Consumption	22278	24174	28140	31240	32650	31234	31393	32238	32399	2.4	1.5	-0.4	0.3		
Solids	8091	8783	9040	8952	8562	3528	2131	2121	2627	1.1	-0.5	-13.0	2.1		
Oil	12883	13952	15929	17951	17617	18293	17483	16854	16257	2.1	1.0	-0.1	-0.7		
Natural gas	138	44	1705	2354	3751	5531	6310	7009	6873	28.6	8.2	5.3	0.9		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Renewable energy forms	1105	1326	1466	1659	2453	3642	5253	6060	6467	2.9	5.3	7.9	2.1		
as % in Gross Inland Consumption															
Solids	36.3	36.3	32.1	28.7	26.2	11.3	6.8	6.6	8.1						
Oil	57.8	57.7	56.6	57.5	54.0	58.6	55.7	52.3	50.2						
Natural gas	0.6	0.2	6.1	7.5	11.5	17.7	20.1	21.7	21.2						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	5.0	5.5	5.2	5.3	7.5	11.7	16.7	18.8	20.0						
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62709	60966	64824	72883	80059	4.4	1.6	0.3	2.1		
Self consumption and grid losses	5818	6451	8431	10125	9908	8513	8711	9811	11398	3.8	1.6	-1.3	2.7		
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11851	8987	8626	9506	10019	3.0	0.2	-3.1	1.5		
Solids	6890	7810	8234	8693	8222	3196	1846	1858	2369	1.8	0.0	-13.9	2.5		
Oil (including refinery gas)	1708	2075	2036	2053	1027	1412	1180	1054	1049	1.8	-6.6	1.4	-1.2		
Gas (including derived gases)	18	14	1280	1605	2479	3908	4724	5615	5526	53.1	6.8	6.7	1.6		
Biomass & Waste	0	38	64	52	105	416	791	881	962		5.1	22.3	2.0		
Geothermal heat	0	0	0	0	17	55	85	98	113			17.3	2.9		
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	16698	17913	22435	21508	21230	22275	22208	22067	21878	3.0	-0.6	0.5	-0.1		
Refineries	16621	17860	22404	21415	20917	21747	21429	21183	20928	3.0	-0.7	0.2	-0.2		
Biofuels and hydrogen production	0	0	0	0	251	472	732	852	927			11.3	2.4		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	77	52	30	93	62	56	47	32	23	-8.8	7.4	-2.7	-7.1		
Energy Branch Consumption	1196	1174	1637	1758	1621	1543	1547	1577	1608	3.2	-0.1	-0.5	0.4		
Non-Energy Uses	651	441	689	711	702	701	711	720	717	0.6	0.2	0.1	0.1		
Final Energy Demand	14509	15801	18513	20742	22520	23583	24086	24394	24291	2.5	2.0	0.7	0.1		
by sector															
Industry	3942	4107	4437	4132	4056	4094	4114	4094	4086	1.2	-0.9	0.1	-0.1		
- energy intensive industries	2534	2489	2693	2526	2523	2560	2585	2586	2571	0.6	-0.6	0.2	-0.1		
- other industrial sectors	1408	1618	1744	1607	1533	1534	1529	1507	1514	2.2	-1.3	0.0	-0.1		
Residential	3048	3323	4470	5467	6251	6743	6972	7068	7000	3.9	3.4	1.1	0.0		
Tertiary	1711	1940	2410	3075	3256	3305	3347	3433	3428	3.5	3.1	0.3	0.2		
Transport	5808	6431	7196	8068	8957	9441	9653	9800	9778	2.2	2.2	0.8	0.1		
by fuel															
Solids	1053	1074	888	446	321	314	270	253	251	-1.7	-9.7	-1.7	-0.8		
Oil	10041	10799	12584	14219	14997	15318	15174	14852	14306	2.3	1.8	0.1	-0.6		
Gas	15	14	257	585	943	1293	1187	1061	1011	33.0	13.9	2.3	-1.6		
Electricity	2448	2931	3710	4377	4631	4573	4864	5442	5905	4.2	2.2	0.5	2.0		
Heat (from CHP and District Heating)	0	0	28	49	39	43	66	67	77		3.5	5.3	1.5		
Renewable energy forms	952	982	1046	1066	1588	2041	2522	2716	2739	0.9	4.3	4.7	0.8		
Other	0	0	0	0	1	1	3	3	3			16.8	1.4		
RES in Gross Final Energy Consumption ^(A)			1439	1626	2372	3429	4513	4982	5359		5.1	6.6	1.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.9	110.5	103.3	102.2	99.7	2.0	0.2	-2.1	-0.4		
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	95.3	80.4	73.8	73.5	71.6	2.3	0.7	-2.5	-0.3		
Power generation/District heating	34.1	39.0	43.7	46.3	43.2	26.8	22.2	23.9	23.9	2.5	-0.1	-6.4	0.7		
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.1	2.0	1.3	1.2	2.9	-0.6	-4.7	-5.0		
Industry	9.4	10.0	10.1	8.6	7.8	7.6	6.8	6.4	6.2	0.7	-2.6	-1.3	-1.0		
Residential	4.6	4.7	7.4	9.6	10.8	11.7	11.1	9.9	9.9	4.9	3.9	0.8	-1.7		
Tertiary	3.3	3.2	3.4	4.2	4.4	4.6	4.3	4.0	3.8	0.1	2.8	-0.2	-1.3		
Transport	17.2	19.0	21.2	23.8	25.8	26.7	26.7	26.9	26.6	2.1	2.0	0.4	-0.1		
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.1	9.4	9.4	9.4	1.2	0.8	0.6	-0.1		
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	21.0	20.0	19.2	18.7	1.3	-1.6	-1.7	-0.6		
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	124.2	107.4	100.3	99.3	96.9						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.6	124.7	110.5	102.1	95.0	0.0	-2.4	-3.1	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.92	2.57	2.35	2.28	2.21	-0.1	-0.8	-2.1	-0.6
Import Dependency %	62.1	65.7	69.3	68.5	69.5	82.8	84.5	83.5	81.3				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	26.7	30.7	33.4	35.1		4.1	3.0	1.4
as % of GDP			10.5	10.2	10.7	10.7	10.8	10.6	10.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	63.5	57.8	53.9	51.0	1.1	-3.4	-2.0	-1.2
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.7	92.7	85.3	78.4	72.2	1.6	-0.1	-1.4	-1.7
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.7	81.1	72.5	66.8	61.6	1.2	-0.8	-2.4	-1.6
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.1	29.8	28.6	27.2	-2.0	-0.8	-0.9	-0.9
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	95.0	89.6	86.9	85.2	-1.1	-1.4	-1.0	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.43	0.34	0.32	0.30	-1.9	-1.7	-6.8	-1.4
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.17	2.14	2.06	1.98	1.91	-0.4	-0.5	-0.5	-0.7
Industry	2.39	2.43	2.28	2.09	1.91	1.85	1.66	1.55	1.51	-0.5	-1.7	-1.4	-0.9
Residential	1.51	1.43	1.66	1.76	1.73	1.73	1.68	1.56	1.42	0.9	0.5	-0.3	-1.7
Tertiary	1.96	1.65	1.40	1.36	1.36	1.38	1.29	1.16	1.11	-3.3	-0.3	-0.5	-1.5
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.1	14.1	18.2	19.7	21.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.7	7.1	8.0	8.7				
Gross Electricity generation by source (in GWh)													
			53415	59416	62709	60966	64824	72883	80059		1.6	0.3	2.1
Nuclear energy			0	0	0	0	0	0	0				
Solids			33790	35982	34483	15685	10047	10108	13488		0.2	-11.6	3.0
Oil (including refinery gas)			8979	8858	4873	6786	5837	5252	5136		-5.9	1.8	-1.3
Gas (including derived gases)			5960	8114	14859	25073	29569	34913	35112		9.6	7.1	1.7
Biomass-waste			543	179	512	2324	5234	6178	6770		-0.6	26.2	2.6
Hydro (pumping excluded)			3692	5016	4923	4979	5053	5097	5134		2.9	0.3	0.2
Wind			451	1266	2957	5650	8054	10028	12546		20.7	10.5	4.5
Solar			0	1	73	397	606	832	1343				23.6
Geothermal and other renewables			0	0	28	71	425	474	529				31.2
			11361	13277	15910	18919	20852	21995	23294		3.4	2.7	1.1
Net Generation Capacity in MW_e													
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			3233	3744	4521	5859	7348	8374	9727		3.4	5.0	2.8
Hydro (pumping excluded)			3043	3165	3235	3410	3484	3537	3577		0.6	0.7	0.3
Wind			189	573	1226	2126	3215	3986	4920		20.6	10.1	4.3
Solar			1	5	60	324	494	678	1051		46.8	23.6	7.8
Other renewables (tidal etc.)			0	0	0	0	155	173	179				1.5
<u>Thermal power</u>			8128	9533	11390	13060	13505	13621	13567		3.4	1.7	0.0
of which cogeneration units			340	381	505	678	1116	927	1002		4.0	8.3	-1.1
Solids fired			4505	4798	4796	4263	4263	4217	3807		0.6	-1.2	-1.1
Gas fired			1134	1876	3344	5639	5636	5854	6661		11.4	5.4	1.7
Oil fired			2487	2827	3145	2773	2725	2548	1945		2.4	-1.4	-3.3
Biomass-waste fired			2	31	97	369	844	965	1048		50.8	24.2	2.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	8	16	36	36	106				16.3
Avg. Load factor of net power capacity (%)			49.7	47.4	42.2	35.3	34.2	36.6	37.7				
Efficiency of gross thermal power generation (%)			36.5	36.8	39.7	47.8	50.7	51.2	52.1				
% of gross electricity from CHP			1.2	1.5	2.6	5.2	8.5	8.3	8.3				
Carbon free gross electricity generation (%)			8.8	10.9	13.5	22.0	29.9	31.0	32.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			8.8	10.9	13.5	22.0	29.9	31.0	32.9				
Transport sector													
Passenger transport activity (Gpkm)													
	75.3	91.5	116.2	141.2	159.0	173.7	184.8	192.7	198.0	4.4	3.2	1.5	0.7
Public road transport	17.7	20.2	21.7	21.4	21.7	21.9	22.4	22.6	22.7	2.0	0.0	0.3	0.2
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	104.0	110.8	115.5	117.9	6.2	4.7	1.7	0.6
Rail	2.8	2.3	3.1	3.4	3.8	4.2	4.7	5.0	5.4	0.9	2.2	2.1	1.4
Aviation	15.5	19.9	24.1	27.7	31.5	34.6	37.8	40.4	42.7	4.5	2.7	1.8	1.2
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.1	9.2	9.3	2.1	0.2	0.3	0.2
Freight transport activity (Gtkm)													
	19.8	22.0	26.6	32.7	37.6	42.4	46.3	49.4	51.7	3.0	3.5	2.1	1.1
Trucks	12.5	14.6	17.5	22.0	25.4	28.8	31.6	34.1	36.2	3.4	3.8	2.2	1.4
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.2	-3.5	6.5	3.1	1.3
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.6	14.1	14.3	2.8	2.8	1.7	0.5
Energy demand in transport (ktoe)													
	5808	6431	7196	8068	8957	9441	9653	9800	9778	2.2	2.2	0.8	0.1
Public road transport	154	175	175	153	150	142	140	134	125	1.3	-1.5	-0.7	-1.1
Private cars and motorcycles	1404	1704	2243	2913	3290	3407	3465	3464	3328	4.8	3.9	0.5	-0.4
Trucks	2345	2726	2902	3120	3519	3785	3881	4016	4132	2.2	1.9	1.0	0.6
Rail	75	57	60	58	64	68	74	77	72	-2.2	0.7	1.4	-0.2
Aviation	1264	1226	1325	1181	1269	1356	1397	1413	1428	0.5	-0.4	1.0	0.2
Inland navigation	566	544	491	643	665	683	696	697	692	-1.4	3.1	0.5	-0.1

Source: PRIMES

Greece: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	5953	5393	6776	-3366	-4911	-3564	-36.1	-47.7	-34.5
Solids	7077	8222	8538	2467	1070	1549	-4061	-5967	-4742	-62.2	-84.8	-75.4
Oil	832	280	100	100	99	0	0	-1	0	0.0	-1.5	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3386	4225	5226	695	1058	1178	25.8	33.4	29.1
Hydro	152	318	431	428	435	442	3	3	2	0.6	0.8	0.6
Biomass & Waste	893	1010	1015	1903	2378	2870	323	558	664	20.4	30.7	30.1
Wind	0	39	109	486	693	1079	29	112	141	6.4	19.3	15.0
Solar and others	56	99	102	513	633	720	300	359	369	140.8	130.9	105.4
Geothermal	3	2	1	56	87	116	41	25	2	261.9	41.2	1.4
Net Imports	15415	21982	23336	28601	29493	29362	-347	-377	-1424	-1.2	-1.3	-4.6
Solids	988	768	371	1061	1062	1077	-14	-21	-314	-1.3	-1.9	-22.6
Oil	14366	19527	20307	21513	20877	19996	-878	-1944	-2739	-3.9	-8.5	-12.0
- Crude oil and Feedstocks	14757	20439	19352	21312	20994	20594	-509	-1225	-1634	-2.3	-5.5	-7.4
- Oil products	-391	-912	955	201	-117	-598	-369	-719	-1105	-64.8	-119.5	-218.1
Natural gas	0	1689	2332	5531	6310	6873	289	559	388	5.5	9.7	6.0
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	31234	31393	32399	-3712	-5285	-4981	-10.6	-14.4	-13.3
Solids	8091	9040	8952	3528	2131	2627	-4075	-5988	-5056	-53.6	-73.8	-65.8
Oil	12883	15929	17951	18293	17483	16257	-877	-1942	-2732	-4.6	-10.0	-14.4
Natural gas	138	1705	2354	5531	6310	6873	289	559	388	5.5	9.7	6.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3642	5253	6467	951	2085	2419	35.4	65.8	59.7
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	11.3	6.8	8.1	-10.5	-15.3	-12.4			
Oil	57.8	56.6	57.5	58.6	55.7	50.2	3.7	2.7	-0.6			
Natural gas	0.6	6.1	7.5	17.7	20.1	21.2	2.7	4.4	3.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.7	16.7	20.0	4.0	8.1	9.1			
Gross Electricity Generation in GWh_e	34767	53415	59416	60966	64824	80059	-13508	-15178	-8093	-18.1	-19.0	-9.2
Self consumption and grid losses	5818	8431	10125	8513	8711	11398	-2822	-3463	-1944	-24.9	-28.4	-14.6
Fuel Inputs to Thermal Power Generation	8617	11614	12403	8987	8626	10019	-3542	-4611	-3165	-28.3	-34.8	-24.0
Solids	6890	8234	8693	3196	1846	2369	-4053	-5915	-4948	-55.9	-76.2	-67.6
Oil (including refinery gas)	1708	2036	2053	1412	1180	1049	-144	-177	64	-9.3	-13.1	6.5
Gas (including derived gases)	18	1280	1605	3908	4724	5526	273	818	1059	7.5	21.0	23.7
Biomass & Waste	0	64	52	416	791	962	342	639	660	457.2	421.1	218.4
Geothermal heat	0	0	0	55	85	113	40	24	0	281.8	40.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	22275	22208	21878	-471	-1095	-1579	-2.1	-4.7	-6.7
Refineries	16621	22404	21415	21747	21429	20928	-512	-1229	-1638	-2.3	-5.4	-7.3
Biofuels and hydrogen production	0	0	0	472	732	927	52	147	89	12.4	25.2	10.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	56	47	23	-11	-13	-30	-16.3	-22.2	-56.8
Energy Branch Consumption	1196	1637	1758	1543	1547	1608	-152	-187	-138	-9.0	-10.8	-7.9
Non-Energy Uses	651	689	711	701	711	717	-3	-3	-5	-0.4	-0.5	-0.7
Final Energy Demand	14509	18513	20742	23583	24086	24291	-1101	-1814	-2488	-4.5	-7.0	-9.3
by sector												
Industry	3942	4437	4132	4094	4114	4086	-109	-188	-283	-2.6	-4.4	-6.5
- energy intensive industries	2534	2693	2526	2560	2585	2571	-59	-99	-134	-2.2	-3.7	-5.0
- other industrial sectors	1408	1744	1607	1534	1529	1514	-51	-89	-149	-3.2	-5.5	-9.0
Residential	3048	4470	5467	6743	6972	7000	-191	-370	-571	-2.8	-5.0	-7.5
Tertiary	1711	2410	3075	3305	3347	3428	-464	-654	-755	-12.3	-16.3	-18.0
Transport	5808	7196	8068	9441	9653	9778	-336	-602	-879	-3.4	-5.9	-8.3
by fuel												
Solids	1053	888	446	314	270	251	-19	-69	-99	-5.7	-20.3	-28.2
Oil	10041	12584	14219	15318	15174	14306	-607	-1228	-2037	-3.8	-7.5	-12.5
Gas	15	257	585	1293	1187	1011	-5	-296	-635	-0.4	-19.9	-38.6
Electricity	2448	3710	4377	4573	4864	5905	-914	-999	-515	-16.7	-17.0	-8.0
Heat (from CHP and District Heating)	0	28	49	43	66	77	-5	14	20	-10.9	26.2	36.2
Renewable energy forms	952	1046	1066	2041	2522	2739	448	764	777	28.1	43.5	39.6
Other	0	0	0	1	3	3	0	0	0	6.9	5.2	-6.1
RES in Gross Final Energy Consumption ^(A)		1439	1626	3429	4513	5359	854	1548	1642	33.2	52.2	44.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	110.5	103.3	99.7	-21.7	-33.4	-34.4	-16.4	-24.4	-25.7
CO₂ Emissions (energy related)	71.2	89.2	96.2	80.4	73.8	71.6	-18.9	-29.5	-30.1	-19.1	-28.5	-29.6
Power generation/District heating	34.1	43.7	46.3	26.8	22.2	23.9	-16.7	-23.3	-19.8	-38.4	-51.2	-45.3
Energy Branch	2.6	3.4	3.6	3.1	2.0	1.2	-0.3	-1.5	-2.3	-10.0	-43.2	-66.0
Industry	9.4	10.1	8.6	7.6	6.8	6.2	-0.2	-0.9	-1.5	-2.5	-12.0	-20.0
Residential	4.6	7.4	9.6	11.7	11.7	9.9	-0.7	-1.2	-2.7	-5.3	-9.4	-21.6
Tertiary	3.3	3.4	4.2	4.6	4.3	3.8	0.0	-0.4	-0.8	1.1	-7.8	-17.2
Transport	17.2	21.2	23.8	26.7	26.7	26.6	-1.1	-2.2	-3.0	-4.0	-7.5	-10.0
CO ₂ Emissions (non energy related)	7.2	8.2	8.6	9.1	9.4	9.4	-0.2	-0.4	-0.7	-2.5	-4.2	-6.7
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	21.0	20.0	18.7	-2.6	-3.5	-3.6	-10.9	-14.8	-16.1
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	107.4	100.3	96.9	-21.1	-32.4	-33.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Greece: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	124.7	110.5	95.0	-14.8	-18.6	-14.6	-10.6	-14.4	-13.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.57	2.35	2.21	-0.27	-0.47	-0.51	-9.4	-16.5	-18.8
Import Dependency %	62.1	69.3	68.5	82.8	84.5	81.3	7.1	10.2	6.4			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	26.7	30.7	35.1	1.2	2.0	2.6	4.5	6.9	7.8
as % of GDP		10.5	10.2	10.7	10.8	10.3	0.5	0.7	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.2	2.0	2.6						
as % of GDP				0.48	0.72	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	63.5	57.8	51.0	-1.7	-2.6	-3.5	-2.6	-4.4	-6.5
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	92.7	85.3	72.2	-2.6	-4.5	-5.9	-2.8	-5.0	-7.5
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	81.1	72.5	61.6	-11.4	-14.2	-13.6	-12.3	-16.3	-18.0
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.1	29.8	27.2	-0.5	-0.7	-1.1	-1.5	-2.4	-3.9
Freight transport (toe/Mtkm)	127.8	114.6	101.5	95.0	89.6	85.2	-2.8	-5.3	-7.3	-2.9	-5.6	-7.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.43	0.34	0.30	-0.14	-0.23	-0.20	-24.8	-40.0	-40.0
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.14	2.06	1.91	0.02	-0.04	-0.12	0.8	-1.7	-6.0
Industry	2.39	2.28	2.09	1.85	1.66	1.51	0.00	-0.14	-0.26	0.1	-8.0	-14.5
Residential	1.51	1.66	1.76	1.73	1.68	1.42	-0.05	-0.08	-0.25	-2.6	-4.6	-15.2
Tertiary	1.96	1.40	1.36	1.38	1.29	1.11	0.18	0.12	0.01	15.3	10.2	1.0
Transport	2.96	2.95	2.95	2.83	2.77	2.72	-0.02	-0.05	-0.05	-0.6	-1.7	-1.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.1	18.2	21.2	4.1	7.2	7.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.1	8.7	0.7	1.8	1.5			
Gross Electricity generation by source (in GWh_e)												
	53415	59416	60966	64824	80059	80059	-13508	-15178	-8093	-18.1	-19.0	-9.2
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	33790	35982	15685	10047	13488	13488	-16663	-24438	-19920	-51.5	-70.9	-59.6
Oil (including refinery gas)	8979	8858	6786	5837	5136	5136	-1108	-1153	-141	-14.0	-16.5	-2.7
Gas (including derived gases)	5960	8114	25073	29569	35112	35112	1863	4237	4324	8.0	16.7	14.0
Biomass-waste	543	179	2324	5234	6770	6770	1983	4508	5362	579.8	621.0	380.9
Hydro (pumping excluded)	3692	5016	4979	5053	5134	5134	29	40	29	0.6	0.8	0.6
Wind	451	1266	5650	8054	12546	12546	339	1302	1640	6.4	19.3	15.0
Solar	0	1	397	606	1343	1343	0	0	268	0.0	0.0	24.9
Geothermal and other renewables	0	0	71	425	529	529	48	327	345	207.0	333.3	187.6
Net Generation Capacity in MW_e	11361	13277	18919	20852	23294	23294	167	963	-662	0.9	4.8	-2.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	3233	3744	5859	7348	9727	9727	138	711	855	2.4	10.7	9.6
Hydro (pumping excluded)	3043	3165	3410	3484	3577	3577	24	24	28	0.7	0.7	0.8
Wind	189	573	2126	3215	4920	4920	114	532	473	5.7	19.8	10.6
Solar	1	5	324	494	1051	1051	0	0	175	0.0	0.0	19.9
Other renewables (tidal etc.)	0	0	0	155	179	179	0	155	179			
<u>Thermal power</u>	8128	9533	13060	13505	13567	13567	29	253	-1516	0.2	1.9	-10.1
of which cogeneration units	340	381	678	1116	1002	1002	-67	269	50	-8.9	31.8	5.3
Solids fired	4505	4798	4263	4263	3807	3807	-126	-126	-90	-2.9	-2.9	-2.3
Gas fired	1134	1876	5639	5636	6661	6661	0	-293	-2218	0.0	-4.9	-25.0
Oil fired	2487	2827	2773	2725	1945	1945	-152	-48	-88	-5.2	-1.7	-4.3
Biomass-waste fired	2	31	369	844	1048	1048	299	712	871	429.7	541.4	492.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	16	36	106	106	8	8	8	103.4	29.5	8.4
Avg. Load factor of net power capacity (%)	49.7	47.4	35.3	34.2	37.7	37.7	-7.7	-9.2	-2.2			
Efficiency of gross thermal power generation (%)	36.5	36.8	47.8	50.7	52.1	52.1	4.0	6.7	5.7			
% of gross electricity from CHP	1.2	1.5	5.2	8.5	8.3	8.3	0.5	3.3	2.8			
Carbon free gross electricity generation (%)	8.8	10.9	22.0	29.9	32.9	32.9	7.2	13.4	11.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	22.0	29.9	32.9	32.9	7.2	13.4	11.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	21.7	21.4	21.9	22.4	22.7	0.4	0.6	0.7	1.8	2.6	3.0
Private cars and motorcycles	32.2	58.6	80.0	104.0	110.8	117.9	-1.2	-2.3	-2.9	-1.1	-2.0	-2.4
Rail	2.8	3.1	3.4	4.2	4.7	5.4	0.0	0.0	-0.1	-0.5	-0.3	-1.3
Aviation	15.5	24.1	27.7	34.6	37.8	42.7	-1.6	-2.3	-3.0	-4.4	-5.8	-6.5
Inland navigation	7.0	8.7	8.7	8.9	9.1	9.3	0.0	0.0	0.0	-0.2	-0.2	-0.3
Freight transport activity (Gtkm)												
Trucks	12.5	17.5	22.0	28.8	31.6	36.2	-0.7	-1.2	-1.7	-2.4	-3.7	-4.4
Rail	0.6	0.4	0.6	0.9	1.1	1.2	0.0	0.0	0.1	2.9	3.9	4.5
Inland navigation	6.6	8.7	10.1	12.7	13.6	14.3	0.1	0.1	0.2	0.7	1.1	1.3
Energy demand in transport (ktoe)												
Public road transport	154	175	153	142	140	125	0	-1	-5	-0.1	-0.9	-4.2
Private cars and motorcycles	1404	2243	2913	3407	3465	3328	-84	-144	-205	-2.4	-4.0	-5.8
Trucks	2345	2902	3120	3785	3881	4132	-181	-340	-511	-4.6	-8.0	-11.0
Rail	75	60	58	68	74	72	0	-2	0	0.6	-2.4	0.7
Aviation	1264	1325	1181	1356	1397	1428	-67	-109	-146	-4.7	-7.2	-9.3
Inland navigation	566	491	643	683	696	692	-4	-7	-12	-0.6	-0.9	-1.8

Source: PRIMES

Hungary: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	14146	13456	11207	10514	10205	9481	10062	10893	12597	-2.3	-0.9	-0.1	2.3	
Solids	3948	3095	2893	1748	1582	877	246	325	1701	-3.1	-5.9	-17.0	21.3	
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2	
Natural gas	3812	3788	2475	2331	2200	2000	1900	1800	1679	-4.2	-1.2	-1.5	-1.2	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Renewable energy sources	523	626	516	1212	1436	1741	2976	3896	4445	-0.1	10.8	7.6	4.1	
Hydro	15	14	15	17	16	17	17	17	17	0.0	0.6	0.3	0.3	
Biomass & Waste	422	526	415	1105	1284	1572	2590	3238	3682	-0.2	12.0	7.3	3.6	
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8	
Solar and others	0	0	0	2	17	40	262	520	615			31.7	8.9	
Geothermal	86	86	86	87	114	105	91	89	82	0.0	2.9	-2.3	-1.0	
Net Imports	14436	12629	14011	17558	18609	20241	20553	20934	20457	-0.3	2.9	1.0	0.0	
Solids	1686	1395	1081	1340	1091	1097	915	934	1000	-4.3	0.1	-1.7	0.9	
Oil	6621	5496	5352	5875	6588	7258	7413	7722	7869	-2.1	2.1	1.2	0.6	
- Crude oil and Feedstocks	6475	5937	5866	6167	6659	7304	7451	7752	7898	-1.0	1.3	1.1	0.6	
- Oil products	146	-441	-514	-291	-71	-46	-39	-30	-29					
Natural gas	5170	5532	7283	9807	10392	11536	11692	11294	10534	3.5	3.6	1.2	-1.0	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Gross Inland Consumption	28641	25864	25000	27920	28815	29722	30616	31826	33053	-1.4	1.4	0.6	0.8	
Solids	5969	4549	3967	3090	2673	1974	1161	1259	2701	-4.0	-3.9	-8.0	8.8	
Oil	8734	7689	6907	7420	7788	8258	8413	8622	8669	-2.3	1.2	0.8	0.3	
Natural gas	8913	9175	9657	12094	12592	13536	13592	13094	12213	0.8	2.7	0.8	-1.1	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Renewable energy forms	523	626	516	1212	1436	1741	3207	4658	5311	-0.1	10.8	8.4	5.2	
as % in Gross Inland Consumption														
Solids	20.8	17.6	15.9	11.1	9.3	6.6	3.8	4.0	8.2					
Oil	30.5	29.7	27.6	26.6	27.0	27.8	27.5	27.1	26.2					
Natural gas	31.1	35.5	38.6	43.3	43.7	45.5	44.4	41.1	36.9					
Nuclear	12.4	14.0	14.6	12.8	13.1	13.0	12.9	12.5	12.0					
Renewable energy forms	1.8	2.4	2.1	4.3	5.0	5.9	10.5	14.6	16.1					
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	36829	41375	44892	51154	59487	2.2	0.5	2.0	2.9	
Self consumption and grid losses	5478	6171	6295	5979	5464	5420	5572	6363	9353	1.4	-1.4	0.2	5.3	
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	4918	4990	5059	6042	7381	1.9	-1.9	0.3	3.8	
Solids	2871	2977	2731	1924	1758	1124	435	521	2029	-0.5	-4.3	-13.0	16.6	
Oil (including refinery gas)	440	1447	1052	122	0	0	0	0	2	9.1				
Gas (including derived gases)	1636	1634	2140	3078	2868	3449	3154	3292	2951	2.7	3.0	1.0	-0.7	
Biomass & Waste	24	55	62	534	292	417	1471	2229	2399	10.2	16.7	17.6	5.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11679	10680	9226	9831	10405	11095	11338	11577	11578	-2.3	1.2	0.9	0.2	
Refineries	8831	8500	7588	8390	9043	9602	9746	9921	9930	-1.5	1.8	0.8	0.2	
Biofuels and hydrogen production	0	0	0	0	207	323	544	622	664			10.2	2.0	
District heating	1145	789	471	629	452	506	495	535	506	-8.5	-0.4	0.9	0.2	
Derived gases, cokeries etc.	1704	1392	1168	813	703	664	552	500	477	-3.7	-4.9	-2.4	-1.5	
Energy Branch Consumption	1402	1310	1162	1581	1621	1676	1696	1796	2044	-1.9	3.4	0.5	1.9	
Non-Energy Uses	1569	1609	1586	2282	2501	2658	2723	2754	2781	0.1	4.7	0.9	0.2	
Final Energy Demand	19258	15814	15998	16098	19626	20481	21204	21848	22150	-1.8	2.1	0.8	0.4	
by sector														
Industry	6523	3808	3489	3427	3465	3601	3706	3841	3985	-6.1	-0.1	0.7	0.7	
- energy intensive industries	4160	2691	2563	2328	2259	2292	2319	2381	2432	-4.7	-1.3	0.3	0.5	
- other industrial sectors	2364	1116	926	1099	1206	1309	1387	1459	1553	-8.9	2.7	1.4	1.1	
Residential	6437	5911	5465	6411	7064	7117	7283	7362	7352	-1.6	2.6	0.3	0.1	
Tertiary	3273	3442	3792	4085	4423	4630	4752	4902	4969	1.5	1.6	0.7	0.4	
Transport	3024	2653	3252	4175	4674	5133	5464	5743	5844	0.7	3.7	1.6	0.7	
by fuel														
Solids	2502	965	793	692	593	539	449	439	425	-10.9	-2.9	-2.7	-0.5	
Oil	6009	4147	4173	4792	5116	5524	5660	5857	5895	-3.6	2.1	1.0	0.4	
Gas	5941	6370	6503	7852	8518	8667	8964	8287	7713	0.9	2.7	0.5	-1.5	
Electricity	2811	2500	2658	2823	2961	3166	3410	3799	4225	-0.6	1.1	1.4	2.2	
Heat (from CHP and District Heating)	1570	1287	1440	1297	1402	1393	1166	1249	1213	-0.9	-0.3	-1.8	0.4	
Renewable energy forms	425	545	430	642	1036	1191	1553	2214	2677	0.1	9.2	4.1	5.6	
Other	0	0	0	0	0	1	2	2	2			16.7	3.1	
RES in Gross Final Energy Consumption ^(A)			482	869	1253	1561	2824	4138	4783		10.0	8.5	5.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	80.7	81.0	78.6	76.0	72.3	-2.1	0.5	-0.3	-0.8	
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	55.5	55.7	52.8	50.8	47.5	-2.0	0.3	-0.5	-1.1	
Power generation/District heating	20.5	23.0	21.0	17.3	15.1	14.0	10.4	9.4	7.3	0.2	-3.2	-3.7	-3.5	
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.5	2.5	2.6	2.6	-4.9	5.2	0.2	0.5	
Industry	14.7	8.7	6.4	6.3	6.0	6.2	6.5	5.5	4.9	-7.9	-0.7	0.9	-2.8	
Residential	13.7	9.9	9.0	10.5	11.5	11.3	11.1	10.6	10.0	-4.1	2.5	-0.3	-1.1	
Tertiary	5.6	5.5	6.2	6.7	7.2	7.5	7.5	7.4	7.2	1.1	1.5	0.4	-0.4	
Transport	8.6	7.6	9.4	12.2	13.2	14.3	14.7	15.3	15.5	0.9	3.4	1.1	0.5	
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.6	3.8	3.9	-3.6	-0.4	1.4	0.8	
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	21.9	22.2	21.3	20.9	-2.2	1.0	0.0	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	84.8	85.1	82.6	79.8	76.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Hungary: EC proposal without RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Int. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	275.1	236.6	207.6	187.4	172.5	-2.5	-2.3	-2.8	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.93	1.87	1.73	1.60	1.44	-0.7	-1.1	-1.1	-1.8
Import Dependency %	50.4	48.8	56.0	62.9	64.6	68.1	67.1	65.8	61.9				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.4	20.7	23.5	26.0	27.0		2.9	3.0	1.4
as % of GDP			18.2	16.1	16.6	16.5	15.9	15.3	14.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.4	62.9	56.9	52.3	49.4	-9.6	-3.4	-2.1	-1.4
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.7	68.0	59.5	52.4	46.6	-1.9	-2.1	-3.0	-2.4
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.1	69.5	60.8	54.4	48.7	1.6	-2.3	-2.6	-2.2
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.9	34.5	33.2	31.9	29.9	2.1	2.2	-0.5	-1.1
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.3	38.9	37.6	36.7	35.9	0.5	0.8	-0.4	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.27	0.23	0.17	0.14	0.09	-0.8	-3.7	-4.6	-5.6
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.93	1.91	1.88	1.78	1.69	-1.3	-0.1	-0.3	-1.0
Industry	2.25	2.28	1.85	1.84	1.73	1.71	1.76	1.44	1.23	-2.0	-0.6	0.2	-3.5
Residential	2.13	1.68	1.64	1.64	1.63	1.59	1.53	1.43	1.35	-2.6	-0.1	-0.7	-1.2
Tertiary	1.70	1.59	1.64	1.64	1.62	1.62	1.58	1.51	1.45	-0.3	-0.1	-0.3	-0.9
Transport	2.84	2.85	2.90	2.92	2.82	2.78	2.69	2.67	2.64	0.2	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.2	7.5	13.0	18.5	20.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.9	5.6	8.9	9.8	10.4				
Gross Electricity generation by source (in GWh)													
			35185	35749	36829	41375	44892	51154	59487		0.5	2.0	2.9
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	4925	3696	2047	2047	10635		-5.1	-8.4	17.9
Oil (including refinery gas)			4243	497	77	72	0	47	80		-33.1	-53.8	117.4
Gas (including derived gases)			8040	13021	15175	20039	20123	22163	20656		6.6	2.9	0.3
Biomass-waste			197	2348	1719	2301	7033	10892	11885		24.2	15.1	5.4
Hydro (pumping excluded)			178	203	189	194	194	197	199		0.6	0.3	0.3
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9755	9971	9648	9465	10526		2.3	-0.1	0.9
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7889	8029	7542	7115	7847		2.7	-0.4	0.4
of which cogeneration units			1915	2391	2268	2598	3074	2308	2278		1.7	3.1	-3.0
Solids fired			1683	1592	1521	1142	494	486	1030		-1.0	-10.6	7.6
Gas fired			3516	4572	5668	6059	5482	4450	4521		4.9	-0.3	-1.9
Oil fired			762	313	322	240	178	138	91		-8.3	-5.7	-6.5
Biomass-waste fired			76	316	379	589	1387	2040	2206		17.5	13.9	4.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	40.9	45.4	51.0	58.9	59.1				
Efficiency of gross thermal power generation (%)			29.9	33.0	38.3	45.0	49.6	50.0	50.4				
% of gross electricity from CHP			24.5	28.3	31.2	30.1	28.8	27.1	22.7				
Carbon free gross electricity generation (%)			41.4	45.9	45.2	42.5	50.6	52.6	47.3				
- nuclear			40.3	38.7	39.9	36.2	34.0	30.1	25.9				
- renewable energy forms			1.1	7.2	5.4	6.3	16.6	22.5	21.4				
Transport sector													
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.8	94.9	104.2	113.4	122.2	-0.2	0.8	1.8	1.6
Public road transport	19.3	16.6	18.7	18.2	17.7	16.7	16.0	15.4	14.9	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.8	62.2	71.1	79.6	87.4	-0.1	1.4	2.8	2.1
Rail	13.9	10.9	12.3	12.2	12.1	12.0	12.1	12.1	12.2	-1.2	-0.2	0.0	0.1
Aviation	1.6	1.9	2.4	2.7	3.2	4.0	5.0	6.3	7.8	4.3	2.9	4.6	4.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	42.0	47.9	53.2	57.9	61.1	-1.9	4.2	2.4	1.4
Trucks	15.2	13.8	19.1	25.2	30.7	36.0	40.7	44.8	47.5	2.4	4.8	2.8	1.6
Rail	16.8	8.4	8.8	8.6	8.9	9.2	9.6	9.9	10.2	-6.3	0.1	0.8	0.6
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.2	3.4			2.0	1.3
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4674	5133	5464	5743	5844	0.7	3.7	1.6	0.7
Public road transport	160	124	149	167	156	140	126	112	100	-0.7	0.5	-2.1	-2.3
Private cars and motorcycles	1482	1462	1824	2321	2561	2789	2956	3079	3070	2.1	3.5	1.4	0.4
Trucks	938	695	886	1297	1542	1754	1893	2022	2119	-0.6	5.7	2.1	1.1
Rail	271	190	175	159	150	142	136	125	99	-4.3	-1.6	-1.0	-3.1
Aviation	164	182	219	230	264	306	352	404	455	2.9	1.9	2.9	2.6
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1

Source: PRIMES

Hungary: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	9481	10062	12597	-609	-215	2340	-6.0	-2.1	22.8
Solids	3948	2893	1748	877	246	1701	-847	-1488	-39	-49.1	-85.8	-2.3
Oil	2320	1665	1655	1000	1000	800	0	0	0	0.0	0.0	0.0
Natural gas	3812	2475	2331	2000	1900	1679	0	0	-21	0.0	0.0	-1.2
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	1741	2976	4445	238	1272	2401	15.9	74.6	117.5
Hydro	15	15	17	17	17	17	0	0	0	1.3	1.2	0.0
Biomass & Waste	422	415	1105	1572	2590	3682	195	1056	1897	14.2	68.8	106.2
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	40	262	615	19	188	468	92.1	253.1	317.0
Geothermal	86	86	87	105	91	82	24	28	36	29.7	45.7	79.5
Net Imports	14436	14011	17558	20241	20553	20457	-428	-1522	-2928	-2.1	-6.9	-12.5
Solids	1686	1081	1340	1097	915	1000	-6	-283	-321	-0.5	-23.6	-24.3
Oil	6621	5352	5875	7258	7413	7869	-325	-511	-466	-4.3	-6.5	-5.6
- Crude oil and Feedstocks	6475	5866	6167	7304	7451	7898	-310	-487	-444	-4.1	-6.1	-5.3
- Oil products	146	-514	-291	-46	-39	-29	-15	-24	-22	48.2	162.1	318.1
Natural gas	5170	7283	9807	11536	11692	10534	-97	-958	-3007	-0.8	-7.6	-22.2
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	29722	30616	33053	-1038	-1737	-587	-3.4	-5.4	-1.7
Solids	5969	3967	3090	1974	1161	2701	-853	-1770	-361	-30.2	-60.4	-11.8
Oil	8734	6907	7420	8258	8413	8669	-325	-511	-466	-3.8	-5.7	-5.1
Natural gas	8913	9657	12094	13536	13592	12213	-97	-958	-3028	-0.7	-6.6	-19.9
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	1741	3207	5311	238	1503	3267	15.9	88.2	159.9
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	6.6	3.8	8.2	-2.6	-5.3	-0.9			
Oil	30.5	27.6	26.6	27.8	27.5	26.2	-0.1	-0.1	-0.9			
Natural gas	31.1	38.6	43.3	45.5	44.4	36.9	1.2	-0.6	-8.4			
Nuclear	12.4	14.6	12.8	13.0	12.9	12.0	0.4	0.7	0.2			
Renewable energy forms	1.8	2.1	4.3	5.9	10.5	16.1	1.0	5.2	10.0			
Gross Electricity Generation in GWh_e	28431	35185	35749	41375	44892	59487	-5710	-7816	-966	-12.1	-14.8	-1.6
Self consumption and grid losses	5478	6295	5979	5420	5572	9353	-873	-1216	2190	-13.9	-17.9	30.6
Fuel Inputs to Thermal Power Generation	4970	5985	5659	4990	5059	7381	-1018	-1545	75	-16.9	-23.4	1.0
Solids	2871	2731	1924	1124	435	2029	-848	-1575	-163	-43.0	-78.4	-7.4
Oil (including refinery gas)	440	1052	122	0	0	2	-163	-142	-13	-99.9	-100.0	-87.1
Gas (including derived gases)	1636	2140	3078	3449	3154	2951	-118	-963	-1706	-3.3	-23.4	-36.6
Biomass & Waste	24	62	534	417	1471	2399	111	1135	1957	36.2	337.7	442.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	11095	11338	11578	-298	-516	-510	-2.6	-4.4	-4.2
Refineries	8831	7588	8390	9602	9746	9930	-311	-488	-445	-3.1	-4.8	-4.3
Biofuels and hydrogen production	0	0	0	323	544	664	43	129	101	15.2	31.2	18.0
District heating	1145	471	629	506	495	506	-49	-94	-108	-8.8	-16.0	-17.6
Derived gases, cokeries etc.	1704	1168	813	664	552	477	20	-64	-58	3.1	-10.3	-10.8
Energy Branch Consumption	1402	1162	1581	1676	1696	2044	-48	-95	201	-2.8	-5.3	10.9
Non-Energy Uses	1569	1586	2282	2658	2723	2781	-1	0	-2	-0.1	0.0	-0.1
Final Energy Demand	19258	15998	18098	20481	21204	22150	-454	-780	-983	-2.2	-3.5	-4.3
by sector												
Industry	6523	3489	3427	3601	3706	3985	-59	-164	-216	-1.6	-4.2	-5.1
- energy intensive industries	4160	2563	2328	2292	2319	2432	-43	-126	-166	-1.8	-5.2	-6.4
- other industrial sectors	2364	926	1099	1309	1387	1553	-17	-37	-50	-1.3	-2.6	-3.1
Residential	6437	5465	6411	7117	7283	7352	-160	-141	-188	-2.2	-1.9	-2.5
Tertiary	3273	3792	4085	4630	4752	4969	-166	-329	-326	-3.5	-6.5	-6.2
Transport	3024	3252	4175	5133	5464	5844	-68	-146	-253	-1.3	-2.6	-4.2
by fuel												
Solids	2502	793	692	539	449	425	-16	-79	-85	-2.8	-14.9	-16.7
Oil	6009	4173	4792	5524	5660	5895	-86	-259	-417	-1.5	-4.4	-6.6
Gas	5941	6503	7852	8667	8964	7713	37	-58	-1312	0.4	-0.6	-14.5
Electricity	2811	2658	2823	3166	3410	4225	-414	-559	-260	-11.6	-14.1	-5.8
Heat (from CHP and District Heating)	1570	1440	1297	1393	1166	1213	-82	-172	-211	-5.6	-12.8	-14.8
Renewable energy forms	425	430	642	1191	1553	2677	107	346	1302	9.9	28.7	94.8
Other	0	0	0	1	2	2	0	0	0	2.9	4.3	0.0
RES in Gross Final Energy Consumption ^(A)		482	869	1561	2824	4783	280	1360	2901	21.9	92.9	154.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	81.0	78.6	72.3	-5.6	-12.2	-20.2	-6.4	-13.4	-21.8
CO₂ Emissions (energy related)	65.5	53.6	55.0	55.7	52.8	47.5	-4.8	-11.1	-19.0	-7.9	-17.3	-28.6
Power generation/District heating	20.5	21.0	17.3	14.0	10.4	7.3	-4.5	-9.6	-14.3	-24.2	-48.0	-66.2
Energy Branch	2.5	1.5	1.9	2.5	2.5	2.6	-0.1	-0.2	0.0	-4.0	-7.2	-0.2
Industry	14.7	6.4	6.3	6.2	6.5	4.9	0.0	-0.4	-2.1	-0.6	-6.3	-30.1
Residential	13.7	9.0	10.5	11.3	11.1	10.0	0.1	0.2	-0.6	0.5	2.2	-5.4
Tertiary	5.6	6.2	6.7	7.5	7.5	7.2	0.1	-0.3	-0.9	0.9	-3.5	-10.6
Transport	8.6	9.4	12.2	14.3	14.7	15.5	-0.3	-0.8	-1.1	-2.2	-5.1	-6.9
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.6	3.9	-0.1	-0.1	-0.2	-1.5	-2.9	-4.5
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	21.9	22.2	20.9	-0.7	-1.0	-1.0	-3.1	-4.3	-4.6
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	85.1	82.6	76.0	-5.8	-12.8	-21.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: EC proposal without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	236.6	207.6	172.5	-8.3	-11.8	-3.1	-3.4	-5.4	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.87	1.73	1.44	-0.09	-0.25	-0.54	-4.7	-12.6	-27.3
Import Dependency %	50.4	56.0	62.9	68.1	67.1	61.9	0.9	-1.1	-7.6			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	20.7	23.5	27.0	0.3	0.7	0.8	1.7	3.2	3.1
as % of GDP		18.2	16.1	16.5	15.9	14.1	0.3	0.5	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.7	0.8						
as % of GDP				0.29	0.50	0.43						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	62.9	56.9	49.4	-1.0	-2.5	-2.7	-1.6	-4.2	-5.1
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	68.0	59.5	46.6	-1.5	-1.2	-1.2	-2.2	-1.9	-2.5
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	69.5	60.8	48.7	-2.5	-4.2	-3.2	-3.5	-6.5	-6.2
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	34.5	33.2	29.9	-0.3	-0.5	-0.8	-0.8	-1.6	-2.5
Freight transport (toe/Mtkm)	34.4	36.4	39.3	38.9	37.6	35.9	-0.3	-0.7	-1.2	-0.8	-1.9	-3.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.23	0.17	0.09	-0.04	-0.11	-0.17	-16.0	-39.8	-64.7
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.91	1.88	1.69	0.03	0.01	-0.13	1.6	0.5	-7.1
Industry	2.25	1.85	1.84	1.71	1.76	1.23	0.02	-0.04	-0.44	1.1	-2.2	-26.3
Residential	2.13	1.64	1.64	1.59	1.53	1.35	0.04	0.06	-0.04	2.7	4.1	-3.0
Tertiary	1.70	1.64	1.64	1.62	1.58	1.45	0.07	0.05	-0.07	4.6	3.2	-4.7
Transport	2.84	2.90	2.92	2.78	2.69	2.64	-0.02	-0.07	-0.08	-0.8	-2.6	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	7.5	13.0	20.8	1.5	6.5	12.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	8.9	10.4	0.8	2.3	2.0			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	41375	44892	59487	59487	-5710	-7816	-966	-12.1	-14.8	-1.6
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	3696	2047	10635	10635	-3129	-6031	429	-45.8	-74.7	4.2
Oil (including refinery gas)	4243	497	72	0	80	80	-712	-692	-72	-90.9	-100.0	-47.1
Gas (including derived gases)	8040	13021	20039	20123	20656	20656	-2449	-6409	-10878	-10.9	-24.2	-34.5
Biomass-waste	197	2348	2301	7033	11885	11885	577	5314	9555	33.5	309.1	410.1
Hydro (pumping excluded)	178	203	194	194	199	199	2	2	0	1.3	1.2	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	7789	8587	9971	9648	10526	10526	-603	-285	-518	-5.7	-2.9	-4.7
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8029	7542	7847	7847	-603	-285	-518	-7.0	-3.6	-6.2
of which cogeneration units	1915	2391	2598	3074	2278	2278	-226	294	-274	-8.0	10.6	-10.7
Solids fired	1683	1592	1142	494	1030	1030	-214	-407	-152	-15.8	-45.2	-12.9
Gas fired	3516	4572	6059	5482	4521	4521	-623	-885	-1811	-9.3	-13.9	-28.6
Oil fired	762	313	240	178	91	91	-14	-41	-173	-5.7	-18.7	-65.6
Biomass-waste fired	76	316	589	1387	2206	2206	249	1049	1617	73.1	310.0	274.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	45.4	51.0	59.1	59.1	-3.2	-7.0	-0.8			
Efficiency of gross thermal power generation (%)	29.9	33.0	45.0	49.6	50.4	50.4	-0.6	1.4	-1.7			
% of gross electricity from CHP	24.5	28.3	30.1	28.8	22.7	22.7	2.7	5.6	-3.0			
Carbon free gross electricity generation (%)	41.4	45.9	42.5	50.6	47.3	47.3	6.4	17.6	16.6			
- nuclear	40.3	38.7	36.2	34.0	25.9	25.9	4.4	5.0	0.4			
- renewable energy forms	1.1	7.2	6.3	16.6	21.4	21.4	2.0	12.5	16.1			
Transport sector												
Passenger transport activity (Gpkm)												
	82.0	80.0	80.3	94.9	104.2	122.2	-0.5	-1.1	-2.0	-0.6	-1.0	-1.6
Public road transport	19.3	18.7	18.2	16.7	16.0	14.9	0.1	0.1	0.2	0.4	0.7	1.0
Private cars and motorcycles	47.3	46.6	47.2	62.2	71.1	87.4	-0.4	-0.9	-1.4	-0.6	-1.3	-1.6
Rail	13.9	12.3	12.2	12.0	12.1	12.2	0.0	0.2	0.0	-0.1	1.3	-0.3
Aviation	1.6	2.4	2.7	4.0	5.0	7.8	-0.2	-0.4	-0.7	-5.1	-7.0	-7.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	34.0	27.9	35.8	47.9	53.2	61.1	-0.2	-0.4	-0.7	-0.5	-0.8	-1.1
Trucks	15.2	19.1	25.2	36.0	40.7	47.5	-0.3	-0.6	-0.8	-0.9	-1.4	-1.7
Rail	16.8	8.8	8.6	9.2	9.6	10.2	0.1	0.1	0.1	0.8	1.5	1.2
Inland navigation	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.0	0.0	0.3	0.5	0.7
Energy demand in transport (ktoe)												
	3024	3252	4175	5133	5464	5844	-68	-146	-253	-1.3	-2.6	-4.2
Public road transport	160	149	167	140	126	100	0	0	-2	-0.1	-0.4	-2.0
Private cars and motorcycles	1482	1824	2321	2789	2956	3070	-24	-54	-80	-0.9	-1.8	-2.5
Trucks	938	886	1297	1754	1893	2119	-25	-62	-111	-1.4	-3.2	-5.0
Rail	271	175	159	142	136	99	0	6	11	0.3	4.9	12.7
Aviation	164	219	230	306	352	455	-20	-36	-72	-6.0	-9.3	-13.7
Inland navigation	9	0	1	1	1	2	0	0	0	0.2	0.2	0.2

Source: PRIMES

Ireland: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	3353	4020	2175	1650	1959	2171	2796	3191	3395	-4.2	-1.0	3.6	2.0	
Solids	1312	1606	959	789	754	594	514	407	325	-3.1	-2.4	-3.8	-4.5	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	1873	2249	958	461	484	459	474	465	494	-6.5	-6.6	-0.2	0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	168	165	258	401	721	1118	1808	2319	2576	4.4	10.8	9.6	3.6	
Hydro	60	61	73	54	78	80	81	83	83	2.0	0.7	0.4	0.2	
Biomass & Waste	108	102	164	250	375	469	587	733	826	4.3	8.6	4.6	3.5	
Wind	0	1	21	96	252	495	875	1227	1340		28.2	13.3	4.4	
Solar and others	0	0	0	0	16	74	266	276	326	14.8	55.5	32.6	2.1	
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-8.0	2.6	0.6	
Net Imports	7074	7604	12234	13620	14931	14336	13264	12775	12734	5.6	2.0	-1.2	-0.4	
Solids	2064	1823	1789	1969	2036	1955	706	350	273	-1.4	1.3	-10.0	-9.1	
Oil	5010	5698	7959	8466	9624	9079	8883	8653	8412	4.7	1.9	-0.8	-0.5	
- Crude oil and Feedstocks	2018	2260	3002	3297	3342	3221	3161	3097	3031	4.1	1.1	-0.6	-0.4	
- Oil products	2992	3438	4957	5168	6282	5859	5722	5557	5382	5.2	2.4	-0.9	-0.6	
Natural gas	0	85	2478	3010	3163	2997	3092	3038	3227		2.5	-0.2	0.4	
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Gross Inland Consumption	10225	10844	14319	15121	16771	16378	15925	15827	15988	3.4	1.6	-0.5	0.0	
Solids	3416	2775	2711	2685	2790	2549	1220	757	598	-2.3	0.3	-7.9	-6.9	
Oil	4768	5571	7906	8390	9505	8951	8749	8515	8271	5.2	1.9	-0.8	-0.6	
Natural gas	1873	2334	3436	3470	3647	3456	3566	3503	3721	6.3	0.6	-0.2	0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Renewable energy forms	168	165	258	401	750	1337	2297	2949	3286	4.4	11.3	11.8	3.6	
as % in Gross Inland Consumption														
Solids	33.4	25.6	18.9	17.8	16.6	15.6	7.7	4.8	3.7					
Oil	46.6	51.4	55.2	55.5	56.7	54.7	54.9	53.8	51.7					
Natural gas	18.3	21.5	24.0	22.9	21.7	21.1	22.4	22.1	23.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.6	1.5	1.8	2.6	4.5	8.2	14.4	18.6	20.6					
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27762	29309	29659	35052	38725	5.2	1.6	0.7	2.7	
Self consumption and grid losses	2263	2665	3458	3870	3573	3621	3098	3480	3800	4.3	0.3	-1.4	2.1	
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4378	4107	3056	2975	3288	4.7	-0.9	-3.5	0.7	
Solids	1839	2028	1925	1903	2191	2061	825	435	313	0.5	1.3	-9.3	-9.2	
Oil (including refinery gas)	339	622	1019	774	147	37	0	0	0	11.6	-17.6			
Gas (including derived gases)	841	1060	1825	2040	1966	1934	1998	2054	2480	8.1	0.7	0.2	2.2	
Biomass & Waste	0	0	24	30	74	76	233	486	495		12.1	12.2	7.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	1939	2429	3481	3472	3558	3566	3686	3644	3596	6.0	0.2	0.4	-0.2	
Refineries	1742	2263	3310	3336	3342	3221	3161	3097	3031	6.6	0.1	-0.6	-0.4	
Biofuels and hydrogen production	0	0	0	1	137	292	489	526	551			13.6	1.2	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	197	167	171	135	79	54	36	22	14	-1.4	-7.4	-7.6	-9.1	
Energy Branch Consumption	168	185	246	380	339	318	269	253	247	3.9	3.3	-2.3	-0.9	
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4	
Final Energy Demand	7355	7903	10678	12346	13267	12994	13184	13231	13228	3.8	2.2	-0.1	0.0	
by sector														
Industry	1744	1851	2344	2484	2717	2784	2865	2943	3054	3.0	1.5	0.5	0.6	
- energy intensive industries	869	879	1170	1231	1383	1450	1514	1568	1629	3.0	1.7	0.9	0.7	
- other industrial sectors	875	972	1173	1253	1334	1333	1351	1375	1425	3.0	1.3	0.1	0.5	
Residential	2404	2208	2509	2923	3033	2901	2831	2773	2724	0.4	1.9	-0.7	-0.4	
Tertiary	1222	1502	1821	1958	1906	1614	1742	1735	1713	4.1	0.5	-0.9	-0.2	
Transport	1985	2343	4005	4981	5611	5695	5745	5780	5738	7.3	3.4	0.2	0.0	
by fuel														
Solids	1784	933	699	704	583	476	386	315	280	-9.0	-1.8	-4.0	-3.2	
Oil	3874	4796	6894	7990	8617	8157	8003	7765	7515	5.9	2.3	-0.7	-0.6	
Gas	568	796	1201	1337	1602	1451	1466	1349	1148	7.8	2.9	-0.9	-2.4	
Electricity	1020	1277	1744	2094	2146	2282	2366	2806	3104	5.5	2.1	1.0	2.8	
Heat (from CHP and District Heating)	0	0	0	0	1	1	1	2	2			4.6	3.8	
Renewable energy forms	108	102	141	221	318	625	959	991	1176	2.7	8.5	11.7	2.1	
Other	0	0	0	0	1	1	2	3	3			14.9	5.6	
RES in Gross Final Energy Consumption ^(A)			245	382	712	1267	2164	2780	3106		11.3	11.8	3.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.3	68.4	61.5	58.9	57.3	2.1	0.8	-2.0	-0.7	
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.7	43.5	37.8	35.1	33.3	3.1	1.0	-2.1	-1.3	
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	12.9	8.0	6.6	6.2	3.9	-0.9	-5.3	-2.5	
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.5	0.5	0.5	4.0	5.8	-1.0	-0.9	
Industry	4.0	3.9	4.8	5.2	5.7	5.7	5.6	5.5	5.2	1.8	1.8	-0.3	-0.7	
Residential	7.5	6.0	6.1	6.6	6.6	5.8	5.4	4.7	4.2	-2.1	0.9	-2.0	-2.6	
Tertiary	2.9	3.4	3.8	3.6	3.5	2.3	2.4	2.0	1.7	2.8	-0.8	-3.7	-3.3	
Transport	5.9	6.9	11.9	14.8	16.4	16.2	15.9	15.8	15.5	7.3	3.2	-0.3	-0.2	
CO ₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.6	6.1	6.6	7.1	2.1	5.5	1.7	1.5	
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	19.4	17.6	17.2	16.9	0.6	-0.3	-2.9	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	134.2	121.9	109.6	104.9	102.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	67.2	55.7	48.2	43.8	-3.6	-3.2	-3.9	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.78	2.65	2.37	2.22	2.08	-0.3	-0.5	-1.6	-1.3
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.8	82.6	80.0	78.9				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	16.4	18.2	19.1	19.8		3.9	2.3	0.8
as % of GDP			7.9	7.4	7.1	6.7	6.4	5.8	5.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	59.1	52.0	46.9	44.2	-4.0	-3.6	-2.8	-1.6
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	67.8	57.5	49.8	44.4	-4.7	-1.9	-3.6	-2.5
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	47.3	43.6	37.6	33.2	-2.4	-4.0	-4.1	-2.7
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.0	48.5	43.9	41.2	-0.2	-0.8	-2.0	-1.6
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	90.1	82.6	78.5	73.8	2.8	-1.5	-2.0	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.44	0.27	0.19	0.16	-1.3	-2.5	-5.9	-5.1
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.43	2.31	2.22	2.12	2.01	-1.0	-0.2	-0.9	-1.0
Industry	2.31	2.09	2.05	2.08	2.12	2.05	1.95	1.87	1.71	-1.2	0.3	-0.8	-1.3
Residential	3.11	2.71	2.42	2.27	2.19	2.01	1.92	1.69	1.54	-2.5	-1.0	-1.3	-2.2
Tertiary	2.34	2.28	2.07	1.83	1.82	1.41	1.37	1.15	1.00	-1.2	-1.3	-2.8	-3.1
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.76	2.73	2.71	0.1	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.2	9.5	16.1	20.5	22.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.1	8.6	9.4	10.1				
Gross Electricity generation by source (in GWh)													
			23669	24992	27762	29309	29659	35052	38725		1.6	0.7	2.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10577	9957	3938	2033	1167		1.9	-9.4	-11.4
Oil (including refinery gas)			4516	3390	642	132	0	0	0		-17.7		
Gas (including derived gases)			9231	11197	12373	12185	13012	14994	16988		3.0	0.5	2.7
Biomass-waste			96	125	328	338	1028	2177	3185		13.1	12.1	12.0
Hydro (pumping excluded)			846	631	907	927	946	963	969		0.7	0.4	0.2
Wind			244	1112	2930	5760	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	545	590	792				3.8
Net Generation Capacity in MW_e			4627	6052	8286	7758	9626	11952	13366		6.0	1.5	3.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2327	4129	5394	6003		17.3	9.3	3.8
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2058	3557	4776	5250		28.5	9.4	4.0
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	283	306	411				3.8
<u>Thermal power</u>			4284	5338	6596	5431	5497	6558	7363		4.4	-1.8	3.0
of which cogeneration units			108	561	384	564	458	697	1337		13.5	1.8	11.3
Solids fired			1282	1367	1361	1335	1314	1312	1312		0.6	-0.4	0.0
Gas fired			1974	2937	4116	3889	3892	4735	5356		7.6	-0.6	3.2
Oil fired			1010	995	1006	92	64	7	7		0.0	-24.1	-19.8
Biomass-waste fired			18	39	113	115	227	504	688		20.1	7.2	11.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.2	41.1	34.2	32.8	32.5				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.3	50.6	55.5	55.8				
% of gross electricity from CHP			1.1	0.9	6.0	6.6	8.9	8.6	8.4				
Carbon free gross electricity generation (%)			5.0	7.5	15.0	24.0	42.9	51.4	53.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	15.0	24.0	42.9	51.4	53.1				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	61.5	69.4	76.4	81.5	5.5	3.7	2.5	1.6
Public road transport	3.9	5.2	6.1	6.7	7.3	7.7	8.2	8.6	8.9	4.7	1.8	1.2	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	35.6	39.9	43.5	45.3	5.3	4.1	2.4	1.3
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.4	4.0	4.8	1.3	5.5	3.7	3.6
Aviation	3.2	5.1	7.9	9.6	11.7	13.9	16.3	18.7	20.9	9.5	4.0	3.3	2.5
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.4	28.8	30.9	32.3	8.5	5.9	2.0	1.2
Trucks	5.1	5.5	12.3	17.9	22.6	25.1	27.4	29.3	30.6	9.2	6.3	1.9	1.1
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.5	0.5	-1.8	-3.3	2.2	1.2
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	1.0	1.1	1.2	9.3	2.1	3.2	2.3
Energy demand in transport (ktoe)													
	1985	2343	4005	4981	5611	5695	5745	5780	5738	7.3	3.4	0.2	0.0
Public road transport	58	76	99	101	98	91	85	83	87	5.5	-0.2	-1.3	0.2
Private cars and motorcycles	993	1146	1695	1915	2085	2068	2045	1957	1910	5.5	2.1	-0.2	-0.7
Trucks	495	653	1532	2066	2355	2341	2342	2388	2359	12.0	4.4	-0.1	0.1
Rail	48	50	42	44	51	51	39	39	29	-1.4	2.1	-2.5	-3.2
Aviation	365	390	613	836	1002	1121	1210	1288	1327	5.3	5.0	1.9	0.9
Inland navigation	26	28	25	18	20	22	24	25	25	-0.5	-2.1	1.6	0.8

Source: PRIMES

Ireland: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2171	2796	3395	-71	360	-722	-3.2	14.8	27.0
Solids	1312	959	789	594	514	325	-149	-214	-347	-20.1	-29.4	-51.6
Oil	0	0	0	0	0	0	0	0	0	-116.3	-4422.7	-197.1
Natural gas	1873	958	461	459	474	494	-109	-102	-6	-19.2	-17.7	-1.2
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	168	258	401	1118	1808	2576	187	675	1074	20.1	59.6	71.6
Hydro	60	73	54	80	81	83	2	1	0	3.2	1.7	0.0
Biomass & Waste	108	164	250	469	587	826	0	0	43	0.0	0.0	5.5
Wind	0	21	96	495	875	1340	147	460	772	42.0	110.7	135.9
Solar and others	0	0	0	74	266	326	38	214	259	106.7	418.3	385.6
Geothermal	0	0	0	0	0	0	0	0	0	13.3	43.9	66.8
Net Imports	7074	12234	13620	14336	13264	12734	-2028	-3623	-4235	-12.4	-21.5	-25.0
Solids	2064	1789	1969	1955	706	273	-339	-1945	-1875	-14.8	-73.4	-87.3
Oil	5010	7959	8466	9079	8883	8412	-1124	-1376	-2023	-11.0	-13.4	-19.4
- Crude oil and Feedstocks	2018	3002	3297	3221	3161	3031	-337	-393	-538	-9.5	-11.1	-15.1
- Oil products	2992	4957	5168	5859	5722	5382	-787	-983	-1485	-11.8	-14.7	-21.6
Natural gas	0	2478	3010	2997	3092	3227	-713	-664	-879	-19.2	-17.7	-21.4
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	16378	15925	15988	-2099	-3263	-3512	-11.4	-17.0	-18.0
Solids	3416	2711	2685	2549	1220	598	-488	-2160	-2222	-16.1	-63.9	-78.8
Oil	4768	7906	8390	8951	8749	8271	-1123	-1376	-2022	-11.2	-13.6	-19.6
Natural gas	1873	3436	3470	3456	3566	3721	-822	-765	-885	-19.2	-17.7	-19.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1337	2297	3286	335	1038	1617	33.4	82.4	96.8
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	15.6	7.7	3.7	-0.9	-10.0	-10.7			
Oil	46.6	55.2	55.5	54.7	54.9	51.7	0.1	2.2	-1.1			
Natural gas	18.3	24.0	22.9	21.1	22.4	23.3	-2.1	-0.2	-0.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	8.2	14.4	20.6	2.7	7.9	12.0			
Gross Electricity Generation in GWh_e	14226	23669	24992	29309	29659	38725	-4925	-7085	2	-14.4	-19.3	0.0
Self consumption and grid losses	2263	3458	3870	3621	3098	3800	-668	-1482	-731	-15.6	-32.4	-16.1
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4107	3056	3288	-1079	-2323	-1751	-20.8	-43.2	-34.7
Solids	1839	1925	1903	2061	825	313	-400	-2056	-2134	-16.3	-71.4	-87.2
Oil (including refinery gas)	339	1019	774	37	0	0	-190	-16	0	-83.9	-100.0	4290.0
Gas (including derived gases)	841	1825	2040	1934	1998	2480	-481	-381	87	-19.9	-16.0	3.6
Biomass & Waste	0	24	30	76	233	495	-8	131	296	-9.9	128.9	149.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	1939	3481	3472	3566	3686	3596	-311	-311	-518	-8.0	-7.8	-12.6
Refineries	1742	3310	3336	3221	3161	3031	-337	-393	-538	-9.5	-11.1	-15.1
Biofuels and hydrogen production	0	0	1	292	489	551	38	93	28	14.9	23.6	5.4
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	197	171	135	54	36	14	-12	-11	-8	-18.0	-23.7	-37.9
Energy Branch Consumption	168	246	380	318	269	247	-45	-104	-108	-12.4	-27.9	-30.5
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	12994	13184	13228	-1497	-1900	-2486	-10.3	-12.6	-15.8
by sector												
Industry	1744	2344	2484	2784	2865	3054	-106	-166	-231	-3.7	-5.5	-7.0
- energy intensive industries	869	1170	1231	1450	1514	1629	-36	-53	-66	-2.4	-3.4	-3.9
- other industrial sectors	875	1173	1253	1333	1351	1425	-69	-114	-165	-5.0	-7.8	-10.4
Residential	2404	2509	2923	2901	2831	2724	-345	-480	-618	-10.6	-14.5	-18.5
Tertiary	1222	1821	1958	1614	1742	1713	-671	-628	-765	-29.4	-26.5	-30.9
Transport	1985	4005	4981	5695	5745	5738	-375	-626	-872	-6.2	-9.8	-13.2
by fuel												
Solids	1784	699	704	476	386	280	-85	-99	-82	-15.2	-20.4	-22.7
Oil	3874	6894	7990	8157	8003	7515	-908	-1299	-1957	-10.0	-14.0	-20.7
Gas	568	1201	1337	1451	1466	1148	-324	-400	-982	-18.3	-21.4	-46.1
Electricity	1020	1744	2094	2282	2366	3104	-365	-480	65	-13.8	-16.9	2.1
Heat (from CHP and District Heating)	0	0	0	1	1	2	0	0	1	-8.7	10.3	53.6
Renewable energy forms	108	141	221	625	959	1176	185	379	469	42.2	65.5	66.3
Other	0	0	0	1	2	3	0	-1	0	56.4	-23.8	-8.3
RES in Gross Final Energy Consumption ^(A)		245	382	1267	2164	3106	329	1002	1590	35.0	86.2	104.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	68.4	61.5	57.3	-10.8	-19.1	-22.8	-13.6	-23.7	-28.5
CO₂ Emissions (energy related)	30.9	42.1	45.7	43.5	37.8	33.3	-7.3	-14.5	-17.9	-14.3	-27.7	-34.9
Power generation/District heating	10.4	15.2	14.8	12.9	8.0	6.2	-3.3	-9.1	-9.2	-20.6	-53.1	-59.7
Energy Branch	0.2	0.3	0.6	0.6	0.5	0.5	-0.1	-0.1	-0.2	-8.7	-16.0	-24.2
Industry	4.0	4.8	5.2	5.7	5.6	5.2	-0.3	-0.6	-1.3	-4.3	-10.0	-19.7
Residential	7.5	6.1	6.6	5.8	5.4	4.2	-1.0	-1.2	-2.3	-14.2	-18.5	-35.1
Tertiary	2.9	3.8	3.6	2.3	2.4	1.7	-1.4	-1.3	-2.1	-38.2	-34.8	-55.5
Transport	5.9	11.9	14.8	16.2	15.9	15.5	-1.2	-2.2	-2.9	-7.0	-12.0	-15.7
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.6	6.1	7.1	-0.1	-0.2	-0.2	-2.4	-2.7	-2.4
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	19.4	17.6	16.9	-3.4	-4.5	-4.8	-14.9	-20.3	-22.1
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	121.9	109.6	102.0	-19.2	-34.1	-40.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Ireland: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	67.2	55.7	43.8	-8.6	-11.4	-9.6	-11.4	-17.0	-18.0
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.65	2.37	2.08	-0.09	-0.35	-0.54	-3.3	-12.9	-20.7
Import Dependency %	69.1	84.5	89.5	86.8	82.6	78.9	-1.1	-4.8	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	16.4	18.2	19.8	1.1	1.6	1.9	6.9	9.9	10.5
as % of GDP		7.9	7.4	6.7	6.4	5.4	0.4	0.6	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				1.1	1.7	2.0						
as % of GDP				0.46	0.61	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	59.1	52.0	44.2	-2.2	-3.0	-3.3	-3.7	-5.5	-7.0
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	67.8	57.5	44.4	-8.1	-9.7	-10.1	-10.6	-14.5	-18.5
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	47.3	43.6	33.2	-19.7	-15.7	-14.9	-29.4	-26.5	-30.9
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.0	48.5	41.2	-1.5	-2.3	-2.7	-2.7	-4.5	-6.1
Freight transport (toe/Mtkm)	89.6	117.7	111.2	90.1	82.6	73.8	-4.0	-7.3	-10.8	-4.2	-8.1	-12.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.44	0.27	0.16	-0.03	-0.20	-0.24	-7.3	-41.9	-59.7
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.22	2.01	-0.03	-0.07	-0.23	-1.2	-3.1	-10.1
Industry	2.31	2.05	2.08	2.05	1.95	1.71	-0.01	-0.10	-0.27	-0.7	-4.7	-13.6
Residential	3.11	2.42	2.27	2.01	1.92	1.54	-0.08	-0.09	-0.39	-4.0	-4.6	-20.4
Tertiary	2.34	2.07	1.83	1.41	1.37	1.00	-0.20	-0.18	-0.55	-12.4	-11.3	-35.6
Transport	2.96	2.97	2.98	2.85	2.76	2.71	-0.03	-0.07	-0.08	-0.9	-2.4	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	9.5	16.1	22.9	3.2	8.6	13.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.1	8.6	10.1	0.9	2.4	2.0			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	29309	29659	38725	38725	-4925	-7085	2	-14.4	-19.3	0.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	9957	3938	1167	1167	-2264	-10606	-12315	-18.5	-72.9	-91.3
Oil (including refinery gas)	4516	3390	132	0	0	0	-910	-55	0	-87.4	-100.0	6949.5
Gas (including derived gases)	9231	11197	12185	13012	16988	16988	-3441	-2891	302	-22.0	-18.2	1.8
Biomass-waste	96	125	338	1028	3185	3185	-43	562	2244	-11.3	120.7	238.4
Hydro (pumping excluded)	846	631	927	946	969	969	29	16	0	3.2	1.7	0.0
Wind	244	1112	5760	10172	15585	15585	1705	5345	8979	42.0	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	545	792	792	0	545	792			
Net Generation Capacity in MW_e												
	4627	6052	7758	9626	13366	13366	-399	623	3074	-4.9	6.9	29.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2327	4129	6003	6003	512	1990	3151	28.2	93.0	110.5
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2058	3557	5250	5250	512	1707	2740	33.1	92.3	109.1
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	283	411	411	0	283	411			
<u>Thermal power</u>	4284	5338	5431	5497	7363	7363	-911	-1367	-76	-14.4	-19.9	-1.0
of which cogeneration units	108	561	564	458	1337	1337	-43	-68	427	-7.0	-12.9	46.9
Solids fired	1282	1367	1335	1314	1312	1312	-261	-460	-1163	-16.4	-26.0	-47.0
Gas fired	1974	2937	3889	3892	5356	5356	-649	-990	523	-14.3	-20.3	10.8
Oil fired	1010	995	92	64	7	7	0	-17	0	0.0	-20.7	0.9
Biomass-waste fired	18	39	115	227	688	688	0	100	564	-0.4	78.8	455.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	41.1	34.2	32.5	32.5	-4.4	-10.2	-8.8			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.3	50.6	55.8	55.8	-1.2	1.1	2.7			
% of gross electricity from CHP	1.1	0.9	6.6	8.9	8.4	8.4	-0.5	1.1	0.5			
Carbon free gross electricity generation (%)	5.0	7.5	24.0	42.9	53.1	53.1	8.4	25.9	31.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	24.0	42.9	53.1	53.1	8.4	25.9	31.0			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	61.5	69.4	81.5	-1.5	-2.4	-3.2	-2.3	-3.3	-3.8
Public road transport	3.9	6.1	6.7	7.7	8.2	8.9	0.2	0.3	0.4	2.7	3.9	4.4
Private cars and motorcycles	12.6	21.1	26.0	35.6	39.9	45.3	-1.2	-1.9	-2.6	-3.2	-4.6	-5.4
Rail	1.2	1.4	1.8	2.8	3.4	4.8	0.1	0.1	0.3	2.4	4.0	6.7
Aviation	3.2	7.9	9.6	13.9	16.3	20.9	-0.6	-0.9	-1.3	-3.8	-5.2	-6.0
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.2	0.2	0.3
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.4	28.8	32.3	-1.0	-1.5	-1.9	-3.8	-5.1	-5.7
Trucks	5.1	12.3	17.9	25.1	27.4	30.6	-1.1	-1.6	-2.1	-4.2	-5.6	-6.3
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.1	8.8	11.2	12.6
Inland navigation	0.2	0.6	0.6	0.8	1.0	1.2	0.0	0.1	0.1	4.6	6.1	6.8
Energy demand in transport (ktoe)												
	1985	4005	4981	5695	5745	5738	-375	-626	-872	-6.2	-9.8	-13.2
Public road transport	58	99	101	91	85	87	-1	-5	-8	-0.8	-5.1	-8.3
Private cars and motorcycles	993	1695	1915	2068	2045	1910	-117	-179	-191	-5.4	-8.0	-9.1
Trucks	495	1532	2066	2341	2342	2359	-205	-349	-515	-8.0	-13.0	-17.9
Rail	48	42	44	51	39	29	1	1	1	2.7	2.7	5.4
Aviation	365	613	836	1121	1210	1327	-54	-94	-159	-4.6	-7.2	-10.7
Inland navigation	26	25	18	22	24	25	0	0	0	0.3	-0.1	-1.6

Source: PRIMES

Italy: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	25537	29408	27099	28044	31252	33922	35901	38639	41373	0.6	1.4	1.4	1.4	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5918	5720	5614	5598	5500	0.1	2.2	-0.5	-0.2	
Natural gas	14030	16347	13622	9886	10680	9614	8000	7884	8000	-0.3	-2.4	-2.8	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14654	18587	22287	25156	27873	2.9	5.4	4.3	2.3	
Hydro	2719	3249	3812	3101	3243	3243	3243	3243	3243	3.4	-1.6	0.0	0.0	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9892	10967	7.3	11.8	4.6	2.9	
Wind	0	1	48	202	464	867	1524	2082	2837	73.3	25.4	12.6	6.4	
Solar and others	5	8	12	23	174	2214	3487	4047	4962	9.2	30.3	35.0	3.6	
Geothermal	2971	3167	3103	4791	5516	5692	5818	5891	5862	0.4	5.9	0.5	0.1	
Net Imports	132060	134651	152953	160475	163917	153317	152901	154439	154019	1.5	0.7	-0.7	0.1	
Solids	13792	12987	13188	16366	16936	15908	12929	13696	11824	-0.4	2.5	-2.7	-0.9	
Oil	89885	89684	88458	79421	75533	70211	67460	67446	66842	-0.2	-1.6	-1.1	-0.1	
- Crude oil and Feedstocks	84284	82558	90244	94404	90397	87253	85585	85615	85302	0.7	0.0	-0.5	0.0	
- Oil products	5602	7126	-1786	-14983	-14864	-17042	-18125	-18169	-18459					
Natural gas	25311	28530	47008	59840	65644	59095	59997	59129	60067	6.4	3.4	-0.9	0.0	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	191630	183603	185138	189393	191710	1.2	1.1	-0.3	0.3	
Solids	14621	12272	12659	16477	16936	15908	12929	13696	11824	-1.4	3.0	-2.7	-0.9	
Oil	89860	93248	88947	83169	77912	72295	69410	69360	68660	-0.1	-1.3	-1.1	-0.1	
Natural gas	39001	44652	57940	70651	76324	68709	67997	67013	68067	4.0	2.8	-1.1	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	16665	22741	30946	35584	39434	3.3	6.1	6.4	2.5	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.8	8.7	7.0	7.2	6.2					
Oil	58.7	57.8	51.6	44.5	40.7	39.4	37.5	36.6	35.8					
Natural gas	25.5	27.7	33.6	37.8	39.8	37.4	36.7	35.4	35.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	8.7	12.4	16.7	18.8	20.6					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314771	299268	318800	351357	378798	2.4	1.5	0.1	1.7	
Self consumption and grid losses	30076	32312	36552	38396	33435	31728	33112	37050	39120	2.0	-0.9	-0.1	1.7	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	49290	44218	44478	48117	48369	1.7	0.3	-1.0	0.8	
Solids	7017	5287	5836	10001	10139	9111	6513	7405	5854	-1.8	5.7	-4.3	-1.1	
Oil (including refinery gas)	21528	25009	18955	9642	2712	498	358	418	442	-1.3	-17.7	-18.3	2.1	
Gas (including derived gases)	8971	10234	19665	26402	29430	25754	24499	25390	26495	8.2	4.1	-1.8	0.8	
Biomass & Waste	39	94	419	2270	1696	3427	7614	9366	10038	26.8	15.0	16.2	2.8	
Geothermal heat	2770	2954	2890	4578	5313	5428	5495	5538	5540	0.4	6.3	0.3	0.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	105964	104316	103699	103731	103215	0.3	0.3	-0.2	0.0	
Refineries	91545	92283	96749	102214	98427	95128	93374	93301	92814	0.6	0.2	-0.5	-0.1	
Biofuels and hydrogen production	0	0	0	162	2292	3884	5360	5665	5977			8.9	1.1	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5246	5304	4965	4764	4424	-2.8	-1.0	-0.5	-1.1	
Energy Branch Consumption	7045	7362	7289	8620	7952	7481	7270	7313	7176	0.3	0.9	-0.9	-0.1	
Non-Energy Uses	9896	13633	10838	11007	11299	11866	12330	12416	12401	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	142320	137398	138872	141129	143989	1.4	1.4	-0.2	0.4	
by sector														
Industry	36221	36430	39489	40729	43491	43974	44472	45453	46900	0.9	1.0	0.2	0.5	
- energy intensive industries	25218	24737	24840	25798	27479	27974	28053	28352	28846	-0.2	1.0	0.2	0.3	
- other industrial sectors	11002	11692	14648	14931	16012	16000	16419	17101	18054	2.9	0.9	0.3	1.0	
Residential	26284	26673	28331	31849	34157	31530	32728	33137	33521	0.8	1.9	-0.4	0.2	
Tertiary	11252	12970	14171	17898	18762	17041	17210	17523	17794	2.3	2.8	-0.9	0.3	
Transport	33404	37636	41263	43604	45911	44854	44461	45015	45774	2.1	1.1	-0.3	0.3	
by fuel														
Solids	4209	4012	3681	4220	4690	4714	4433	4346	4168	-1.3	2.5	-0.6	-0.6	
Oil	53623	53099	56147	58196	59661	56119	53207	53259	52696	0.5	0.6	-1.1	-0.1	
Gas	29813	34652	37984	43747	45097	41244	42163	40755	40547	2.5	1.7	-0.7	-0.4	
Electricity	18408	20442	23435	25828	27352	26333	27808	30156	32329	2.4	1.6	0.2	1.5	
Heat (from CHP and District Heating)	0	0	0	0	12	11	13	14	14			0.8	0.6	
Renewable energy forms	1107	1505	2007	2089	5505	8966	11232	12585	14218	6.1	10.6	7.4	2.4	
Other	0	0	0	0	3	12	15	15	16			17.4	1.1	
RES in Gross Final Energy Consumption (A)			6472	7301	10979	16915	24196	28407	32054		5.4	8.2	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	572.2	517.3	487.5	487.6	480.4	0.7	0.5	-1.6	-0.1	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	445.0	404.1	380.2	380.6	373.6	0.9	0.5	-1.6	-0.2	
Power generation/District heating	118.9	126.1	130.7	133.8	119.4	99.6	86.0	91.7	88.1	1.0	-0.9	-3.2	0.2	
Energy Branch	16.6	17.0	16.6	20.2	18.5	17.1	15.2	13.4	13.1	0.1	1.0	-1.9	-1.5	
Industry	79.6	75.4	77.5	81.6	85.9	86.4	84.1	81.2	77.9	-0.3	1.0	-0.2	-0.8	
Residential	55.6	52.8	54.7	61.3	64.8	56.8	56.8	56.2	56.0	-0.2	1.7	-1.3	-0.1	
Tertiary	19.1	21.2	22.0	27.2	27.8	22.7	21.7	21.0	20.5	1.4	2.4	-2.5	-0.6	
Transport	97.1	108.9	119.7	126.8	128.7	121.5	116.5	117.1	118.0	2.1	0.7	-1.0	0.1	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	37.3	37.5	38.1	38.7	-1.6	2.2	0.0	0.3	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	75.8	69.8	69.0	68.2	0.8	-0.2	-2.5	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	112.8	102.0	96.1	96.1	94.7					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)									Italy: EC proposal without RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.3	107.7	99.3	93.6	88.4	-0.4	-0.1	-2.2	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.32	2.20	2.05	2.01	1.95	-0.3	-0.5	-1.2	-0.5
Import Dependency %	84.8	82.3	87.3	84.4	84.0	81.9	81.0	80.0	78.8				
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	171.3	204.1	231.1	247.9	263.1		2.3	3.0	1.3
as % of GDP			9.9	10.3	11.1	12.0	12.4	12.2	12.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	108.0	98.4	90.3	84.0	80.2	-0.3	0.8	-1.8	-1.2
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.7	91.3	87.2	81.7	77.5	-0.9	0.8	-2.2	-1.2
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.8	95.0	87.5	82.1	77.8	0.4	1.5	-2.8	-1.2
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	30.5	30.2	29.9	30.1	-0.5	-0.1	-0.2	0.0
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	50.7	46.6	45.0	43.5	-1.1	1.5	-1.6	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.33	0.27	0.26	0.23	-1.4	-2.4	-3.4	-1.5
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.16	2.09	2.01	1.95	1.89	-0.5	-0.3	-0.7	-0.6
Industry	2.20	2.07	1.96	2.00	1.97	1.96	1.89	1.79	1.66	-1.1	0.1	-0.4	-1.3
Residential	2.11	1.98	1.93	1.93	1.90	1.80	1.73	1.70	1.67	-0.9	-0.2	-0.9	-0.4
Tertiary	1.70	1.63	1.55	1.52	1.48	1.33	1.26	1.20	1.15	-0.9	-0.4	-1.6	-0.9
Transport	2.91	2.89	2.90	2.91	2.80	2.71	2.62	2.60	2.58	0.0	-0.3	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	7.6	12.1	17.1	19.7	21.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.8	8.4	12.0	12.7	13.3				
Gross Electricity generation by source (in GWh)													
			270016	296786	314771	299268	318800	351357	378798		1.5	0.1	1.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			25679	45155	48870	48869	36366	40719	33263		6.6	-2.9	-0.9
Oil (including refinery gas)			82354	43300	13053	2472	1886	1974	2374		-16.8	-17.6	2.3
Gas (including derived gases)			109707	154992	193917	175182	176069	175650	183878		5.9	-1.0	0.4
Biomass-waste			2685	7485	7176	15782	36518	55306	64496		10.3	17.7	5.9
Hydro (pumping excluded)			44328	36061	37714	37714	37714	37714	37714		-1.6	0.0	0.0
Wind			563	2344	5398	10083	17719	24212	32993		25.4	12.6	6.4
Solar			18	31	84	386	3417	6548	15136		16.6	44.9	16.0
Geothermal and other renewables			4682	7417	8559	8780	9111	9234	8943		6.2	0.6	-0.2
Net Generation Capacity in MW_e			69851	76966	100313	92349	97615	103857	120365		3.7	-0.3	2.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			14588	15810	17239	20051	26141	33077	46232		1.7	4.3	5.9
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0
Wind			427	1639	3010	5519	9473	14253	21627		21.6	12.1	8.6
Solar			26	38	93	349	2353	4471	10191		13.6	38.2	15.8
Other renewables (tidal etc.)			0	0	0	45	176	214	275				4.6
<u>Thermal power</u>			55264	61156	83074	72297	71474	70780	74132		4.2	-1.5	0.4
of which cogeneration units			9682	10847	11409	11551	13418	14885	15375		1.7	1.6	1.4
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8
Gas fired			27466	33995	53490	50063	47829	45449	49505		6.9	-1.1	0.3
Oil fired			16795	15253	15327	7597	5498	3765	1076		-0.9	-9.7	-15.0
Biomass-waste fired			597	1223	1392	3936	7733	11880	13856		8.8	18.7	6.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			785	971	1014	1039	1054	1064	1092		2.6	0.4	0.4
Avg. Load factor of net power capacity (%)			41.7	41.7	34.6	35.6	36.0	37.2	34.7				
Efficiency of gross thermal power generation (%)			40.5	42.0	47.4	48.8	50.2	50.5	52.0				
% of gross electricity from CHP			11.6	8.1	17.4	20.3	23.7	24.4	22.6				
Carbon free gross electricity generation (%)			19.4	18.0	18.7	24.3	32.8	37.9	42.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			19.4	18.0	18.7	24.3	32.8	37.9	42.0				
Transport sector													
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	998.9	1023.7	1054.8	1080.6	3.0	0.3	0.3	0.5
Public road transport	84.0	87.1	93.6	101.3	107.1	112.4	116.2	117.9	118.5	1.1	1.4	0.8	0.2
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	766.1	774.6	791.1	805.0	3.3	0.0	-0.1	0.4
Rail	48.9	49.1	52.7	52.3	51.8	53.2	55.9	60.4	65.0	0.8	-0.2	0.8	1.5
Aviation	21.3	27.9	38.2	43.1	51.3	61.5	71.0	79.2	86.0	6.0	3.0	3.3	1.9
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.8	5.9	6.0	6.1	-0.8	-0.1	0.1	0.4
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	284.1	291.2	299.4	304.3	2.5	1.6	0.4	0.4
Trucks	130.9	174.4	184.7	211.8	229.4	230.2	233.8	238.9	241.0	3.5	2.2	0.2	0.3
Rail	19.4	21.7	22.8	20.1	21.3	24.6	26.7	28.9	30.9	1.7	-0.7	2.3	1.5
Inland navigation	35.8	35.4	30.2	28.1	28.2	29.3	30.7	31.6	32.4	-1.7	-0.7	0.8	0.5
Energy demand in transport (ktoe)	33404	37636	41263	43604	45911	44854	44461	45015	45774	2.1	1.1	-0.3	0.3
Public road transport	684	599	656	701	752	747	696	675	674	-0.4	1.4	-0.8	-0.3
Private cars and motorcycles	20584	23615	25521	24557	25005	24160	24128	24349	25080	2.2	-0.2	-0.4	0.4
Trucks	9137	9737	10559	13327	14505	13616	12830	12736	12548	1.5	3.2	-1.2	-0.2
Rail	738	819	834	907	920	927	855	832	801	1.2	1.0	-0.7	-0.6
Aviation	1872	2418	3491	3863	4481	5157	5705	6175	6424	6.4	2.5	2.4	1.2
Inland navigation	389	448	202	248	247	246	247	247	247	-6.3	2.0	0.0	0.0

Source: PRIMES

Italy: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	33922	35901	41373	1875	4063	7013	5.9	12.8	20.4
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	5720	5614	5500	-627	-386	0	-9.9	-6.4	0.0
Natural gas	14030	13622	9886	9614	8000	8000	-386	0	0	-3.9	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	18587	22287	27873	2887	4449	7013	18.4	24.9	33.6
Hydro	2719	3812	3101	3243	3243	3243	97	143	175	3.1	4.6	5.7
Biomass & Waste	849	1716	3505	6571	8214	10967	356	610	1325	5.7	8.0	13.7
Wind	0	48	202	867	1524	2837	9	325	1657	1.0	27.1	140.4
Solar and others	5	12	23	2214	3487	4962	1668	2542	3642	305.8	269.0	275.8
Geothermal	2971	3103	4791	5692	5818	5862	757	828	214	15.3	16.6	3.8
Net Imports	132060	152953	160475	153317	152901	154019	-28800	-40112	-46909	-15.8	-20.8	-23.3
Solids	13792	13188	16366	15908	12929	11824	-3901	-7814	-9334	-19.7	-37.7	-44.1
Oil	89885	88458	79421	70211	67460	66842	-14148	-18732	-19470	-16.8	-21.7	-22.6
- Crude oil and Feedstocks	84284	90244	94404	87253	85585	85302	-9785	-13406	-14102	-10.1	-13.5	-14.2
- Oil products	5602	-1786	-14983	-17042	-18125	-18459	-4364	-5327	-5368	34.4	41.6	41.0
Natural gas	25311	47008	59840	59095	59997	60067	-13803	-20877	-27958	-18.9	-25.8	-31.8
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	183603	185138	191710	-26917	-36033	-39874	-12.8	-16.3	-17.2
Solids	14621	12659	16477	15908	12929	11824	-3901	-7814	-9334	-19.7	-37.7	-44.1
Oil	89860	88947	83169	72295	69410	68660	-14767	-19102	-19448	-17.0	-21.6	-22.1
Natural gas	39001	57940	70651	68709	67997	68067	-14188	-20877	-27958	-17.1	-23.5	-29.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	22741	30946	39434	5940	11760	16866	35.4	61.3	74.7
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.7	7.0	6.2	-0.7	-2.4	-3.0			
Oil	58.7	51.6	44.5	39.4	37.5	35.8	-2.0	-2.5	-2.2			
Natural gas	25.5	33.6	37.8	37.4	36.7	35.5	-2.0	-3.5	-6.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	12.4	16.7	20.6	4.4	8.0	10.8			
Gross Electricity Generation in GWh_e	213400	270016	296786	299268	318800	378798	-94132	-118958	-117402	-23.9	-27.2	-23.7
Self consumption and grid losses	30076	36552	38396	31728	33112	39120	-10845	-14080	-14066	-25.5	-29.8	-26.4
Fuel Inputs to Thermal Power Generation	40325	47764	52894	44218	44478	48369	-15928	-20967	-22392	-26.5	-32.0	-31.6
Solids	7017	5836	10001	9111	6513	5854	-3869	-7166	-8459	-29.8	-52.4	-59.1
Oil (including refinery gas)	21528	18955	9642	498	358	442	-6378	-5861	-4636	-92.8	-94.2	-91.3
Gas (including derived gases)	8971	19665	26402	25754	24499	26495	-7080	-13093	-14967	-21.6	-34.8	-36.1
Biomass & Waste	39	419	2270	3427	7614	10038	735	4498	5670	27.3	144.4	129.8
Geothermal heat	2770	2890	4578	5428	5495	5540	664	655	0	13.9	13.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	104316	103699	103215	-8763	-12418	-13597	-7.7	-10.7	-11.6
Refineries	91545	96749	102214	95128	93374	92814	-10426	-13806	-14117	-9.9	-12.9	-13.2
Biofuels and hydrogen production	0	0	162	3884	5360	5977	1237	1447	701	46.7	37.0	13.3
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5304	4965	4424	425	-59	-181	8.7	-1.2	-3.9
Energy Branch Consumption	7045	7289	8620	7481	7270	7176	-972	-1402	-1506	-11.5	-16.2	-17.3
Non-Energy Uses	9896	10838	11007	11866	12330	12401	-49	-56	-64	-0.4	-0.5	-0.5
Final Energy Demand	107160	123254	134080	137398	138872	143989	-17676	-23759	-27983	-11.4	-14.6	-16.3
by sector												
Industry	36221	39489	40729	43974	44472	46900	-928	-2273	-3360	-2.1	-4.9	-6.7
- energy intensive industries	25218	24840	25798	27974	28053	28846	-85	-1043	-1701	-0.3	-3.6	-5.6
- other industrial sectors	11002	14648	14931	16000	16419	18054	-842	-1230	-1659	-5.0	-7.0	-8.4
Residential	26284	28331	31849	31530	32728	33521	-5818	-6062	-6277	-15.6	-15.6	-15.8
Tertiary	11252	14171	17898	17041	17210	17794	-5891	-7236	-8048	-25.7	-29.6	-31.1
Transport	33404	41263	43604	44854	44461	45774	-5038	-8188	-10298	-10.1	-15.6	-18.4
by fuel												
Solids	4209	3681	4220	4714	4433	4168	17	-497	-702	0.4	-10.1	-14.4
Oil	53623	56147	58196	56119	53207	52696	-7813	-12423	-13888	-12.2	-18.9	-20.9
Gas	29813	37984	43747	41244	42163	40547	-6890	-6968	-11523	-14.3	-14.2	-22.1
Electricity	18408	23435	25828	26333	27808	32329	-7128	-8959	-8810	-21.3	-24.4	-21.4
Heat (from CHP and District Heating)	0	0	0	11	13	14	-12	-12	-13	-51.6	-47.4	-47.9
Renewable energy forms	1107	2007	2089	8966	11232	14218	4143	5095	6957	85.9	83.0	95.8
Other	0	0	0	12	15	16	6	4	-4	117.5	39.6	-19.2
RES in Gross Final Energy Consumption ^(A)		6472	7301	16915	24196	32054	5158	10570	16185	43.9	77.6	102.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	517.3	487.5	480.4	-107.1	-157.1	-180.8	-17.2	-24.4	-27.3
CO₂ Emissions (energy related)	386.9	421.3	451.0	404.1	380.2	373.6	-93.9	-138.3	-161.6	-18.9	-26.7	-30.2
Power generation/District heating	118.9	130.7	133.8	99.6	86.0	88.1	-52.2	-77.6	-83.2	-34.4	-47.4	-48.6
Energy Branch	16.6	16.6	20.2	17.1	15.2	13.1	-2.1	-4.3	-6.0	-11.1	-22.2	-31.6
Industry	79.6	77.5	81.6	86.4	84.1	77.9	-0.6	-5.1	-14.7	-0.7	-5.7	-15.9
Residential	55.6	54.7	61.3	56.8	56.0	56.0	-13.3	-14.6	-15.8	-19.0	-20.5	-22.0
Tertiary	19.1	22.0	27.2	22.7	21.7	20.5	-7.4	-8.1	-8.4	-24.7	-27.3	-29.1
Transport	97.1	119.7	126.8	121.5	116.5	118.0	-18.2	-28.4	-33.6	-13.1	-19.6	-22.2
CO₂ Emissions (non energy related)	35.5	30.2	36.1	37.3	37.5	38.7	-1.1	-2.1	-2.6	-3.0	-5.2	-6.2
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	75.8	69.8	68.2	-12.0	-16.8	-16.6	-13.7	-19.4	-19.6
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	102.0	96.1	94.7	-21.1	-31.0	-35.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Italy: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	107.7	99.3	88.4	-15.8	-19.3	-18.4	-12.8	-16.3	-17.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.20	2.05	1.95	-0.16	-0.29	-0.36	-7.0	-12.4	-15.7
Import Dependency %	84.8	87.3	84.4	81.9	81.0	78.8	-3.2	-4.9	-6.6			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	204.1	231.1	263.1	14.9	20.7	28.5	7.8	9.8	12.2
as % of GDP		9.9	10.3	12.0	12.4	12.1	0.9	1.1	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				15.1	21.2	29.1						
as % of GDP				0.89	1.14	1.34						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	98.4	90.3	80.2	-2.1	-4.6	-5.7	-2.1	-4.9	-6.7
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	91.3	87.2	77.5	-16.9	-16.1	-14.5	-15.6	-15.6	-15.8
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	95.0	87.5	77.8	-32.8	-36.8	-35.2	-25.7	-29.6	-31.1
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	30.5	30.2	30.1	-1.2	-2.1	-2.2	-3.8	-6.6	-6.8
Freight transport (toe/Mtkm)	53.0	47.3	54.0	50.7	46.6	43.5	-5.6	-10.0	-14.1	-9.9	-17.7	-24.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.33	0.27	0.23	-0.05	-0.10	-0.11	-13.7	-27.8	-32.6
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.09	2.01	1.89	-0.02	-0.05	-0.11	-0.8	-2.5	-5.6
Industry	2.20	1.96	2.00	1.96	1.89	1.66	0.03	-0.02	-0.18	1.4	-0.9	-9.8
Residential	2.11	1.93	1.93	1.80	1.73	1.67	-0.08	-0.11	-0.13	-4.1	-5.8	-7.3
Tertiary	1.70	1.55	1.52	1.33	1.26	1.15	0.02	0.04	0.03	1.4	3.3	3.0
Transport	2.91	2.90	2.91	2.71	2.62	2.58	-0.09	-0.13	-0.13	-3.3	-4.8	-4.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	12.1	17.1	21.8	4.7	8.9	12.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	8.4	12.0	13.3	3.2	4.7	3.9			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	299268	318800	378798	378798	-94132	-118958	-117402	-23.9	-27.2	-23.7
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	48869	36366	33263	33263	-17195	-33286	-45472	-26.0	-47.8	-57.8
Oil (including refinery gas)	82354	43300	2472	1886	2374	2374	-31452	-28224	-27443	-92.7	-93.7	-92.0
Gas (including derived gases)	109707	154992	175182	176069	183878	183878	-50892	-88575	-122041	-22.5	-33.5	-39.9
Biomass-waste	2685	7485	15782	36518	64496	64496	3141	21904	42644	24.8	149.9	195.1
Hydro (pumping excluded)	44328	36061	37714	37714	37714	37714	1131	1666	2036	3.1	4.6	5.7
Wind	563	2344	10083	17719	32993	32993	103	3776	19267	1.0	27.1	140.4
Solar	18	31	386	3417	15136	15136	8	2609	13224	2.2	322.9	691.3
Geothermal and other renewables	4682	7417	8780	9111	8943	8943	1024	1172	384	13.2	14.8	4.5
Net Generation Capacity in MW_e	69851	76966	92349	97615	120365	120365	-6146	-6139	1903	-6.2	-5.9	1.6
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	14588	15810	20051	26141	46232	46232	50	3807	23086	0.2	17.0	99.7
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5519	9473	21627	21627	-1	2004	14416	0.0	26.8	199.9
Solar	26	38	349	2353	10191	10191	5	1656	8471	1.5	237.6	492.3
Other renewables (tidal etc.)	0	0	45	176	275	275	45	146	199		488.2	261.4
<u>Thermal power</u>	55264	61156	72297	71474	74132	74132	-6196	-9945	-21183	-7.9	-12.2	-22.2
of which cogeneration units	9682	10847	11551	13418	15375	15375	-3363	-3966	-3378	-22.5	-22.8	-18.0
Solids fired	9621	9715	9662	9361	8602	8602	-269	-533	-1215	-2.7	-5.4	-12.4
Gas fired	27466	33995	50063	47829	49505	49505	-6850	-13961	-25424	-12.0	-22.6	-33.9
Oil fired	16795	15253	7597	5498	1076	1076	-292	-354	-4856	-3.7	-6.1	-81.9
Biomass-waste fired	597	1223	3936	7733	13856	13856	1147	4820	10324	41.1	165.5	292.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	1039	1054	1092	1092	69	84	-13	7.1	8.6	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	35.6	36.0	34.7	34.7	-8.3	-10.5	-11.6			
Efficiency of gross thermal power generation (%)	40.5	42.0	48.8	50.2	52.0	52.0	-0.7	-0.6	-2.1			
% of gross electricity from CHP	11.6	8.1	20.3	23.7	22.6	22.6	-0.5	0.3	-0.6			
Carbon free gross electricity generation (%)	19.4	18.0	24.3	32.8	42.0	42.0	7.2	16.0	25.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	24.3	32.8	42.0	42.0	7.2	16.0	25.6			
Transport sector												
Passenger transport activity (Gpkm)	722.2	969.5	980.5	998.9	1023.7	1080.6	-39.6	-54.6	-65.6	-3.8	-5.1	-5.7
Public road transport	84.0	93.6	101.3	112.4	116.2	118.5	4.1	5.8	6.8	3.8	5.3	6.0
Private cars and motorcycles	561.6	779.1	777.9	766.1	774.6	805.0	-42.8	-58.2	-69.5	-5.3	-7.0	-7.9
Rail	48.9	52.7	52.3	53.2	55.9	65.0	1.2	1.0	1.7	2.3	1.8	2.7
Aviation	21.3	38.2	43.1	61.5	71.0	86.0	-1.9	-3.1	-4.4	-3.0	-4.2	-4.9
Inland navigation	6.4	5.9	5.8	5.8	5.9	6.1	-0.1	-0.1	-0.1	-2.1	-1.8	-1.8
Freight transport activity (Gtkm)	186.1	237.6	260.0	284.1	291.2	304.3	-17.9	-23.4	-26.7	-5.9	-7.4	-8.1
Trucks	130.9	184.7	211.8	230.2	233.8	241.0	-21.3	-27.7	-32.0	-8.5	-10.6	-11.7
Rail	19.4	22.8	20.1	24.6	26.7	30.9	2.3	2.8	3.6	10.2	11.7	13.1
Inland navigation	35.8	30.2	28.1	29.3	30.7	32.4	1.1	1.5	1.8	4.0	5.2	5.8
Energy demand in transport (ktoe)	33404	41263	43604	44854	44461	45774	-5038	-8188	-10298	-10.1	-15.6	-18.4
Public road transport	684	656	701	747	696	674	-29	-100	-104	-3.7	-12.6	-13.3
Private cars and motorcycles	20584	25521	24557	24160	24128	25080	-2195	-3401	-3462	-8.3	-12.4	-12.1
Trucks	9137	10559	13327	13616	12830	12548	-2609	-4230	-5773	-16.1	-24.8	-31.5
Rail	738	834	907	927	855	801	7	-44	-67	0.8	-4.9	-7.7
Aviation	1872	3491	3863	5157	5705	6424	-211	-407	-881	-3.9	-6.7	-12.1
Inland navigation	389	202	248	246	247	247	-2	-5	-12	-0.6	-1.9	-4.5

Source: PRIMES

Latvia: EC proposal without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	1245	1639	1576	2304	2557	2860	3306	3346	3598	2.4	5.0	2.6	0.9	
Solids	182	234	49	6	4	0	0	0	0	-12.3	-22.6			
Oil	1	0	0	7	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1062	1405	1527	2291	2553	2860	3306	3346	3598	3.7	5.3	2.6	0.9	
Hydro	387	253	242	286	261	246	261	262	260	-4.6	0.7	0.0	-0.1	
Biomass & Waste	675	1153	1284	2001	2262	2549	2942	2953	3180	6.6	5.8	2.7	0.8	
Wind	0	0	0	4	30	64	99	124	149		56.5	12.5	4.2	
Solar and others	0	0	0	0	0	2	4	7	9			24.5	7.8	
Geothermal	0	0	0	0	0	0	0	0	0			3.0	0.3	
Net Imports	7440	3358	2253	2783	3108	3266	3285	3682	3784	-11.3	3.3	0.6	1.4	
Solids	627	170	62	76	76	59	59	67	68	-20.7	2.1	-2.5	1.4	
Oil	3944	2086	1096	1662	1997	2041	2126	2364	2410	-12.0	6.2	0.6	1.3	
- Crude oil and Feedstocks	1	2	93	4	1	1	1	2	2	55.9	-34.6	1.1	0.8	
- Oil products	3942	2084	1003	1658	1995	2039	2124	2362	2409	-12.8	7.1	0.6	1.3	
Natural gas	2561	999	1113	1434	1512	1715	1718	1789	1907	-8.0	3.1	1.3	1.0	
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Gross Inland Consumption	8059	4854	4007	4720	5341	5734	6141	6528	6847	-6.7	2.9	1.4	1.1	
Solids	867	456	252	83	80	59	59	67	68	-11.6	-10.9	-2.9	1.4	
Oil	3458	1885	1155	1376	1672	1648	1676	1864	1875	-10.4	3.8	0.0	1.1	
Natural gas	2380	1010	1092	1358	1512	1715	1718	1789	1907	-7.5	3.3	1.3	1.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Renewable energy forms	1045	1309	1354	1718	1906	2130	2463	2500	2687	2.6	3.5	2.6	0.9	
as % in Gross Inland Consumption														
Solids	10.8	9.4	6.3	1.8	1.5	1.0	1.0	1.0	1.0					
Oil	42.9	38.8	28.8	29.2	31.3	28.7	27.3	28.6	27.4					
Natural gas	29.5	20.8	27.3	28.8	28.3	29.9	28.0	27.4	27.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	13.0	27.0	33.8	36.4	35.7	37.2	40.1	38.3	39.2					
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6352	7418	8364	9027	10496	-4.6	4.4	2.8	2.3	
Self consumption and grid losses	1248	732	720	783	483	552	631	719	834	-5.4	-3.9	2.7	2.8	
Fuel Inputs to Thermal Power Generation	926	722	607	591	566	724	793	854	1034	-4.1	-0.7	3.4	2.7	
Solids	59	194	142	0	0	0	0	0	0	9.2				
Oil (including refinery gas)	177	242	77	13	24	0	0	0	0	-8.0	-11.1			
Gas (including derived gases)	690	286	388	541	512	691	726	746	861	-5.6	2.8	3.5	1.7	
Biomass & Waste	0	0	0	37	31	33	68	107	173			8.2	9.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2601	941	645	591	674	664	755	770	784	-13.0	0.4	1.1	0.4	
Refineries	1	1	1	1	1	1	1	2	2	0.0	1.9	1.1	0.8	
Biofuels and hydrogen production	0	0	0	3	51	88	149	172	191			11.4	2.5	
District heating	2573	930	643	587	622	575	604	597	592	-12.9	-0.3	-0.3	-0.2	
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3				
Energy Branch Consumption	130	149	151	102	103	109	112	117	120	1.5	-3.8	0.8	0.8	
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1	
Final Energy Demand	6445	3880	3332	4046	4787	5094	5454	5801	6053	-6.4	3.7	1.3	1.0	
by sector														
Industry	1972	701	614	827	1132	1313	1477	1677	1843	-11.0	6.3	2.7	2.2	
- energy intensive industries	707	305	219	282	452	525	551	582	602	-11.1	7.5	2.0	0.9	
- other industrial sectors	1265	396	396	545	680	788	926	1095	1241	-11.0	5.6	3.1	3.0	
Residential	1632	1663	1368	1476	1545	1520	1603	1663	1690	-1.7	1.2	0.4	0.5	
Tertiary	1747	804	606	744	855	872	901	918	915	-10.0	3.5	0.5	0.2	
Transport	1094	712	744	999	1255	1389	1473	1543	1605	-3.8	5.4	1.6	0.9	
by fuel														
Solids	330	126	58	73	75	59	59	66	68	-16.0	2.7	-2.5	1.4	
Oil	2047	1119	1003	1220	1436	1529	1546	1722	1730	-6.9	3.6	0.7	1.1	
Gas	672	366	329	508	576	645	677	877	884	-6.9	5.8	1.6	2.7	
Electricity	768	470	443	537	674	769	887	1020	1138	-5.3	4.3	2.8	2.5	
Heat (from CHP and District Heating)	2013	905	590	598	569	544	591	598	620	-11.5	-0.4	0.4	0.5	
Renewable energy forms	616	894	909	1111	1457	1549	1694	1515	1612	4.0	4.8	1.5	-0.5	
Other	0	0	0	0	0	0	1	1	1			18.2	7.1	
RES in Gross Final Energy Consumption ^(A)			1305	1787	1862	2052	2347	2337	2508		3.6	2.3	0.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	13.4	13.3	13.4	13.7	13.7	-9.3	2.7	0.0	0.2	
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.5	8.8	8.9	9.6	9.9	-9.7	2.1	0.4	1.1	
Power generation/District heating	10.0	4.5	2.8	2.1	2.5	2.4	2.4	2.1	2.3	-12.0	-0.9	-0.7	-0.2	
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	5.0	-10.7	-0.6	0.7	
Industry	2.5	1.3	0.9	1.0	1.2	1.3	1.4	2.2	2.2	-9.7	2.9	1.1	4.8	
Residential	1.2	0.5	0.3	0.5	0.6	0.5	0.6	0.7	0.8	-13.7	6.9	1.0	2.6	
Tertiary	2.1	0.8	0.5	0.6	0.6	0.5	0.5	0.5	0.5	-12.8	0.8	-1.3	-0.8	
Transport	3.2	2.1	2.2	2.9	3.6	3.9	3.9	4.0	4.1	-3.7	5.1	1.0	0.4	
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	0.9	1.2	1.4	1.5	-8.5	11.4	5.2	2.4	
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.5	3.4	2.7	2.3	-8.3	3.0	-1.9	-3.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	49.4	48.9	49.6	50.6	50.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: EC proposal without RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4	
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1	
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	282.9	225.7	193.0	170.6	157.9	-3.4	-4.8	-3.8	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.60	1.54	1.44	1.47	1.45	-3.1	-0.8	-1.0	0.0	
Import Dependency %	87.3	67.1	56.1	55.9	54.9	53.3	49.8	52.4	51.3					
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.4	5.3	5.9	6.5		6.6	4.6	2.1	
as % of GDP			20.5	18.8	17.8	17.3	16.6	15.5	14.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.2	70.9	62.8	58.9	57.1	-3.7	-1.7	-2.9	-0.9	
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.0	37.6	31.9	27.7	24.9	1.7	-6.5	-4.6	-2.4	
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	64.9	49.0	40.4	34.1	29.9	-10.7	-4.2	-4.6	-3.0	
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.1	28.6	27.2	27.5	1.4	-0.5	-1.5	-0.4	
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	16.3	15.7	15.0	14.4	-2.5	-0.1	-0.9	-0.9	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.18	0.16	0.14	0.12	0.12	-3.0	-2.0	-2.3	-1.4	
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.24	1.24	1.18	1.29	1.24	-1.8	0.5	-0.5	0.5	
Industry	1.28	1.88	1.48	1.26	1.07	1.02	0.92	1.34	1.18	1.5	-3.2	-1.5	2.5	
Residential	0.75	0.31	0.21	0.33	0.36	0.36	0.38	0.43	0.47	-12.1	5.6	0.7	2.0	
Tertiary	1.21	1.02	0.89	0.85	0.68	0.60	0.56	0.54	0.51	-3.0	-2.6	-1.8	-0.9	
Transport	2.90	2.89	2.92	2.94	2.85	2.79	2.68	2.61	2.55	0.1	-0.2	-0.6	-0.5	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	37.7	39.2	42.0	39.4	40.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.8	9.3	10.4	11.3					
Gross Electricity generation by source (in GWh)														
			4135	4904	6352	7418	8364	9027	10496		4.4	2.8	2.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			91	0	0	0	0	0	0					
Oil (including refinery gas)			117	0	89	0	0	0	0		-2.7			
Gas (including derived gases)			1104	1490	2745	3673	3861	4017	4890		9.5	3.5	2.4	
Biomass-waste			0	43	130	141	313	518	837			9.2	10.3	
Hydro (pumping excluded)			2818	3324	3035	2857	3040	3042	3024		0.7	0.0	-0.1	
Wind			4	47	353	745	1147	1446	1738		56.5	12.5	4.2	
Solar			0	0	0	2	3	5	7			21.7	7.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2062	2144	2766	2956	3108	2965	3285		3.0	1.2	0.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1519	1578	1730	1910	2127	2261	2410		1.3	2.1	1.3	
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0	
Wind			2	24	170	344	553	680	823		56.0	12.5	4.1	
Solar			0	0	1	4	7	11	14			21.4	7.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			543	565	1036	1046	981	704	875		6.7	-0.5	-1.1	
of which cogeneration units			542	564	465	572	577	611	653		-1.5	2.2	1.2	
Solids fired			29	2	2	2	2	0	0		-23.3	1.1		
Gas fired			414	502	949	957	868	617	732		8.7	-0.9	-1.7	
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0	
Biomass-waste fired			2	16	25	25	50	71	127		26.7	7.2	9.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			20.4	23.5	25.7	28.2	30.2	34.2	35.9					
Efficiency of gross thermal power generation (%)			18.6	22.3	45.0	45.3	45.3	45.7	47.6					
% of gross electricity from CHP			24.0	11.8	43.6	43.9	41.5	39.9	36.9					
Carbon free gross electricity generation (%)			68.3	69.6	55.4	50.5	53.8	55.5	53.4					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			68.3	69.6	55.4	50.5	53.8	55.5	53.4					
Transport sector														
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.2	24.5	26.6	27.9	-3.6	4.7	2.3	1.3	
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.4	3.4	-8.7	2.7	0.9	0.2	
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	16.8	18.6	20.4	21.5	4.2	5.4	2.4	1.5	
Rail	5.8	1.8	1.1	1.3	1.5	1.8	2.0	2.2	2.3	-15.5	3.2	3.1	1.6	
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.5	2.4	
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4				
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	42.8	49.3	54.9	58.2	-3.1	7.0	3.3	1.7	
Trucks	5.9	1.8	4.8	8.4	11.8	14.8	17.9	21.3	23.8	-2.0	9.5	4.3	2.9	
Rail	18.5	9.8	13.3	17.9	23.7	28.0	31.4	33.6	34.4	-3.3	5.9	2.8	0.9	
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1094	712	744	999	1255	1389	1473	1543	1605	-3.8	5.4	1.6	0.9	
Public road transport	111	41	23	25	26	25	24	22	21	-14.6	1.3	-0.8	-1.4	
Private cars and motorcycles	317	284	373	451	539	571	587	609	656	1.7	3.7	0.9	1.1	
Trucks	370	240	241	371	495	569	643	726	783	-4.2	7.5	2.6	2.0	
Rail	188	90	75	93	118	135	133	98	56	-8.7	4.6	1.2	-8.2	
Aviation	73	26	27	59	77	88	86	88	89	-9.6	11.1	1.1	0.4	
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7				

Source: PRIMES

Latvia: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	2860	3306	3598	2	168	223	0.1	5.4	6.6
Solids	182	49	6	0	0	0	-4	-4	-3	-100.0	-100.0	-100.0
Oil	1	0	7	0	0	0	0	0	0	60.1	35.5	-36.1
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1062	1527	2291	2860	3306	3598	5	172	226	0.2	5.5	6.7
Hydro	387	242	286	246	261	260	1	0	0	0.6	0.0	0.1
Biomass & Waste	675	1284	2001	2549	2942	3180	10	165	197	0.4	5.9	6.6
Wind	0	0	4	64	99	149	-6	6	28	-8.2	6.9	22.6
Solar and others	0	0	0	2	4	9	0	1	2	10.4	17.1	24.0
Geothermal	0	0	0	0	0	0	0	0	0	9.4	11.8	12.7
Net Imports	7440	2253	2783	3266	3285	3784	-612	-992	-1177	-15.8	-23.2	-23.7
Solids	627	62	76	59	59	68	-13	-24	-19	-17.7	-28.5	-21.9
Oil	3944	1096	1662	2041	2126	2410	-402	-531	-621	-16.5	-20.0	-20.5
- Crude oil and Feedstocks	1	93	4	1	1	2	0	0	0	-15.7	-20.0	-21.6
- Oil products	3942	1003	1658	2039	2124	2409	-402	-531	-620	-16.5	-20.0	-20.5
Natural gas	2561	1113	1434	1715	1718	1907	-194	-390	-480	-10.2	-18.5	-20.1
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	5734	6141	6847	-610	-824	-952	-9.6	-11.8	-12.2
Solids	867	252	83	59	59	68	-16	-27	-22	-21.7	-31.4	-24.5
Oil	3458	1155	1376	1648	1676	1875	-402	-530	-620	-19.6	-24.0	-24.8
Natural gas	2380	1092	1358	1715	1718	1907	-194	-390	-480	-10.2	-18.5	-20.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2130	2463	2687	3	125	170	0.1	5.3	6.7
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.0	1.0	1.0	-0.2	-0.3	-0.2			
Oil	42.9	28.8	29.2	28.7	27.3	27.4	-3.6	-4.4	-4.6			
Natural gas	29.5	27.3	28.8	29.9	28.0	27.9	-0.2	-2.3	-2.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	37.2	40.1	39.2	3.6	6.5	7.0			
Gross Electricity Generation in GWh_e	6647	4135	4904	7418	8364	10496	-817	-868	-512	-9.9	-9.4	-4.7
Self consumption and grid losses	1248	720	783	552	631	834	-86	-109	-78	-13.4	-14.7	-8.5
Fuel Inputs to Thermal Power Generation	926	607	591	724	793	1034	-153	-188	-146	-17.5	-19.2	-12.3
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	0	0	0	-42	-41	0	-100.0	-100.0	
Gas (including derived gases)	690	388	541	691	726	861	-54	-131	-161	-7.3	-15.3	-15.8
Biomass & Waste	0	0	37	33	68	173	-57	-15	15	-63.3	-18.4	9.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	664	755	784	-103	-70	-119	-13.4	-8.5	-13.1
Refineries	1	1	1	1	1	2	0	0	0	-15.7	-20.0	-21.6
Biofuels and hydrogen production	0	0	3	88	149	191	11	23	1	14.5	18.1	0.6
District heating	2573	643	587	575	604	592	-113	-92	-119	-16.5	-13.2	-16.8
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	109	112	120	-21	-29	-34	-15.8	-20.3	-22.0
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5094	5454	6053	-495	-697	-857	-8.9	-11.3	-12.4
by sector												
Industry	1972	614	827	1313	1477	1843	-37	-87	-89	-2.7	-5.6	-4.6
- energy intensive industries	707	219	282	525	551	602	-8	-18	-15	-1.5	-3.1	-2.4
- other industrial sectors	1265	396	545	788	926	1241	-29	-69	-74	-3.5	-7.0	-5.6
Residential	1632	1368	1476	1520	1603	1690	-156	-149	-156	-9.3	-8.5	-8.4
Tertiary	1747	606	744	872	901	915	-140	-174	-234	-13.9	-16.2	-20.4
Transport	1094	744	999	1389	1473	1605	-162	-288	-378	-10.4	-16.3	-19.1
by fuel												
Solids	330	58	73	59	59	68	-12	-16	-15	-16.9	-20.9	-18.0
Oil	2047	1003	1220	1529	1546	1730	-239	-382	-551	-13.5	-19.8	-24.2
Gas	672	329	508	645	677	884	-84	-130	-178	-11.5	-16.1	-16.8
Electricity	768	443	537	769	887	1138	-63	-65	-37	-7.5	-6.8	-3.1
Heat (from CHP and District Heating)	2013	590	598	544	591	620	-149	-144	-179	-21.5	-19.6	-22.4
Renewable energy forms	616	909	1111	1549	1694	1612	52	39	103	3.5	2.4	6.9
Other	0	0	0	0	1	1	0	0	0	48.9	-0.5	21.6
RES in Gross Final Energy Consumption ^(A)		1305	1787	2052	2347	2508	24	117	174	1.2	5.3	7.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	13.3	13.4	13.7	-2.8	-4.3	-4.5	-17.5	-24.1	-24.5
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.8	8.9	9.9	-1.8	-2.7	-3.1	-16.7	-23.0	-23.9
Power generation/District heating	10.0	2.8	2.1	2.4	2.4	2.3	-0.6	-0.9	-0.7	-20.1	-28.0	-23.6
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.1	-0.2	-0.2	-0.2	-71.0	-74.0	-75.1
Industry	2.5	0.9	1.0	1.3	1.4	2.2	-0.2	-0.3	-0.7	-14.0	-18.6	-23.1
Residential	1.2	0.3	0.5	0.5	0.6	0.8	-0.1	-0.1	-0.2	-18.0	-19.3	-18.6
Tertiary	2.1	0.5	0.6	0.5	0.5	0.5	-0.1	-0.1	-0.2	-18.4	-20.8	-24.7
Transport	3.2	2.2	2.9	3.9	3.9	4.1	-0.5	-0.9	-1.2	-11.7	-19.1	-22.4
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.9	1.2	1.5	0.0	0.0	-0.1	-2.3	-3.5	-4.1
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.5	3.4	2.3	-1.0	-1.6	-1.3	-22.7	-31.6	-35.4
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	48.9	49.6	50.7	-10.4	-15.8	-16.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	225.7	193.0	157.9	-24.0	-25.9	-22.0	-9.6	-11.8	-12.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.54	1.44	1.45	-0.13	-0.21	-0.22	-7.8	-12.7	-13.3
Import Dependency %	87.3	56.1	55.9	53.3	49.8	51.3	-4.3	-7.8	-8.3			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.4	5.3	6.5	0.3	0.5	0.7	8.0	9.8	11.2
as % of GDP		20.5	18.8	17.3	16.6	14.9	1.3	1.5	1.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.5	0.7						
as % of GDP				1.35	1.59	1.59						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	70.9	62.8	57.1	-2.0	-3.7	-2.7	-2.7	-5.6	-4.6
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	37.6	31.9	24.9	-3.9	-3.0	-2.3	-9.3	-8.5	-8.4
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	49.0	40.4	29.9	-7.9	-7.8	-7.7	-13.9	-16.2	-20.4
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.1	28.6	27.5	-1.2	-2.2	-0.2	-3.8	-7.0	-0.9
Freight transport (toe/Mtkm)	22.3	17.3	17.5	16.3	15.7	14.4	-2.0	-3.2	-4.5	-10.9	-16.9	-23.8
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.16	0.14	0.12	-0.01	-0.03	-0.02	-8.4	-18.7	-14.8
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.24	1.18	1.24	-0.06	-0.11	-0.16	-4.9	-8.8	-11.4
Industry	1.28	1.48	1.26	1.02	0.92	1.18	-0.13	-0.15	-0.28	-11.6	-13.8	-19.4
Residential	0.75	0.21	0.33	0.36	0.38	0.47	-0.04	-0.05	-0.06	-9.5	-11.8	-11.0
Tertiary	1.21	0.89	0.85	0.60	0.56	0.51	-0.03	-0.03	-0.03	-5.3	-5.5	-5.4
Transport	2.90	2.92	2.94	2.79	2.68	2.55	-0.04	-0.09	-0.11	-1.4	-3.3	-4.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		36.9	42.2	39.2	42.0	40.6	4.0	6.6	7.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	5.8	9.3	11.3	1.2	2.7	2.3			
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7418	8364	10496		-817	-868	-512	-9.9	-9.4	-4.7
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	0	0	0	0	-161	-159	0	-100.0	-100.0	
Gas (including derived gases)	1104	1490	3673	3861	4890		-309	-682	-901	-7.8	-15.0	-15.6
Biomass-waste	0	43	141	313	837		-298	-101	67	-67.8	-24.4	8.7
Hydro (pumping excluded)	2818	3324	2857	3040	3024		17	0	2	0.6	0.0	0.1
Wind	4	47	745	1147	1738		-67	74	320	-8.2	6.9	22.6
Solar	0	0	2	3	7		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	2062	2144	2956	3108	3285		-97	17	65	-3.2	0.6	2.0
<u>Nuclear energy</u>	0	0	0	0	0		0	0	0			
<u>Renewable energy</u>	1519	1578	1910	2127	2410		-60	37	158	-3.1	1.8	7.0
Hydro (pumping excluded)	1517	1554	1563	1567	1574		0	0	0	0.0	0.0	0.0
Wind	2	24	344	553	823		-60	37	158	-15.0	7.2	23.7
Solar	0	0	4	7	14		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	543	565	1046	981	875		-36	-20	-93	-3.3	-2.0	-9.6
of which cogeneration units	542	564	572	577	653		7	-181	-90	1.3	-23.8	-12.1
Solids fired	29	2	2	2	0		0	0	0	0.0	0.0	
Gas fired	414	502	957	868	732		0	-8	-120	0.0	-0.9	-14.1
Oil fired	98	45	61	62	15		0	0	0	0.0	0.0	0.0
Biomass-waste fired	2	16	25	50	127		-36	-12	28	-58.8	-19.5	27.6
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	28.2	30.2	35.9		-2.0	-3.2	-2.4			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.3	45.3	47.6		0.4	0.4	-0.2			
% of gross electricity from CHP	24.0	11.8	43.9	41.5	36.9		1.6	3.8	-4.0			
Carbon free gross electricity generation (%)	68.3	69.6	50.5	53.8	53.4		0.8	4.8	6.0			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	50.5	53.8	53.4		0.8	4.8	6.0			
Transport sector												
Passenger transport activity (Gpkm)												
	17.7	12.3	15.8	22.2	24.5	27.9	-0.7	-1.1	-1.4	-3.0	-4.2	-4.9
Public road transport	5.9	2.3	2.8	3.2	3.3	3.4	0.1	0.2	0.2	3.7	5.0	5.7
Private cars and motorcycles	5.8	8.7	11.6	16.8	18.6	21.5	-0.8	-1.3	-1.7	-4.8	-6.5	-7.4
Rail	5.8	1.1	1.3	1.8	2.0	2.3	0.1	0.1	0.1	4.1	5.4	6.2
Aviation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-4.1	-5.6	-6.2
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	24.8	18.1	26.3	42.8	49.3	58.2	-1.4	-2.4	-3.7	-3.3	-4.6	-6.0
Trucks	5.9	4.8	8.4	14.8	17.9	23.8	-2.0	-3.1	-4.6	-11.8	-14.7	-16.3
Rail	18.5	13.3	17.9	28.0	31.4	34.4	0.5	0.7	0.9	2.0	2.4	2.7
Inland navigation	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1094	744	999	1389	1473	1605	-162	-288	-378	-10.4	-16.3	-19.1
Public road transport	111	23	25	25	24	21	0	-1	-3	0.1	-4.2	-11.6
Private cars and motorcycles	317	373	451	571	587	656	-43	-67	-23	-7.0	-10.2	-3.4
Trucks	370	241	371	569	643	783	-114	-201	-324	-16.7	-23.8	-29.3
Rail	188	75	93	135	133	56	1	-1	-7	1.0	-1.0	-11.2
Aviation	73	27	59	88	86	89	-6	-18	-21	-6.8	-16.9	-19.1
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1162	1430	4647	5006	5578	-3.9	-9.7	14.9	1.8	
Solids	42	43	35	39	9	6	4	1	1	-1.7	-12.3	-7.5	-11.9	
Oil	12	130	347	239	236	260	265	266	270	40.0	-3.8	1.2	0.2	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Renewable energy sources	321	501	656	777	917	1164	1578	1893	2415	7.4	3.4	5.6	4.3	
Hydro	36	32	29	39	34	36	36	36	37	-2.0	1.5	0.6	0.3	
Biomass & Waste	285	469	627	735	866	1086	1484	1764	2259	8.2	3.3	5.5	4.3	
Wind	0	0	0	0	17	40	55	87	110			12.5	7.3	
Solar and others	0	0	0	0	1	1	3	5	8			20.9	9.0	
Geothermal	0	0	0	3	0	0	0	0	0			2.8	1.2	
Net Imports	11666	5643	4327	5096	6758	7459	6211	6492	6584	-9.4	4.6	-0.8	0.6	
Solids	758	157	84	190	235	221	162	162	165	-19.8	10.9	-3.7	0.2	
Oil	7260	3686	2299	2677	2837	3110	3158	3155	3203	-10.9	2.1	1.1	0.1	
- Crude oil and Feedstocks	9531	3609	4827	9054	9944	10933	11135	11147	11321	-6.6	7.5	1.1	0.2	
- Oil products	-2271	77	-2528	-6377	-7107	-7823	-7977	-7993	-8118					
Natural gas	4678	2029	2065	2492	3685	4228	3348	3636	3694	-7.9	6.0	-1.0	1.0	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7752	8699	10654	11285	11948	-7.9	0.9	3.2	1.2	
Solids	831	285	121	215	244	227	166	163	166	-17.5	7.3	-3.8	0.0	
Oil	6878	3080	2190	2746	2904	3180	3208	3208	3260	-10.8	2.9	1.0	0.1	
Natural gas	4678	2029	2064	2476	3685	4228	3348	3636	3694	-7.9	6.0	-1.0	1.0	
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	894	1135	1539	1847	2355	7.3	3.3	5.6	4.3	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	3.1	2.6	1.6	1.4	1.4					
Oil	42.8	35.4	30.9	31.9	37.5	36.6	30.2	28.4	27.3					
Natural gas	29.1	23.3	29.1	28.8	47.5	48.6	31.4	32.2	30.9					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	26.3	25.2	24.2					
Renewable energy forms	2.0	5.7	9.2	8.8	11.5	13.1	14.4	16.4	19.7					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11458	14055	20857	22753	24847	-9.0	0.3	6.2	1.8	
Self consumption and grid losses	3486	2241	1906	1788	865	1037	1613	1796	2045	-5.9	-7.6	6.4	2.4	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2275	2692	1590	1839	2185	-10.0	9.6	-3.5	3.2	
Solids	0	0	0	0	53	53	1	1	3			-36.4	18.4	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.3		
Gas (including derived gases)	1543	433	716	1044	2182	2590	1490	1654	1750	-7.4	11.8	-3.7	1.6	
Biomass & Waste	0	0	0	5	38	49	99	184	431			10.0	15.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10565	11594	12075	12002	12045	-6.6	6.3	1.3	0.0	
Refineries	9561	3392	5086	9418	10112	11155	11380	11403	11585	-6.1	7.1	1.2	0.2	
Biofuels and hydrogen production	0	0	0	3	14	56	168	191	200			28.2	1.8	
District heating	1823	1079	657	522	435	381	526	407	258	-9.7	-4.0	1.9	-6.9	
Derived gases, cokeries etc.	24	18	12	8	4	3	2	1	1	-7.0	-10.2	-8.7	-2.8	
Energy Branch Consumption	991	601	655	915	775	867	957	995	1032	-4.1	1.7	2.1	0.8	
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1508	-2.7	4.1	2.5	2.0	
Final Energy Demand	9696	4728	3820	4527	5127	5667	6135	6546	6965	-8.9	3.0	1.8	1.3	
by sector														
Industry	3334	1025	782	996	1129	1292	1448	1636	1848	-13.5	3.7	2.5	2.5	
- energy intensive industries	1678	482	362	436	530	603	678	763	856	-14.2	3.9	2.5	2.4	
- other industrial sectors	1656	543	420	560	599	689	770	873	992	-12.8	3.6	2.5	2.6	
Residential	1854	1733	1402	1437	1519	1635	1797	1933	2086	-2.8	0.8	1.7	1.5	
Tertiary	2518	933	589	697	788	840	913	960	995	-13.5	3.0	1.5	0.9	
Transport	1990	1037	1048	1397	1692	1901	1976	2018	2037	-6.2	4.9	1.6	0.3	
by fuel														
Solids	760	241	96	197	177	165	159	159	161	-18.7	6.4	-1.1	0.1	
Oil	4055	1666	1348	1599	1972	2153	2150	2187	2216	-10.4	3.9	0.9	0.3	
Gas	1483	510	363	503	575	592	601	530	592	-13.1	4.7	0.4	-0.2	
Electricity	1048	670	606	749	861	969	1131	1280	1431	-5.3	3.6	2.8	2.4	
Heat (from CHP and District Heating)	2078	1193	828	905	950	961	985	994	1022	-8.8	1.4	0.4	0.4	
Renewable energy forms	272	448	579	574	592	827	1108	1396	1543	7.9	0.2	6.5	3.4	
Other	0	0	0	0	0	0	1	1	1			16.4	1.8	
RES in Gross Final Energy Consumption ^(A)			671	726	864	1100	1473	1769	2138		2.6	5.5	3.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	22.0	23.5	21.5	20.0	18.9	-9.1	2.5	-0.3	-1.2	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	15.6	17.2	14.7	14.9	14.9	-10.8	4.1	-0.6	0.1	
Power generation/District heating	12.0	5.6	3.9	4.0	5.9	6.8	4.2	4.6	4.5	-10.5	4.0	-3.2	0.7	
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	2.1	2.0	1.8	-3.3	4.3	1.1	-1.3	
Industry	6.1	1.7	1.1	1.3	1.7	1.6	1.6	1.4	1.5	-15.9	4.6	-0.7	-0.6	
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.8	2.5	2.8	
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	2.4	-0.1	-0.4	
Transport	5.8	3.0	3.1	4.1	4.9	5.4	5.4	5.4	5.4	-6.2	4.9	0.9	0.1	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.3	6.8	5.1	4.1	-5.7	-0.6	0.5	-5.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	49.1	52.3	47.8	44.6	42.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	275.9	241.5	238.5	207.4	184.9	-5.1	-5.7	-1.4	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	2.01	1.97	1.38	1.32	1.24	-3.2	3.2	-3.7	-1.0
Import Dependency %	72.2	63.8	60.3	58.3	85.3	83.9	57.2	56.5	54.1				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.4	5.5	6.6	7.6	8.3		5.1	4.0	2.4
as % of GDP			19.0	15.2	15.8	15.2	14.8	13.9	12.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.5	55.0	49.0	45.5	43.2	-9.4	-4.4	-2.6	-1.2
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.2	46.1	41.3	36.9	33.8	0.0	-5.9	-2.7	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	75.4	63.5	55.8	47.9	41.7	-13.8	-2.8	-3.0	-2.9
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.1	25.0	24.3	24.0	0.4	-2.6	-0.7	-0.4
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.3	16.4	15.7	15.3	-7.6	-2.1	-0.6	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.23	0.24	0.12	0.13	0.12	-2.7	3.7	-6.2	-0.4
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.53	1.48	1.36	1.27	1.23	-3.5	1.2	-1.2	-1.1
Industry	1.83	1.70	1.38	1.35	1.49	1.26	1.09	0.83	0.80	-2.8	0.8	-3.1	-3.0
Residential	1.26	0.47	0.41	0.46	0.41	0.42	0.44	0.48	0.50	-10.8	0.0	0.8	1.2
Tertiary	1.80	1.66	0.85	0.83	0.81	0.75	0.69	0.65	0.61	-7.2	-0.5	-1.5	-1.3
Transport	2.93	2.91	2.93	2.92	2.91	2.87	2.72	2.68	2.66	0.0	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	16.1	18.6	23.0	26.0	29.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.8	3.0	8.8	9.9	10.4				
Gross Electricity generation by source (in GWh)													
			11118	14410	11458	14055	20857	22753	24847		0.3	6.2	1.8
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3
Solids			0	0	255	255	2	6	15			-37.1	19.6
Oil (including refinery gas)			603	379	3	0	0	0	0		-40.3	-30.8	
Gas (including derived gases)			1759	3226	10434	12685	6925	7816	8326		19.5	-4.0	1.9
Biomass-waste			0	19	177	229	478	889	1985			10.4	15.3
Hydro (pumping excluded)			339	451	392	416	417	424	431		1.5	0.6	0.3
Wind			0	0	196	469	634	1016	1282			12.5	7.3
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3589	3814	5466	5191	4891		-2.9	4.3	-1.1
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0
<u>Renewable energy</u>			98	115	240	484	583	879	1075		9.4	9.3	6.3
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	123	364	435	718	907			13.4	7.6
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3349	3330	3367	2797	2301		3.2	0.1	-3.7
of which cogeneration units			2442	2498	2424	2140	2454	2190	2028		-0.1	0.1	-1.9
Solids fired			0	0	29	29	29	29	29			0.0	0.0
Gas fired			1838	1877	2690	2680	2681	2366	1959		3.9	0.0	-3.1
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-64.8
Biomass-waste fired			0	5	26	33	68	127	312			10.2	16.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	35.3	40.7	41.7	47.9	55.5				
Efficiency of gross thermal power generation (%)			22.3	25.6	41.1	42.1	40.1	40.7	40.6				
% of gross electricity from CHP			18.5	22.7	67.6	64.2	34.5	35.3	36.5				
Carbon free gross electricity generation (%)			78.8	75.0	6.7	7.9	66.8	65.6	66.4				
- nuclear			75.7	71.7	0.0	0.0	59.4	55.4	51.5				
- renewable energy forms			3.0	3.3	6.7	7.9	7.3	10.2	14.9				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.4	44.9	46.9	48.7	-0.8	7.0	1.5	0.8
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.9	5.0	5.1	-10.0	4.7	1.2	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.5	36.6	38.7	40.3	41.7	5.6	7.6	1.4	0.7
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.8
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.9	5.4	4.8	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.4	45.9	52.0	56.1	56.9	-4.6	8.4	3.3	0.9
Trucks	7.3	5.2	7.8	15.9	21.3	26.3	29.7	32.1	32.5	0.6	10.6	3.4	0.9
Rail	19.3	7.2	8.9	12.5	16.1	19.6	22.3	24.0	24.4	-7.4	6.1	3.3	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1990	1037	1048	1397	1692	1901	1976	2018	2037	-6.2	4.9	1.6	0.3
Public road transport	164	50	25	30	34	35	35	34	34	-17.1	3.0	0.4	-0.3
Private cars and motorcycles	396	485	630	823	938	995	999	1007	1029	4.8	4.1	0.6	0.3
Trucks	1159	374	288	414	555	676	732	764	767	-13.0	6.8	2.8	0.5
Rail	132	86	75	79	100	119	123	116	106	-5.5	2.9	2.1	-1.4
Aviation	135	41	27	46	60	70	81	89	94	-14.9	8.4	3.1	1.6
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6

Source: PRIMES

Lithuania: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1430	4647	5578	120	322	496	9.1	7.5	9.8
Solids	42	35	39	6	4	1	-1	-1	-3	-7.6	-19.7	-67.9
Oil	12	347	239	260	265	270	-3	-14	-14	-1.1	-5.0	-5.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1164	1578	2415	123	337	513	11.9	27.2	27.0
Hydro	36	29	39	36	36	37	0	0	0	0.5	0.5	0.0
Biomass & Waste	285	627	735	1086	1484	2259	107	308	447	10.9	26.2	24.6
Wind	0	0	0	40	55	110	16	28	63	66.6	104.3	133.0
Solar and others	0	0	0	1	3	8	0	1	3	26.2	38.1	64.4
Geothermal	0	0	3	0	0	0	0	0	0	17.4	20.2	22.3
Net Imports	11666	4327	5096	7459	6211	6584	-349	-608	-880	-4.5	-8.9	-11.8
Solids	758	84	190	221	162	165	-118	-146	-152	-34.9	-47.4	-48.0
Oil	7260	2299	2677	3110	3158	3203	-37	-174	-178	-1.2	-5.2	-5.3
- Crude oil and Feedstocks	9531	4827	9054	10933	11135	11321	-125	-584	-597	-1.1	-5.0	-5.0
- Oil products	-2271	-2528	-6377	-7823	-7977	-8118	88	410	419	-1.1	-4.9	-4.9
Natural gas	4678	2065	2492	4228	3348	3694	-191	-280	-537	-4.3	-7.7	-12.7
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8699	10654	11948	-229	-285	-383	-2.6	-2.6	-3.1
Solids	831	121	215	227	166	166	-119	-147	-155	-34.3	-47.0	-48.2
Oil	6878	2190	2746	3180	3219	3260	-40	-188	-192	-1.2	-5.5	-5.6
Natural gas	4678	2064	2476	4228	3348	3694	-191	-280	-537	-4.3	-7.7	-12.7
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1135	1539	2355	121	329	501	11.9	27.2	27.0
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	2.6	1.6	1.4	-1.3	-1.3	-1.2			
Oil	42.8	30.9	31.9	36.6	30.2	27.3	0.5	-0.9	-0.7			
Natural gas	29.1	29.1	28.8	48.6	31.4	30.9	-0.9	-1.7	-3.4			
Nuclear	27.3	30.7	31.0	0.0	26.3	24.2	0.0	0.7	0.8			
Renewable energy forms	2.0	9.2	8.8	13.1	14.4	19.7	1.7	3.4	4.7			
Gross Electricity Generation in GWh_e	28400	11118	14410	14055	20857	24847	-1073	-816	-411	-7.1	-3.8	-1.6
Self consumption and grid losses	3486	1906	1788	1037	1613	2045	-117	-110	-59	-10.1	-6.4	-2.8
Fuel Inputs to Thermal Power Generation	2610	911	1218	2692	1590	2185	-277	-225	-149	-9.3	-12.4	-6.4
Solids	0	0	0	53	1	3	-115	-137	-140	-68.3	-99.6	-97.8
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-88.6	188.7	38434.8
Gas (including derived gases)	1543	716	1044	2590	1490	1750	-173	-146	-275	-6.3	-8.9	-13.6
Biomass & Waste	0	0	5	49	99	431	12	58	266	30.9	140.1	160.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11594	12075	12045	-99	-619	-724	-0.8	-4.9	-5.7
Refineries	9561	5086	9418	11155	11380	11585	-128	-598	-611	-1.1	-5.0	-5.0
Biofuels and hydrogen production	0	0	3	56	168	200	8	40	31	15.9	31.5	18.1
District heating	1823	657	522	381	526	258	21	-61	-142	5.8	-10.4	-35.5
Derived gases, cokeries etc.	24	12	8	3	2	1	0	0	0	-1.1	-12.2	-24.3
Energy Branch Consumption	991	655	915	867	957	1032	-11	-16	-33	-1.3	-1.7	-3.1
Non-Energy Uses	852	648	775	1112	1239	1508	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5667	6135	6965	-138	-162	-250	-2.4	-2.6	-3.5
by sector												
Industry	3334	782	996	1292	1448	1848	-46	-60	-69	-3.4	-4.0	-3.6
- energy intensive industries	1678	362	436	603	678	856	-24	-25	-23	-3.8	-3.5	-2.7
- other industrial sectors	1656	420	560	689	770	992	-22	-35	-45	-3.1	-4.3	-4.4
Residential	1854	1402	1437	1635	1797	2086	-40	-23	-35	-2.4	-1.3	-1.6
Tertiary	2518	589	697	840	913	995	-33	-33	-64	-3.8	-3.5	-6.0
Transport	1990	1048	1397	1901	1976	2037	-19	-46	-82	-1.0	-2.3	-3.9
by fuel												
Solids	760	96	197	165	159	161	-2	-8	-11	-1.5	-4.7	-6.6
Oil	4055	1348	1599	2153	2150	2216	-21	-94	-130	-1.0	-4.2	-5.5
Gas	1483	363	503	592	601	592	0	-86	-38	0.1	-12.5	-6.0
Electricity	1048	606	749	969	1131	1431	-82	-59	-28	-7.8	-5.0	-1.9
Heat (from CHP and District Heating)	2078	828	905	961	985	1022	-71	-82	-94	-6.9	-7.6	-8.4
Renewable energy forms	272	579	574	827	1108	1543	39	166	51	4.9	17.6	3.4
Other	0	0	0	0	1	1	0	0	0	2.1	1.8	-0.7
RES in Gross Final Energy Consumption ^(A)		671	726	1100	1473	2138	112	308	415	11.3	26.4	24.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	23.5	21.5	18.9	-1.2	-2.0	-2.6	-4.8	-8.6	-12.1
CO₂ Emissions (energy related)	32.5	10.4	12.6	17.2	14.7	14.9	-1.0	-1.8	-2.4	-5.7	-10.8	-14.1
Power generation/District heating	12.0	3.9	4.0	6.8	4.2	4.5	-0.9	-1.2	-1.7	-12.1	-21.9	-27.5
Energy Branch	1.7	1.2	2.0	2.0	2.1	1.8	0.0	-0.1	-0.2	-1.1	-3.3	-9.3
Industry	6.1	1.1	1.3	1.6	1.6	1.5	-0.1	-0.3	-0.2	-3.5	-17.9	-12.5
Residential	2.3	0.6	0.7	0.7	0.8	1.0	0.0	0.0	0.0	2.4	2.9	1.2
Tertiary	4.5	0.5	0.6	0.6	0.6	0.6	0.0	0.0	0.0	7.6	8.2	2.4
Transport	5.8	3.1	4.1	5.4	5.4	5.4	-0.1	-0.2	-0.3	-1.4	-4.4	-6.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.3	-8.7	-14.6
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	6.3	6.8	4.1	-0.2	-0.2	-0.2	-2.5	-3.3	-4.0
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	52.3	47.8	42.2	-2.7	-4.5	-5.8			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Lithuania: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	241.5	238.5	184.9	-6.4	-6.4	-5.9	-2.6	-2.6	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.97	1.38	1.24	-0.06	-0.13	-0.16	-3.2	-8.4	-11.3
Import Dependency %	72.2	60.3	58.3	83.9	57.2	54.1	-1.7	-4.0	-5.4			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.5	6.6	8.3	0.0	0.1	0.2	-0.4	1.8	3.0
as % of GDP		19.0	15.2	15.2	14.8	12.9	-0.1	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.1	0.2						
as % of GDP				-0.06	0.27	0.38						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	55.0	49.0	43.2	-2.0	-2.0	-1.6	-3.4	-4.0	-3.6
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	46.1	41.3	33.8	-1.1	-0.5	-0.6	-2.4	-1.3	-1.6
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	63.5	55.8	41.7	-2.5	-2.0	-2.7	-3.8	-3.5	-6.0
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	26.1	25.0	24.0	-0.1	-0.3	-0.5	-0.5	-1.0	-2.2
Freight transport (toe/Mtkm)	47.8	21.6	17.3	17.3	16.4	15.3	-0.1	-0.4	-0.6	-0.8	-2.1	-3.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.24	0.12	0.12	-0.01	-0.03	-0.04	-5.7	-17.7	-24.5
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.48	1.36	1.23	0.02	-0.05	-0.03	1.5	-3.4	-2.5
Industry	1.83	1.38	1.35	1.26	1.09	0.80	0.00	-0.18	-0.08	0.0	-14.5	-9.2
Residential	1.26	0.41	0.46	0.42	0.44	0.50	0.02	0.02	0.01	4.9	4.2	2.9
Tertiary	1.80	0.85	0.83	0.75	0.69	0.61	0.08	0.07	0.05	11.8	12.1	9.0
Transport	2.93	2.93	2.92	2.87	2.72	2.66	-0.01	-0.06	-0.06	-0.4	-2.2	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	18.6	23.0	29.7	2.3	5.3	6.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.0	8.8	10.4	0.4	2.3	2.0			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	14055	20857	24847	24847	-1073	-816	-411	-7.1	-3.8	-1.6
Nuclear energy	8417	10335	0	12399	12808		0	0	0		0.0	0.0
Solids	0	0	255	2	15		-631	-739	-753	-71.2	-99.7	-98.1
Oil (including refinery gas)	603	379	0	0	0		0	0	0	-82.5	175.7	30279.9
Gas (including derived gases)	1759	3226	12685	6925	8326		-687	-688	-1561	-5.1	-9.0	-15.8
Biomass-waste	0	19	229	478	1985		55	285	1171	31.9	147.6	143.8
Hydro (pumping excluded)	339	451	416	417	431		2	2	0	0.5	0.5	0.0
Wind	0	0	469	634	1282		188	324	732	66.6	104.3	133.0
Solar	0	0	0	0	0		0	0	0			
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	4839	3827	3814	5466	4891		72	155	587	1.9	2.9	13.6
<u>Nuclear energy</u>	2291	1200	0	1515	1515		0	0	0		0.0	0.0
<u>Renewable energy</u>	98	115	484	583	1075		159	210	581	49.1	56.3	117.5
Hydro (pumping excluded)	98	108	117	141	152		0	0	0	0.0	0.0	0.0
Wind	0	6	364	435	907		159	210	581	78.1	93.5	177.9
Solar	0	0	4	7	16		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2451	2512	3330	3367	2301		-87	-55	6	-2.6	-1.6	0.3
of which cogeneration units	2442	2498	2140	2454	2028		-79	-23	48	-3.6	-0.9	2.4
Solids fired	0	0	29	29	29		-74	-74	-74	-71.7	-71.7	-71.7
Gas fired	1838	1877	2680	2681	1959		-21	-21	-118	-0.8	-0.8	-5.7
Oil fired	613	631	588	589	0		0	0	0	0.0	0.0	142.2
Biomass-waste fired	0	5	33	68	312		8	40	198	30.9	140.0	173.7
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	23.0	39.4	40.7	41.7	55.5		-3.9	-2.8	-8.6			
Efficiency of gross thermal power generation (%)	22.3	25.6	42.1	40.1	40.6		0.3	-0.5	-1.6			
% of gross electricity from CHP	18.5	22.7	64.2	34.5	36.5		-2.4	-0.2	-1.9			
Carbon free gross electricity generation (%)	78.8	75.0	7.9	66.8	66.4		2.2	5.3	8.6			
- nuclear	75.7	71.7	0.0	59.4	51.5		0.0	2.2	0.8			
- renewable energy forms	3.0	3.3	7.9	7.3	14.9		2.2	3.1	7.8			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	21.3	19.7	33.9	42.4	44.9	48.7	-0.2	-0.4	-0.6	-0.4	-0.9	-1.1
Private cars and motorcycles	7.9	2.8	3.8	4.7	4.9	5.1	0.0	0.0	0.1	0.5	1.0	1.2
Rail	9.3	16.1	29.3	36.6	38.7	41.7	-0.1	-0.4	-0.6	-0.4	-1.0	-1.3
Aviation	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	0.2	1.0	1.3
Inland navigation	0.2	0.2	0.3	0.5	0.6	0.9	0.0	0.0	-0.1	-5.1	-6.7	-7.4
Freight transport activity (Gtkm)	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.5
Freight transport activity (Gtkm)												
Trucks	26.8	16.7	28.4	45.9	52.0	56.9	-0.2	-0.4	-0.6	-0.3	-0.8	-1.0
Rail	7.3	7.8	15.9	26.3	29.7	32.5	-0.3	-0.6	-0.9	-1.0	-2.0	-2.6
Inland navigation	19.3	8.9	12.5	19.6	22.3	24.4	0.1	0.2	0.3	0.5	0.9	1.2
Energy demand in transport (ktoe)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0
Energy demand in transport (ktoe)												
Public road transport	1990	1048	1397	1901	1976	2037	-19	-46	-82	-1.0	-2.3	-3.9
Private cars and motorcycles	164	25	30	35	35	34	0	0	-1	0.1	0.0	-2.0
Trucks	396	630	823	995	999	1029	-5	-12	-20	-0.5	-1.2	-1.9
Rail	1159	288	414	676	732	767	-9	-26	-43	-1.4	-3.4	-5.3
Aviation	132	75	79	119	123	106	0	1	1	0.3	0.6	0.8
Inland navigation	135	27	46	70	81	94	-5	-9	-20	-6.2	-9.6	-17.3
Inland navigation	5	3	5	6	6	7	0	0	0	-0.1	0.2	0.1

Source: PRIMES

Luxembourg: EC proposal without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	171	215	255	270	277	1.9	11.7	4.1	0.8	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	171	215	255	270	277	1.9	11.7	4.1	0.8	
Hydro	6	7	10	8	10	10	10	10	10	5.8	-0.7	0.0	0.0	
Biomass & Waste	41	39	44	59	89	111	139	151	161	0.7	7.3	4.6	1.5	
Wind	0	0	2	5	15	15	21	22	18		20.3	3.7	-1.9	
Solar and others	0	0	0	2	58	79	85	87	88			3.9	0.4	
Geothermal	0	0	0	0	0	0	0	0	0			10.8	2.7	
Net Imports	3520	3257	3620	4606	4823	4506	4276	4331	4445	0.3	2.9	-1.2	0.4	
Solids	1134	514	125	82	53	47	43	32	25	-19.8	-8.2	-2.1	-5.1	
Oil	1620	1756	2332	3066	3216	2788	2487	2426	2418	3.7	3.3	-2.5	-0.3	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3216	2788	2487	2426	2418	3.7	3.3	-2.5	-0.3	
Natural gas	430	557	670	1179	1090	1129	1129	1198	1271	4.6	5.0	0.3	1.2	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	4995	4721	4531	4600	4722	0.2	3.2	-1.0	0.4	
Solids	1134	514	125	82	53	47	43	32	25	-19.8	-8.2	-2.1	-5.1	
Oil	1609	1788	2283	3084	3216	2788	2487	2426	2418	3.6	3.5	-2.5	-0.3	
Natural gas	430	557	670	1179	1090	1129	1129	1198	1271	4.6	5.0	0.3	1.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	283	414	540	581	608	1.9	17.4	6.7	1.2	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	1.0	0.9	0.7	0.5					
Oil	45.2	53.6	62.9	65.6	64.4	59.0	54.9	52.7	51.2					
Natural gas	12.1	16.7	18.5	25.1	21.8	23.9	24.9	26.1	26.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	5.7	8.8	11.9	12.6	12.9					
Gross Electricity Generation in GWh_e	627	498	433	3344	2572	2963	3294	4080	4730	-3.6	19.5	2.5	3.7	
Self consumption and grid losses	410	497	439	448	179	196	213	276	331	0.7	-8.6	1.8	4.5	
Fuel Inputs to Thermal Power Generation	190	132	75	568	430	483	516	627	722	-8.8	19.0	1.9	3.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	379	427	424	512	597	-11.6	23.2	1.1	3.5	
Biomass & Waste	25	24	28	43	50	56	92	115	126	1.0	6.0	6.2	3.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	132	235	313	332	356			9.0	1.3	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	132	235	313	332	356			9.0	1.3	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	6	7	8	10	11	-1.8	-13.4	2.9	3.1	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4767	4450	4237	4255	4531	0.6	3.0	-1.2	0.2	
by sector														
Industry	1729	1196	958	937	980	1035	1073	1122	1176	-5.7	0.2	0.9	0.9	
- energy intensive industries	1525	900	501	470	477	496	491	495	493	-10.5	-0.5	0.3	0.0	
- other industrial sectors	204	296	457	467	502	539	581	627	684	8.4	1.0	1.5	1.6	
Residential	519	563	596	649	674	600	593	571	550	1.4	1.2	-1.3	-0.7	
Tertiary	74	99	118	130	133	126	104	107	110	4.7	1.2	-2.4	0.5	
Transport	1007	1307	1877	2708	2980	2689	2467	2454	2495	6.4	4.7	-1.9	0.1	
by fuel														
Solids	756	369	125	82	53	47	43	32	25	-16.5	-8.1	-2.1	-5.1	
Oil	1581	1752	2266	3065	3189	2759	2456	2393	2383	3.7	3.5	-2.6	-0.3	
Gas	622	585	623	678	711	702	704	685	672	0.0	1.3	-0.1	-0.5	
Electricity	355	430	491	529	559	581	596	690	778	3.3	1.3	0.7	2.7	
Heat (from CHP and District Heating)	0	14	27	55	72	73	78	81	84		10.4	0.8	0.7	
Renewable energy forms	15	15	16	16	181	287	358	371	386	0.4	27.5	7.0	0.8	
Other	0	0	0	0	0	1	1	2	3			15.8	6.3	
RES in Gross Final Energy Consumption ^(A)			34	48	251	362	470	504	525		22.0	6.5	1.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	13.9	12.6	11.6	11.5	11.6	-2.1	3.0	-1.8	0.0	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.4	11.1	10.2	10.1	10.3	-1.8	3.4	-1.9	0.0	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.0	1.0	1.2	1.4	-17.0	23.2	1.1	3.5	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.5	0.1	
Residential	1.3	1.3	1.4	1.4	1.3	1.0	1.0	0.8	0.7	1.1	-0.7	-2.7	-3.6	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.9	-1.1	-0.7	
Transport	3.0	3.9	5.6	8.1	8.6	7.5	6.6	6.5	6.5	6.5	4.5	-2.6	-0.1	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.6	0.6	-7.6	-0.6	-0.3	-0.4	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.7	0.7	0.7	2.4	0.6	-1.4	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	108.3	98.0	90.4	89.8	90.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.6	107.8	88.4	78.2	71.4	-5.9	-0.5	-4.3	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.48	2.36	2.26	2.21	2.17	-2.0	0.2	-0.9	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	96.6	95.4	94.4	94.1	94.1				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.3	5.0	5.4	5.9	6.3		4.9	2.5	1.5
as % of GDP			10.4	11.4	11.6	11.3	10.6	9.9	9.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	77.9	70.0	64.4	60.7	-9.0	-1.4	-2.1	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.9	63.0	54.4	46.5	40.5	-2.2	-2.0	-4.0	-2.9
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.3	61.3	43.3	38.9	35.6	-0.5	-2.5	-5.6	-2.0
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	150.6	125.7	117.8	113.4	1.8	1.0	-2.7	-1.0
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	116.6	106.5	100.0	96.6	0.0	4.3	-2.8	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.25	0.26	0.23	0.24	0.24	-18.4	5.6	-0.9	0.5
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.41	2.28	2.18	2.10	2.05	-1.9	-0.2	-1.0	-0.6
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.46	1.39	1.34	-6.1	-1.4	-0.4	-0.8
Residential	2.45	2.39	2.37	2.21	1.95	1.74	1.68	1.45	1.25	-0.3	-1.9	-1.5	-2.9
Tertiary	0.21	0.34	0.65	0.48	0.48	0.47	0.54	0.50	0.48	12.0	-3.0	1.3	-1.2
Transport	2.95	2.96	2.97	3.00	2.90	2.79	2.68	2.65	2.62	0.1	-0.3	-0.8	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	5.2	8.1	11.0	11.8	12.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.3	8.8	12.7	13.6	14.2				
Gross Electricity generation by source (in GWh)													
			433	3344	2572	2963	3294	4080	4730		19.5	2.5	3.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	3	0	0	0	0		10.5		
Gas (including derived gases)			222	3083	2085	2425	2530	3205	3846		25.1	1.9	4.3
Biomass-waste			63	97	181	229	383	488	539		11.1	7.8	3.5
Hydro (pumping excluded)			120	93	112	112	112	112	112		-0.7	0.0	0.0
Wind			27	53	172	175	247	250	204		20.3	3.7	-1.9
Solar			0	18	20	21	23	25	29			1.7	2.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	896	942	1041	1203	1290		12.5	1.5	2.2
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	289	295	327	332	314		5.6	1.2	-0.4
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	109	112	142	145	122		26.9	2.7	-1.5
Solar			2	23	25	28	30	33	37		29.0	1.7	1.9
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	607	648	714	871	976		18.8	1.6	3.2
of which cogeneration units			61	112	220	226	234	233	212		13.7	0.6	-1.0
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	494	532	593	728	830		19.0	1.8	3.4
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	106	110	117	138	142		21.8	0.9	2.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	31.9	35.0	35.1	37.7	40.7				
Efficiency of gross thermal power generation (%)			32.7	48.1	45.4	47.2	48.5	50.6	52.2				
% of gross electricity from CHP			53.7	11.8	28.5	28.5	29.1	24.3	21.8				
Carbon free gross electricity generation (%)			48.5	7.8	18.8	18.1	23.2	21.4	18.7				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	18.8	18.1	23.2	21.4	18.7				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.3	9.6	10.0	10.4	3.5	2.0	0.6	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.8	1.0
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.0	7.1	7.3	7.5	3.4	1.8	0.3	0.6
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	1.2	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.2	1.3	1.4	5.8	3.7	2.5	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.0	11.8	12.8	13.7	8.0	2.4	1.3	1.5
Trucks	3.2	5.5	7.6	8.8	10.1	10.7	11.5	12.5	13.4	9.0	2.8	1.4	1.5
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-1.8	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	2689	2467	2454	2495	6.4	4.7	-1.9	0.1
Public road transport	18	18	24	29	32	29	25	25	24	2.9	2.9	-2.2	-0.4
Private cars and motorcycles	500	609	760	916	968	854	735	711	715	4.3	2.4	-2.7	-0.3
Trucks	345	482	757	1323	1474	1282	1256	1275	1317	8.2	6.9	-1.6	0.5
Rail	13	9	15	9	8	8	6	6	5	2.0	-5.9	-2.7	-1.8
Aviation	131	189	320	431	498	517	444	438	433	9.3	4.5	-1.1	-0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Luxembourg: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	215	255	277	36	33	4	20.2	14.8	1.4
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	215	255	277	36	33	4	20.2	14.8	1.4
Hydro	6	10	8	10	10	10	0	0	0	3.6	2.4	0.0
Biomass & Waste	41	44	59	111	139	161	0	0	-22	0.0	0.0	-12.2
Wind	0	2	5	15	21	18	3	4	4	30.2	20.1	25.4
Solar and others	0	0	2	79	85	88	32	29	23	69.1	52.3	34.6
Geothermal	0	0	0	0	0	0	0	0	0	77.9	231.0	320.6
Net Imports	3520	3620	4606	4506	4276	4445	-775	-1135	-1062	-14.7	-21.0	-19.3
Solids	1134	125	82	47	43	25	-3	-4	-4	-5.3	-7.7	-14.3
Oil	1620	2332	3066	2788	2487	2418	-687	-989	-1030	-19.8	-28.5	-29.9
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	2788	2487	2418	-687	-989	-1030	-19.8	-28.5	-29.9
Natural gas	430	670	1179	1129	1129	1271	-183	-276	-157	-13.9	-19.7	-11.0
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	4721	4531	4722	-739	-1103	-1058	-13.5	-19.6	-18.3
Solids	1134	125	82	47	43	25	-3	-4	-4	-5.3	-7.7	-14.3
Oil	1609	2283	3084	2788	2487	2418	-687	-989	-1030	-19.8	-28.5	-29.9
Natural gas	430	670	1179	1129	1129	1271	-183	-276	-157	-13.9	-19.7	-11.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	414	540	608	134	166	134	47.9	44.4	28.2
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	1.0	0.9	0.5	0.1	0.1	0.0			
Oil	45.2	62.9	65.6	59.0	54.9	51.2	-4.6	-6.8	-8.4			
Natural gas	12.1	18.5	25.1	23.9	24.9	26.9	-0.1	0.0	2.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	8.8	11.9	12.9	3.6	5.3	4.7			
Gross Electricity Generation in GWh_e	627	433	3344	2963	3294	4730	-602	-816	792	-16.9	-19.8	20.1
Self consumption and grid losses	410	439	448	196	213	331	-42	-33	63	-17.6	-13.4	23.7
Fuel Inputs to Thermal Power Generation	190	75	568	483	516	722	-104	-136	94	-17.7	-20.9	15.0
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	-100.0		
Gas (including derived gases)	162	47	525	427	424	597	-116	-183	31	-21.3	-30.2	5.5
Biomass & Waste	25	28	43	56	92	126	11	47	63	25.2	104.8	101.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	235	313	356	83	81	45	54.7	34.8	14.5
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	235	313	356	83	81	45	54.7	34.8	14.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	8	11	-2	-1	2	-24.7	-8.0	28.0
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4450	4237	4331	-711	-1062	-1125	-13.8	-20.0	-20.6
by sector												
Industry	1729	958	937	1035	1073	1176	-36	-55	-68	-3.4	-4.9	-5.5
- energy intensive industries	1525	501	470	496	491	493	-8	-16	-15	-1.7	-3.1	-2.9
- other industrial sectors	204	457	467	539	581	684	-28	-39	-54	-4.9	-6.3	-7.3
Residential	519	596	649	600	593	550	-106	-121	-172	-15.0	-16.9	-23.8
Tertiary	74	118	130	126	104	110	-29	-61	-62	-18.8	-36.7	-36.0
Transport	1007	1877	2708	2689	2467	2495	-540	-826	-823	-16.7	-25.1	-24.8
by fuel												
Solids	756	125	82	47	43	25	-3	-4	-4	-5.3	-7.7	-14.3
Oil	1581	2266	3065	2759	2456	2383	-687	-989	-1030	-19.9	-28.7	-30.2
Gas	622	623	678	702	704	672	-68	-93	-189	-8.8	-11.7	-21.9
Electricity	355	491	529	581	596	778	-48	-67	63	-7.6	-10.1	8.8
Heat (from CHP and District Heating)	0	27	55	73	78	84	-8	-10	-22	-9.5	-10.9	-20.9
Renewable energy forms	15	16	16	287	358	386	102	100	58	55.6	38.8	17.5
Other	0	0	0	1	1	3	0	0	0	36.3	16.0	1.5
RES in Gross Final Energy Consumption ^(A)	34	48	362	470	525	117	145	117	47.7	44.5	28.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	12.6	11.6	11.6	-2.6	-3.8	-3.7	-17.3	-24.7	-24.0
CO₂ Emissions (energy related)	10.6	8.8	12.4	11.1	10.2	10.3	-2.5	-3.7	-3.5	-18.5	-26.4	-25.5
Power generation/District heating	0.7	0.1	1.2	1.0	1.0	1.4	-0.3	-0.4	0.1	-21.3	-30.2	5.5
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	-0.1	-0.2	-2.2	-4.5	-9.8
Residential	1.3	1.4	1.4	1.0	1.0	0.7	-0.3	-0.4	-0.7	-25.0	-28.3	-50.1
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-17.1	-31.7	-36.3
Transport	3.0	5.6	8.1	7.5	6.6	6.5	-1.9	-2.7	-2.7	-19.9	-29.3	-29.2
CO₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.6	0.0	0.0	0.0	-2.4	-4.0	-5.6
Non-CO₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.7	0.7	-0.1	-0.1	-0.1	-10.3	-14.2	-13.8
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	98.0	90.4	90.7	-20.5	-29.7	-28.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Luxembourg: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	107.8	88.4	71.4	-16.9	-21.5	-16.0	-13.5	-19.6	-18.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.36	2.26	2.17	-0.14	-0.21	-0.21	-5.7	-8.4	-8.9
Import Dependency %	99.0	99.8	98.0	95.4	94.4	94.1	-1.3	-1.7	-1.1			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	5.0	5.4	6.3	0.4	0.5	0.9	10.0	10.7	16.0
as % of GDP		10.4	11.4	11.3	10.6	9.5	1.0	1.0	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	0.5	0.9						
as % of GDP				1.03	1.04	1.32						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	77.9	70.0	60.7	-2.7	-3.6	-3.5	-3.4	-4.9	-5.5
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	63.0	54.4	40.5	-11.1	-11.1	-12.6	-15.0	-16.9	-23.8
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	61.3	43.3	35.6	-14.2	-25.2	-20.0	-18.8	-36.7	-36.0
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	150.6	125.7	113.4	-10.6	-26.8	-16.2	-6.6	-17.6	-12.5
Freight transport (toe/Mtkm)	93.1	93.3	144.6	116.6	106.5	96.6	-24.6	-28.2	-27.9	-17.4	-21.0	-22.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.23	0.24	-0.02	-0.04	-0.01	-7.2	-14.7	-4.0
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.28	2.18	2.05	-0.12	-0.17	-0.24	-5.1	-7.4	-10.4
Industry	3.28	1.74	1.63	1.50	1.46	1.34	0.02	0.01	-0.06	1.1	0.4	-4.5
Residential	2.45	2.37	2.21	1.74	1.68	1.25	-0.23	-0.27	-0.66	-11.8	-13.8	-34.5
Tertiary	0.21	0.65	0.48	0.47	0.54	0.48	0.01	0.04	0.00	2.2	8.0	-0.5
Transport	2.95	2.97	3.00	2.79	2.68	2.62	-0.11	-0.16	-0.16	-3.8	-5.6	-5.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	8.1	11.0	12.0	3.4	4.9	4.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	8.8	12.7	14.2	4.2	5.7	5.1			
Gross Electricity generation by source (in GWh_e)												
	433	3344	2963	3294	4730	4730	-602	-816	792	-16.9	-19.8	20.1
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2425	2530	3846	3846	-688	-1055	469	-22.1	-29.4	13.9
Biomass-waste	63	97	229	383	539	539	42	195	279	22.6	104.3	107.1
Hydro (pumping excluded)	120	93	112	112	112	112	4	3	0	3.6	2.4	0.0
Wind	27	53	175	247	204	204	41	41	41	30.2	20.1	25.4
Solar	0	18	21	23	29	29	0	0	3	0.0	0.0	11.7
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	942	1041	1290	1290	-22	-43	198	-2.3	-4.0	18.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	295	327	314	314	37	38	41	14.5	13.1	15.0
Hydro (pumping excluded)	155	155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind	10	35	112	142	122	122	37	38	38	50.0	36.4	44.7
Solar	2	23	28	30	37	37	0	0	3	0.0	0.0	9.4
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	648	714	976	976	-59	-81	157	-8.4	-10.2	19.1
of which cogeneration units	61	112	226	234	212	212	-28	-54	-83	-11.0	-18.9	-28.2
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	532	593	830	830	-84	-130	88	-13.7	-18.0	11.9
Oil fired	6	7	6	4	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	110	117	142	142	25	49	68	29.5	71.6	92.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	35.0	35.1	40.7	40.7	-6.2	-7.1	0.6			
Efficiency of gross thermal power generation (%)	32.7	48.1	47.2	48.5	52.2	52.2	-1.1	-1.2	2.4			
% of gross electricity from CHP	53.7	11.8	28.5	29.1	21.8	21.8	-1.1	0.2	-13.3			
Carbon free gross electricity generation (%)	48.5	7.8	18.1	23.2	18.7	18.7	5.5	10.4	4.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	18.1	23.2	18.7	18.7	5.5	10.4	4.5			
Transport sector												
Passenger transport activity (Gpkm)												
	5.2	7.4	8.3	9.3	9.6	10.4	-0.4	-0.6	-0.7	-4.3	-5.9	-6.7
Public road transport	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.6	2.8	3.5
Private cars and motorcycles	4.2	5.8	6.4	7.0	7.1	7.5	-0.4	-0.6	-0.7	-5.6	-7.7	-8.9
Rail	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	5.4	7.1	8.6
Aviation	0.4	0.7	0.8	1.1	1.2	1.4	0.0	-0.1	-0.1	-3.3	-4.3	-4.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	3.8	8.2	9.2	11.0	11.8	13.7	-0.7	-1.1	-1.4	-6.1	-8.3	-9.5
Trucks	3.2	7.6	8.8	10.7	11.5	13.4	-0.8	-1.1	-1.5	-6.7	-8.8	-10.0
Rail	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	14.2	18.0	20.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1007	1877	2708	2689	2467	2495	-540	-826	-823	-16.7	-25.1	-24.8
Public road transport	18	24	29	29	25	24	-2	-5	-4	-7.4	-15.7	-14.4
Private cars and motorcycles	500	760	916	854	735	715	-131	-218	-147	-13.3	-22.8	-17.1
Trucks	345	757	1323	1282	1256	1317	-374	-478	-560	-22.6	-27.6	-29.8
Rail	13	15	9	8	6	5	1	1	1	7.2	8.8	13.4
Aviation	131	320	431	517	444	433	-33	-126	-112	-6.0	-22.1	-20.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	0	0	0	0	10	25	44	54	59			16.6	2.9	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	0	0	0	0	10	25	44	54	59			16.6	2.9	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	0	0	0	0	0	0	0	0	0					
Wind	0	0	0	0	0	3	14	19	22				4.6	
Solar and others	0	0	0	0	10	21	30	35	37			12.3	2.1	
Geothermal	0	0	0	0	0	0	0	0	0			2.2	-1.5	
Net Imports	611	890	818	953	916	792	771	766	781	3.0	1.1	-1.7	0.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	611	890	818	953	856	642	535	461	451	3.0	0.5	-4.6	-1.7	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	611	890	818	953	856	642	535	461	451	3.0	0.5	-4.6	-1.7	
Natural gas	0	0	0	0	43	50	117	174	186			10.6	4.7	
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Gross Inland Consumption	581	808	769	953	925	817	815	820	840	2.8	1.9	-1.3	0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil	581	808	769	953	856	642	535	461	451	2.8	1.1	-4.6	-1.7	
Natural gas	0	0	0	0	43	50	117	174	186			10.6	4.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Renewable energy forms	0	0	0	0	26	51	78	90	95			11.6	2.0	
as % in Gross Inland Consumption														
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Oil	100.0	100.0	100.0	100.0	92.6	78.7	65.7	56.2	53.7					
Natural gas	0.0	0.0	0.0	0.0	4.7	6.1	14.4	21.2	22.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.0	0.0	0.0	0.0	2.8	6.3	9.5	11.0	11.3					
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	1828	1115	1294	1536	1666	5.7	-0.5	-3.4	2.6	
Self consumption and grid losses	190	373	350	438	152	105	117	133	149	6.3	-8.0	-2.6	2.5	
Fuel Inputs to Thermal Power Generation	321	463	494	580	459	236	200	194	206	4.4	-0.7	-8.0	0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	321	463	494	580	416	186	82	20	19	4.4	-1.7	-15.0	-13.6	
Gas (including derived gases)	0	0	0	0	43	50	117	174	186			10.6	4.7	
Biomass & Waste	0	0	0	0	0	0	0	1	1				8.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	0	0	0	0	16	26	33	36	35			7.4	0.6	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	0	16	26	33	36	35			7.4	0.6	
District heating	0	0	0	0	0	0	0	0	0			-12.5	1.1	
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	8	19	10	12	7	2	2	2	2	2.5	-2.9	-11.3	0.2	
Non-Energy Uses	6	0	0	0	0	0	0	0	0					
Final Energy Demand	332	451	408	528	607	659	695	718	733	2.1	4.0	1.4	0.5	
by sector														
Industry	0	42	43	46	50	54	60	67	73		1.4	1.9	1.9	
- energy intensive industries	0	0	0	0	0	0	0	0	0					
- other industrial sectors	0	42	43	46	50	54	60	67	73		1.4	1.9	1.9	
Residential	55	73	76	89	109	120	126	127	128	3.2	3.7	1.5	0.1	
Tertiary	56	32	52	66	73	81	85	89	91	-0.7	3.5	1.6	0.7	
Transport	221	304	237	328	376	403	423	435	440	0.7	4.7	1.2	0.4	
by fuel														
Solids	0	0	0	0	0	0	0	0	0					
Oil	254	342	274	373	440	456	454	442	432	0.8	4.9	0.3	-0.5	
Gas	0	0	0	0	0	0	0	0	0			2.8	2.3	
Electricity	78	108	135	155	144	160	186	215	238	5.6	0.7	2.6	2.5	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-12.5	1.1	
Renewable energy forms	0	0	0	0	23	42	56	61	62			9.4	1.1	
Other	0	0	0	0	0	0	0	0	0			15.3	2.3	
RES in Gross Final Energy Consumption ^(A)			0	0	23	46	71	82	87			12.1	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.2	2.6	2.4	2.3	2.3	2.9	1.4	-3.0	-0.2	
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.7	2.1	1.9	1.8	1.8	3.0	1.4	-3.7	-0.6	
Power generation/District heating	1.0	1.5	1.6	1.9	1.4	0.7	0.5	0.5	0.5	4.4	-0.9	-9.4	-0.8	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residential	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	-1.8	7.1	-2.2	-9.1	
Tertiary	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0		10.5	-4.7	-9.1	
Transport	0.7	0.9	0.7	1.0	1.1	1.1	1.2	1.2	1.2	0.7	4.4	0.9	0.4	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	0.2	1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	152.8	122.1	112.3	109.2	110.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: EC proposal without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479		0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8		4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	179.4	133.9	110.0	94.9	86.2		-1.9	0.5	-4.8	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	2.97	2.54	2.32	2.18	2.13		0.1	-0.4	-2.4	-0.9
Import Dependency %	100.0	104.5	100.8	100.0	99.0	97.0	94.6	93.4	93.0					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.9	1.0	1.0		6.1	2.5	1.8	
as % of GDP			8.3	12.2	13.0	12.2	11.6	11.2	10.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.8	82.9	77.9	73.9	71.3			-1.3	-1.2	-0.9
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	122.8	114.2	98.4	84.6	75.3		-1.6	2.1	-2.2	-2.6
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	129.1	120.0	102.0	91.1	82.5		-5.9	2.6	-2.3	-2.1
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.2	57.5	56.4	54.5	52.5		-3.8	2.3	-0.3	-0.7
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	167.3	165.1	157.1	149.5	144.1		2.5	4.8	-0.6	-0.9
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.78	0.64	0.41	0.30	0.30		-1.3	-0.5	-6.2	-3.3
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.06	1.95	1.84	1.77		-1.3	0.9	-1.0	-1.0
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.40	1.23	0.96	0.62	0.37		-4.9	3.4	-3.7	-9.2
Tertiary	0.00	0.00	0.50	0.49	0.97	0.82	0.51	0.31	0.18			6.8	-6.2	-9.7
Transport	2.97	2.96	2.98	3.00	2.89	2.84	2.81	2.79	2.79		0.0	-0.3	-0.3	0.0
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	3.6	6.9	10.0	11.3	11.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.7	7.2	8.7	9.2	8.9					
Gross Electricity generation by source (in GWh)														
			1917	2240	1828	1115	1294	1536	1666			-0.5	-3.4	2.6
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1545	744	327	109	106			-2.1	-14.4	-10.6
Gas (including derived gases)			0	0	284	331	791	1175	1267				10.8	4.8
Biomass-waste			0	0	0	0	2	4	5					8.7
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	40	160	217	252					4.6
Solar			0	0	0	0	13	31	36					10.4
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	526	554	544	652	734			1.1	0.3	3.0
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	17	72	107	126					5.7
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	17	64	87	102					4.8
Solar			0	0	0	0	9	20	23					10.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	526	537	472	545	609			1.1	-1.1	2.6
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	38	44	206	254	318				18.4	4.5
Oil fired			472	483	488	493	266	290	290			0.3	-5.9	0.9
Biomass-waste fired			0	0	0	0	0	0	1					8.7
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	37.8	22.4	26.6	26.4	25.5					
Efficiency of gross thermal power generation (%)			33.4	33.2	34.3	39.1	48.3	57.1	57.5					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	3.6	13.6	16.4	17.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	3.6	13.6	16.4	17.6					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.1	6.6	7.0		5.2	2.3	2.0	1.4
Public road transport	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7		5.9	1.7	1.5	1.3
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.1		4.4	2.4	1.1	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.0	3.4	3.8	4.1		5.6	2.4	2.6	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	0.0	0.1	0.0
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	0.0	0.1	0.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	376	403	423	435	440		0.7	4.7	1.2	0.4
Public road transport	5	11	10	12	14	15	16	16	16		5.8	3.9	1.5	-0.3
Private cars and motorcycles	87	160	89	142	175	189	205	217	223		0.2	7.0	1.6	0.9
Trucks	57	59	52	84	84	84	80	76	73		-0.8	4.9	-0.5	-0.9
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	103	115	123	126	128		1.8	1.8	1.8	0.4
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	25	44	59	17	28	34	231.9	171.2	136.1
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	25	44	59	17	28	34	231.9	171.2	136.1
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	3	14	22	3	12	17		510.2	362.1
Solar and others	0	0	0	21	30	37	14	16	17	186.1	116.7	84.0
Geothermal	0	0	0	0	0	0	0	0	0	199.0	158.0	164.3
Net Imports	611	818	953	792	771	781	-118	-134	-77	-13.0	-14.8	-9.0
Solids	0	0	0	0	0	0	0	0	0	26.7	-9.9	-61.1
Oil	611	818	953	642	535	451	-134	-167	-61	-17.2	-23.8	-12.0
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	642	535	451	-134	-167	-61	-17.2	-23.8	-12.0
Natural gas	0	0	0	50	117	186	-7	11	-34	-11.8	10.5	-15.5
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	817	815	840	-101	-106	-43	-11.0	-11.5	-4.9
Solids	0	0	0	0	0	0	0	0	0	26.7	-9.9	-61.1
Oil	581	769	953	642	535	451	-134	-167	-61	-17.2	-23.8	-12.0
Natural gas	0	0	0	50	117	186	-7	11	-34	-11.8	10.5	-15.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	51	78	95	40	50	52	349.8	185.3	122.1
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	78.7	65.7	53.7	-5.9	-10.6	-4.3			
Natural gas	0.0	0.0	0.0	6.1	14.4	22.2	-0.1	2.9	-2.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	6.3	9.5	11.3	5.0	6.6	6.5			
Gross Electricity Generation in GWh_e	1100	1917	2240	1115	1294	1666	-458	-345	-48	-29.1	-21.0	-2.8
Self consumption and grid losses	190	350	438	105	117	149	-44	-32	-11	-29.5	-21.6	-6.8
Fuel Inputs to Thermal Power Generation	321	494	580	236	200	206	-136	-128	-45	-36.6	-39.2	-17.9
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	186	82	19	-129	-133	0	-40.9	-61.9	-2.3
Gas (including derived gases)	0	0	0	50	117	186	-7	11	-34	-11.9	10.5	-15.5
Biomass & Waste	0	0	0	0	0	1	-1	-7	-10	-100.0	-94.7	-92.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	26	33	35	23	29	29	827.3	725.5	442.9
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	26	33	35	23	29	29	844.8	732.7	444.8
District heating	0	0	0	0	0	0	0	0	0	-1.9	-51.6	-26.7
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	2	2	2	-2	-2	-1	-46.2	-40.6	-26.9
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	659	695	733	-8	-23	-28	-1.2	-3.2	-3.6
by sector												
Industry	0	43	46	54	60	73	-1	-2	-2	-1.6	-2.6	-2.3
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	54	60	73	-1	-2	-2	-1.6	-2.6	-2.3
Residential	55	76	89	120	126	128	6	2	-6	5.1	1.7	-4.2
Tertiary	56	52	66	81	85	91	-6	-8	-9	-6.6	-8.5	-9.0
Transport	221	237	328	403	423	440	-7	-15	-11	-1.8	-3.5	-2.5
by fuel												
Solids	0	0	0	0	0	0	0	0	0	26.7	-9.9	-61.1
Oil	254	274	373	456	454	432	-5	-34	-61	-1.1	-7.0	-12.4
Gas	0	0	0	0	0	0	0	0	0	21.3	12.2	8.8
Electricity	78	135	155	160	186	238	-36	-27	-3	-18.2	-12.6	-1.3
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	-1.9	-51.7	-26.8
Renewable energy forms	0	0	0	42	56	62	33	38	37	334.1	221.9	142.9
Other	0	0	0	0	0	0	0	0	0	7.2	12.0	4.2
RES in Gross Final Energy Consumption ^(A)	0	0	0	46	71	87	36	48	52	347.5	214.3	148.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.4	2.3	-0.5	-0.5	-0.3	-15.0	-17.9	-10.6
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.1	1.9	1.8	-0.4	-0.5	-0.3	-17.7	-21.1	-12.8
Power generation/District heating	1.0	1.6	1.9	0.7	0.5	0.5	-0.4	-0.4	-0.1	-37.5	-42.7	-14.1
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-15.4	-16.8	-10.8
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	32.4	8.0	-51.9
Tertiary	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	58.1	11.6	-57.8
Transport	0.7	0.7	1.0	1.1	1.2	1.2	-0.1	-0.1	-0.1	-6.4	-9.0	-8.1
CO ₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO ₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.0
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	122.1	112.3	110.2	-21.6	-24.5	-13.0			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Malta: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	133.9	110.0	86.2	-16.5	-14.3	-4.4	-11.0	-11.5	-4.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.54	2.32	2.13	-0.21	-0.28	-0.19	-7.6	-10.8	-8.3
Import Dependency %	100.0	100.8	100.0	97.0	94.6	93.0	-2.2	-3.7	-4.2			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.9	1.0	0.0	0.0	0.1	2.8	4.8	7.6
as % of GDP		8.3	12.2	12.2	11.6	10.6	0.3	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.1						
as % of GDP				0.33	0.53	0.75						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	82.9	77.9	71.3	-1.4	-2.1	-1.7	-1.6	-2.6	-2.3
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	114.2	98.4	75.3	5.5	1.6	-3.3	5.1	1.7	-4.2
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	120.0	102.0	82.5	-8.5	-9.5	-8.1	-6.6	-8.5	-9.0
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	57.5	56.4	52.5	0.1	-0.3	0.9	0.1	-0.5	1.8
Freight transport (toe/Mtkm)	81.8	104.3	167.6	165.1	157.1	144.1	-1.1	-3.9	-6.9	-0.7	-2.4	-4.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.64	0.41	0.30	-0.09	-0.16	-0.04	-11.8	-27.5	-11.6
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.06	1.95	1.77	0.00	-0.08	-0.17	0.0	-4.1	-9.0
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-14.0	-14.6	-8.7
Residential	1.66	1.01	1.10	1.23	0.96	0.37	0.25	0.06	-0.36	26.0	6.3	-49.7
Tertiary	0.00	0.50	0.49	0.82	0.51	0.18	0.34	0.09	-0.21	69.4	22.0	-53.6
Transport	2.97	2.98	3.00	2.84	2.81	2.79	-0.14	-0.17	-0.17	-4.7	-5.7	-5.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	0.0	0.0	6.9	10.0	11.7	11.7	5.3	6.9	7.2			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	7.2	8.7	8.9	8.9	6.5	7.7	7.3			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	1917	2240	1115	1294	1666	1666	-458	-345	-48	-29.1	-21.0	-2.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	744	327	106	106	-449	-531	-2	-37.6	-61.9	-2.3
Gas (including derived gases)	0	0	331	791	1267	1267	-44	75	-222	-11.7	10.5	-14.9
Biomass-waste	0	0	0	2	5	5	-6	-36	-57	-100.0	-94.7	-92.5
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	40	160	252	252	40	134	198		510.2	362.1
Solar	0	0	0	13	36	36	0	13	36			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	472	483	554	544	734	734	10	-10	95	1.9	-1.9	14.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	0	0	17	72	126	126	17	62	105		623.8	504.7
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	17	64	102	102	17	54	81		537.1	392.3
Solar	0	0	0	9	23	23	0	9	23			
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	472	483	537	472	609	609	-7	-73	-10	-1.2	-13.3	-1.6
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	44	206	318	318	-7	-68	0	-14.0	-25.0	0.0
Oil fired	472	483	493	266	290	290	1	0	-3	0.3	0.0	-1.0
Biomass-waste fired	0	0	0	0	1	1	-1	-4	-7	-100.0	-94.7	-92.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	43.6	49.5	22.4	26.6	25.5	25.5	-9.5	-6.2	-4.5			
Efficiency of gross thermal power generation (%)	33.4	33.2	39.1	48.3	57.5	57.5	2.8	6.0	0.7			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.6	13.6	17.6	17.6	3.2	9.7	10.8			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.6	13.6	17.6	17.6	3.2	9.7	10.8			
Transport sector												
Passenger transport activity (Gpkm)	2.4	4.0	4.4	5.6	6.1	7.0	-0.1	-0.2	-0.2	-1.8	-2.7	-3.2
Public road transport	0.3	0.5	0.5	0.6	0.6	0.7	0.0	0.0	0.0	0.8	1.3	1.6
Private cars and motorcycles	0.9	1.4	1.6	1.9	2.0	2.1	0.0	0.0	0.0	-0.7	-1.6	-2.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Aviation	1.2	2.1	2.3	3.0	3.4	4.1	-0.1	-0.1	-0.2	-3.0	-4.1	-4.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-2.3	-2.8
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-2.3	-2.8
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)	221	237	328	403	423	440	-7	-15	-11	-1.8	-3.5	-2.5
Public road transport	5	10	12	15	16	16	0	0	-1	-0.1	-0.9	-4.1
Private cars and motorcycles	87	89	142	189	205	223	-2	-4	6	-0.9	-2.0	2.6
Trucks	57	52	84	84	80	73	-2	-4	-6	-2.0	-4.7	-7.2
Rail	0	0	0	0	0	0	0	0	0			
Aviation	72	86	90	115	123	128	-4	-7	-11	-3.2	-5.5	-7.6
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)								
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	60478	65988	57172	61834	57133	53586	53151	48973	42449	-0.6	0.0	-0.7	-2.2	
Solids	0	0	0	0	0	0	0	0	0					
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0				
Natural gas	54613	60456	51904	56265	53300	47918	45349	40100	32670	-0.5	0.3	-1.6	-3.2	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Renewable energy sources	956	933	1831	2242	2811	4645	6778	7838	8734	6.7	4.4	9.2	2.6	
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0	
Biomass & Waste	942	894	1739	2035	2222	3146	4498	5183	5640	6.3	2.5	7.3	2.3	
Wind	5	27	71	178	440	719	1168	1459	1729	30.9	20.0	10.3	4.0	
Solar and others	2	4	9	22	140	771	1103	1187	1357	15.5	31.6	22.9	2.1	
Geothermal	0	0	0	0	0	0	0	0	0			5.2	2.8	
Net Imports	17443	16359	34331	36912	39998	43309	44202	49368	56487	7.0	1.5	1.0	2.5	
Solids	9574	8921	8222	8313	4812	6744	6834	5471	4412	-1.5	-5.2	3.6	-4.3	
Oil	30876	32829	41673	47392	49913	49942	49705	50007	50183	3.0	1.8	0.0	0.1	
- Crude oil and Feedstocks	47956	59277	60955	61302	65879	66007	66072	66381	66654	2.4	0.8	0.0	0.1	
- Oil products	-17080	-26448	-19282	-13910	-15966	-16065	-16368	-16373	-16471					
Natural gas	-23799	-26370	-17191	-20941	-16692	-15006	-14202	-8330	-278					
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Gross Inland Consumption	67059	73374	75712	80963	79526	78568	78299	78604	78650	1.2	0.5	-0.2	0.0	
Solids	9206	9098	8035	8190	4812	6744	6834	5471	4412	-1.4	-5.0	3.6	-4.3	
Oil	24415	27242	28496	32027	32308	31615	30651	30271	29897	1.6	1.3	-0.5	-0.2	
Natural gas	30810	34085	34711	35324	36608	32911	31147	31770	32392	1.2	0.5	-1.6	0.4	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Renewable energy forms	956	933	1831	2817	3439	5534	8048	9302	10327	6.7	6.5	8.9	2.5	
as % in Gross Inland Consumption														
Solids	13.7	12.4	10.6	10.1	6.1	8.6	8.7	7.0	5.6					
Oil	36.4	37.1	37.6	39.6	40.6	40.2	39.1	38.5	38.0					
Natural gas	45.9	46.5	45.8	43.6	46.0	41.9	39.8	40.4	41.2					
Nuclear	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3					
Renewable energy forms	1.4	1.3	2.4	3.5	4.3	7.0	10.3	11.8	13.1					
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	105926	106624	112134	121825	131451	2.2	1.7	0.6	1.6	
Self consumption and grid losses	5554	6853	7752	8521	8572	8851	9272	10318	10534	3.4	1.0	0.8	1.3	
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16567	16064	16287	16663	17196	2.2	-1.0	-0.2	0.5	
Solids	5698	5900	5114	4958	1546	3517	3859	2631	1656	-1.1	-11.3	9.6	-8.1	
Oil (including refinery gas)	702	876	618	640	0	2	2	2	0	-1.3				
Gas (including derived gases)	7651	9466	11071	11913	13172	9963	8693	9527	10549	3.8	1.8	-4.1	2.0	
Biomass & Waste	570	601	1430	2052	1849	2581	3732	4503	4991	9.6	2.6	7.3	3.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	72281	83698	85058	89914	88104	88295	88101	88023	87869	1.6	0.4	0.0	0.0	
Refineries	68767	80009	82188	86416	84182	84019	83520	83510	83346	1.8	0.2	-0.1	0.0	
Biofuels and hydrogen production	0	0	0	0	325	785	1357	1459	1563			15.4	1.4	
District heating	0	0	0	436	545	468	437	415	387			-2.2	-1.2	
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3024	2787	2639	2572	-2.0	0.6	-0.9	-0.8	
Energy Branch Consumption	5410	6247	5484	6580	6447	6397	6329	6221	6165	0.1	1.6	-0.2	-0.3	
Non-Energy Uses	9495	9406	9579	12301	13233	13699	13779	13824	13800	0.1	3.3	0.4	0.0	
Final Energy Demand	42924	47670	50125	51588	52181	51200	50996	51269	51760	1.6	0.4	-0.2	0.2	
by sector														
Industry	12643	12714	13812	14597	15381	15845	15799	15902	16017	0.9	1.1	0.3	0.1	
- energy intensive industries	9577	8701	9885	10367	10964	11361	11285	11348	11390	0.3	1.0	0.3	0.1	
- other industrial sectors	3066	4012	3927	4231	4417	4484	4514	4554	4628	2.5	1.2	0.2	0.2	
Residential	9932	11124	10286	10335	9922	9131	9307	9481	9675	0.4	-0.4	-0.6	0.4	
Tertiary	9993	11429	12207	11587	11093	10344	10054	9923	9707	2.0	-1.0	-1.0	-0.4	
Transport	10356	12404	13820	15068	15786	15880	15836	15962	16381	2.9	1.3	0.0	0.3	
by fuel														
Solids	1755	1461	1352	1515	1516	1496	1387	1343	1295	-2.6	1.1	-0.9	-0.7	
Oil	12790	14685	16469	17366	17861	17528	16809	16736	16576	2.6	0.8	-0.6	-0.1	
Gas	21244	22515	21008	20335	19913	18763	17921	17435	16869	-0.1	-0.5	-1.0	-0.6	
Electricity	6322	7143	8421	8986	9230	8668	8966	9871	10503	2.9	0.9	-0.3	1.6	
Heat (from CHP and District Heating)	439	1568	2558	2981	2847	2963	3330	3142	3568	19.3	1.1	1.6	0.7	
Renewable energy forms	374	298	317	405	812	1779	2579	2738	2964	-1.6	9.9	12.2	1.4	
Other	0	0	0	0	1	3	4	5	5			13.8	2.3	
RES in Gross Final Energy Consumption (A)			940	1828	3006	5042	7324	8457	9397		12.3	9.3	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.2	195.9	188.3	179.3	173.8	0.1	-0.2	-1.2	-0.8	
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.7	155.7	149.1	144.1	140.6	0.9	-0.4	-0.7	-0.6	
Power generation/District heating	43.3	49.1	48.9	51.1	38.9	39.0	37.3	34.4	32.8	1.2	-2.3	-0.4	-1.3	
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.1	13.9	13.5	13.4	-0.4	1.0	-0.4	-0.3	
Industry	27.0	25.1	24.8	25.4	26.9	27.4	25.5	25.2	23.7	-0.8	0.8	-0.5	-0.7	
Residential	19.2	20.6	18.9	17.8	16.4	14.8	14.3	14.1	13.8	-0.2	-1.4	-1.3	-0.3	
Tertiary	18.9	20.7	19.5	18.1	17.3	15.4	14.7	13.6	12.5	0.3	-1.2	-1.6	-1.6	
Transport	30.1	36.2	40.5	44.4	45.8	44.9	43.3	43.3	44.2	3.0	1.2	-0.5	0.2	
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.5	11.6	11.6	11.7	-1.5	2.1	0.2	0.1	
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	28.7	27.6	23.6	21.5	-2.2	-0.2	-4.1	-2.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.5	90.5	87.0	82.8	80.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.2	121.9	111.4	103.4	96.9	-2.0	-1.4	-2.1	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	1.98	1.90	1.83	1.79	-0.4	-0.9	-0.5	-0.6
Import Dependency %	22.4	19.3	38.6	37.8	41.2	44.7	45.4	50.2	57.1				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	67.3	74.0	78.5	82.6		3.3	2.0	1.1
as % of GDP			9.2	10.4	10.5	10.4	10.5	10.3	10.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	95.2	89.3	84.7	81.3	-1.1	0.1	-1.2	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.4	67.9	63.9	60.6	58.4	-2.9	-2.0	-2.4	-0.9
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	60.3	53.9	49.2	45.1	-1.5	-3.2	-2.9	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.3	42.1	39.2	37.8	1.7	0.3	-1.4	-1.1
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	35.5	32.9	31.5	30.2	0.8	-0.3	-1.5	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.26	0.23	0.21	0.18	-3.4	-3.9	-1.1	-2.4
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	2.00	1.92	1.88	1.82	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.73	1.62	1.59	1.48	-1.7	-0.3	-0.8	-0.9
Residential	1.93	1.85	1.84	1.72	1.65	1.62	1.54	1.49	1.43	-0.5	-1.0	-0.7	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.49	1.46	1.37	1.29	-1.7	-0.2	-0.7	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.6	9.6	14.0	16.1	17.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.1	10.9	11.5				
Gross Electricity generation by source (in GWh)													
			89599	100202	105926	106624	112134	121825	131451		1.7	0.6	1.6
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5428	16957	18916	15072	9485		-13.1	13.3	-6.7
Oil (including refinery gas)			3769	1651	1231	442	383	176	109		-10.6	-11.0	-11.8
Gas (including derived gases)			55039	64687	83015	64810	57685	63723	73446		4.2	-3.6	2.4
Biomass-waste			3772	6720	6902	11423	16779	20212	22366		6.2	9.3	2.9
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8365	13587	16970	20103		20.0	10.3	4.0
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	79	367	374	374	374				16.9
Net Generation Capacity in MW_e			20113	19871	25640	27654	28454	30416	33349		2.5	1.0	1.6
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3355	3707	5815	7309	8710		21.1	5.7	4.1
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3179	5061	6291	7348		21.5	4.9	3.8
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	41	190	194	194	194				16.9
<u>Thermal power</u>			19116	17718	21779	23436	22125	22566	24092		1.3	0.2	0.9
of which cogeneration units			9089	9231	9643	10356	10905	10522	11135		0.6	1.2	0.2
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15310	14581	13102	14035	16611		1.2	-1.5	2.4
Oil fired			839	825	809	637	623	356	308		-0.4	-2.6	-6.8
Biomass-waste fired			533	1022	1486	2293	3073	3610	3979		10.8	7.5	2.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.4	42.2	43.1	43.9	43.4				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.1	50.1	49.5	51.2	52.7				
% of gross electricity from CHP			32.0	37.6	43.2	45.4	48.0	44.6	48.5				
Carbon free gross electricity generation (%)			9.7	12.9	15.3	22.9	31.3	35.2	36.8				
- nuclear			4.4	4.0	3.7	3.7	3.5	3.8	3.6				
- renewable energy forms			5.3	8.9	11.6	19.2	27.8	31.3	33.2				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	175.3	177.6	189.5	198.2	213.9	230.2	246.8	265.7	285.0	0.8	1.2	1.4	1.5
Private cars and motorcycles	13.0	12.0	11.3	11.7	12.3	12.7	13.1	13.4	13.5	-1.4	0.9	0.7	0.3
Rail	138.7	133.2	143.4	149.5	160.2	170.3	180.1	191.2	201.9	0.3	1.1	1.2	1.1
Aviation	12.3	17.7	16.1	16.3	17.5	19.2	21.4	24.0	26.7	2.7	0.8	2.1	2.2
Inland navigation	9.8	13.5	17.8	19.7	23.1	27.0	31.1	36.1	41.7	6.2	2.6	3.0	3.0
Freight transport activity (Gtkm)	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.0	1.1
Trucks	94.8	105.7	125.4	131.6	142.1	153.8	165.8	176.2	186.0	2.8	1.3	1.6	1.2
Rail	56.1	67.1	79.6	84.2	90.8	97.0	104.2	111.9	118.3	3.6	1.3	1.4	1.3
Inland navigation	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.7	3.9	3.0	2.2	1.4
Energy demand in transport (ktoe)	35.7	35.5	41.3	42.2	45.2	49.9	54.0	56.1	58.9	1.5	0.9	1.8	0.9
Public road transport	10356	12404	13820	15068	15786	15880	15836	15962	16381	2.9	1.3	0.0	0.3
Private cars and motorcycles	104	105	95	91	90	87	82	80	79	-0.9	-0.5	-0.9	-0.4
Trucks	5043	5525	5286	5999	6179	6104	6004	5898	5986	0.5	1.6	-0.3	0.0
Rail	2899	3325	4254	4933	5140	5135	5127	5224	5304	3.9	1.9	0.0	0.3
Aviation	147	162	176	172	183	184	173	159	143	1.8	0.4	-0.5	-1.9
Inland navigation	1608	2589	3343	3670	3976	4136	4200	4348	4604	7.6	1.8	0.5	0.9
	556	697	667	204	217	235	249	255	264	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	53586	53151	42449	-2620	-816	3786	-4.7	-1.5	9.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	47918	45349	32670	-4062	-3831	0	-7.8	-7.8	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4645	6778	8734	1442	3014	3786	45.0	80.1	76.5
Hydro	7	12	8	9	9	9	0	0	0	0.2	0.1	0.0
Biomass & Waste	942	1739	2035	3146	4498	5640	762	1653	1900	31.9	58.1	50.8
Wind	5	71	178	719	1168	1729	94	527	917	15.0	82.2	112.8
Solar and others	2	9	22	771	1103	1357	587	835	970	319.1	311.4	250.4
Geothermal	0	0	0	0	0	0	0	0	0	47.2	97.0	158.8
Net Imports	17443	34331	36912	43309	44202	56487	-6172	-10451	-16830	-12.5	-19.1	-23.0
Solids	9574	8222	8313	6744	6834	4412	-3510	-4796	-8225	-34.2	-41.2	-65.1
Oil	30876	41673	47392	49942	49705	50183	-1275	-2471	-3844	-2.5	-4.7	-7.1
- Crude oil and Feedstocks	47956	60955	61302	66007	66072	66654	-1158	-2118	-3572	-1.7	-3.1	-5.1
- Oil products	-17080	-19282	-13910	-16065	-16368	-16471	-118	-353	-272	0.7	2.2	1.7
Natural gas	-23799	-17191	-20941	-15006	-14202	-278	-1602	-3650	-5297	11.9	34.6	-105.5
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	78568	78299	78650	-8784	-11241	-13002	-10.1	-12.6	-14.2
Solids	9206	8035	8190	6744	6834	4412	-3510	-4796	-8225	-34.2	-41.2	-65.1
Oil	24415	28496	32027	31615	30651	29897	-1267	-2445	-3802	-3.9	-7.4	-11.3
Natural gas	30810	34711	35324	32911	31147	32392	-5664	-7481	-5297	-14.7	-19.4	-14.1
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5534	8048	10327	1657	3481	4323	42.8	76.2	72.0
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	8.6	8.7	5.6	-3.2	-4.3	-8.2			
Oil	36.4	37.6	39.6	40.2	39.1	38.0	2.6	2.2	1.2			
Natural gas	45.9	45.8	43.6	41.9	39.8	41.2	-2.3	-3.4	0.1			
Nuclear	1.3	1.3	1.3	1.3	1.3	1.3	0.1	0.2	0.2			
Renewable energy forms	1.4	2.4	3.5	7.0	10.3	13.1	2.6	5.2	6.6			
Gross Electricity Generation in GWh_e	71824	89599	100202	106624	112134	131451	-31847	-39401	-36659	-23.0	-26.0	-21.8
Self consumption and grid losses	5554	7752	8521	8851	9272	10534	-2699	-3257	-4901	-23.4	-26.0	-31.8
Fuel Inputs to Thermal Power Generation	14621	18233	19563	16064	16287	17196	-6120	-8122	-8121	-27.6	-33.3	-32.1
Solids	5698	5114	4958	3517	3859	1656	-3505	-4647	-8070	-49.9	-54.6	-83.0
Oil (including refinery gas)	702	618	640	2	2	0	2	2	0	21391.7	21391.7	-100.0
Gas (including derived gases)	7651	11071	11913	9963	8693	10549	-3518	-5207	-2272	-26.1	-37.5	-17.7
Biomass & Waste	570	1430	2052	2581	3732	4991	900	1730	2221	53.6	86.4	80.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88295	88101	87869	-1103	-1926	-3542	-1.2	-2.1	-3.9
Refineries	68767	82188	86416	84019	83520	83346	-1184	-2147	-3598	-1.4	-2.5	-4.1
Biofuels and hydrogen production	0	0	0	785	1357	1563	69	228	83	9.7	20.1	5.6
District heating	0	0	436	468	437	387	-51	-24	-48	-9.8	-5.3	-10.9
Derived gases, cokeries etc.	3514	2870	3062	3024	2787	2572	62	18	21	2.1	0.7	0.8
Energy Branch Consumption	5410	5484	6580	6397	6329	6165	-304	-433	-736	-4.5	-6.4	-10.7
Non-Energy Uses	9495	9579	12301	13699	13779	13800	-18	-20	-19	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	51200	50996	51780	-5089	-6625	-7883	-9.0	-11.5	-13.2
by sector												
Industry	12643	13812	14597	15845	15799	16017	-569	-918	-1254	-3.5	-5.5	-7.3
- energy intensive industries	9577	9885	10367	11361	11285	11390	-361	-662	-898	-3.1	-5.5	-7.3
- other industrial sectors	3066	3927	4231	4484	4514	4628	-208	-256	-355	-4.4	-5.4	-7.1
Residential	9932	10286	10335	9131	9307	9675	-1492	-1488	-1387	-14.0	-13.8	-12.5
Tertiary	9993	12207	11587	10344	10054	9707	-1950	-2376	-2815	-15.9	-19.1	-22.5
Transport	10356	13820	15068	15880	15836	16381	-1077	-1844	-2428	-6.4	-10.4	-12.9
by fuel												
Solids	1755	1352	1515	1496	1387	1295	-55	-194	-201	-3.5	-12.2	-13.4
Oil	12790	16469	17366	17528	16809	16576	-1211	-2285	-3460	-6.5	-12.0	-17.3
Gas	21244	21008	20335	18763	17921	16869	-1880	-1891	-2680	-9.1	-9.5	-13.7
Electricity	6322	8421	8986	8668	8966	10503	-2498	-3087	-2705	-22.4	-25.6	-20.5
Heat (from CHP and District Heating)	439	2558	2981	2963	3330	3568	-58	-174	135	-1.9	-5.0	3.9
Renewable energy forms	374	317	405	1779	2579	2964	613	1005	1031	52.6	63.8	53.3
Other	0	0	0	3	4	5	1	0	-2	39.6	7.5	-30.4
RES in Gross Final Energy Consumption ^(A)		940	1828	5042	7324	9397	1590	3223	4025	46.1	78.6	74.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	195.9	188.3	173.8	-37.5	-53.2	-65.1	-16.1	-22.0	-27.3
CO₂ Emissions (energy related)	152.2	165.8	171.6	155.7	149.1	140.6	-30.9	-43.7	-56.0	-16.5	-22.7	-28.5
Power generation/District heating	43.3	48.9	51.1	39.0	37.3	32.8	-22.2	-30.9	-37.5	-36.2	-45.3	-53.3
Energy Branch	13.7	13.1	14.8	14.1	13.9	13.4	-0.5	-0.8	-1.2	-3.3	-5.2	-8.0
Industry	27.0	24.8	25.4	27.4	25.5	23.7	-0.1	-0.7	-2.8	-0.4	-2.8	-10.4
Residential	19.2	18.9	17.8	14.8	14.3	13.8	-2.4	-2.6	-2.7	-14.0	-15.1	-16.3
Tertiary	18.9	19.5	18.1	15.4	14.7	12.5	-2.3	-2.6	-4.1	-12.8	-15.1	-24.8
Transport	30.1	40.5	44.4	44.9	43.3	44.2	-3.4	-6.2	-7.8	-7.1	-12.5	-15.0
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.5	11.6	11.7	-0.2	-0.4	-0.6	-1.5	-3.1	-5.0
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	28.7	27.6	21.5	-6.4	-9.1	-8.5	-18.3	-24.8	-28.3
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	90.5	87.0	80.3	-17.3	-24.6	-30.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Netherlands: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	121.9	111.4	96.9	-13.6	-16.0	-16.0	-10.1	-12.6	-14.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	1.98	1.90	1.79	-0.15	-0.25	-0.36	-7.2	-11.6	-16.7
Import Dependency %	22.4	38.6	37.8	44.7	45.4	57.1	-2.1	-4.9	-8.4			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	67.3	74.0	82.6	1.6	2.2	2.9	2.5	3.1	3.7
as % of GDP		9.2	10.4	10.4	10.5	10.2	0.3	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				1.8	2.4	3.2						
as % of GDP				0.27	0.34	0.39						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	95.2	89.3	81.3	-3.4	-5.2	-6.4	-3.5	-5.5	-7.3
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	67.9	63.9	58.4	-11.1	-10.2	-8.4	-14.0	-13.8	-12.5
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	60.3	53.9	45.1	-11.4	-12.7	-13.1	-15.9	-19.1	-22.5
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.3	42.1	37.8	-1.4	-2.5	-3.3	-3.0	-5.6	-8.1
Freight transport (toe/Mtkm)	36.4	39.5	39.6	35.5	32.9	30.2	-2.3	-3.8	-4.0	-6.0	-10.4	-11.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.26	0.23	0.18	-0.08	-0.11	-0.15	-22.5	-30.9	-44.2
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	2.00	1.92	1.82	0.04	0.01	-0.05	1.8	0.6	-2.7
Industry	2.14	1.80	1.74	1.73	1.62	1.48	0.05	0.05	-0.05	3.1	2.9	-3.4
Residential	1.93	1.84	1.72	1.62	1.54	1.43	0.00	-0.02	-0.06	0.1	-1.6	-4.3
Tertiary	1.89	1.60	1.56	1.49	1.46	1.29	0.05	0.07	-0.04	3.7	5.0	-3.0
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.06	-0.07	-0.8	-2.3	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	9.6	14.0	17.7	3.6	7.1	9.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.1	11.5	0.8	2.6	2.0			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	3925	3996	3967	3971	4733		0	0	0	0.0	0.0	0.0
Solids	22115	20959	16957	18916	9485		-15966	-20568	-46467	-48.5	-52.1	-83.0
Oil (including refinery gas)	3769	1651	442	383	109		54	9	-2	13.8	2.3	-1.5
Gas (including derived gases)	55039	64687	64810	57685	73446		-21874	-33240	-11660	-25.2	-36.6	-13.7
Biomass-waste	3772	6720	11423	16779	22366		4481	7894	10438	64.6	88.8	87.5
Hydro (pumping excluded)	142	88	99	99	99		0	0	0	0.2	0.1	0.0
Wind	829	2067	8365	13587	20103		1091	6130	10658	15.0	82.2	112.8
Solar	8	34	195	340	735		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	367	374	374		367	374	374			
Net Generation Capacity in MW_e												
<u>Nuclear energy</u>	501	501	512	514	547		11	13	0	2.2	2.7	0.0
<u>Renewable energy</u>	495	1653	3707	5815	8710		510	2383	4103	15.9	69.5	89.1
Hydro (pumping excluded)	37	37	37	37	37		0	0	0	0.0	0.0	0.0
Wind	446	1565	3179	5061	7348		319	2189	3909	11.2	76.2	113.7
Solar	12	51	300	523	1131		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	190	194	194		190	194	194			
<u>Thermal power</u>	19116	17718	23436	22125	24092		-2500	-5975	-6682	-9.6	-21.3	-21.7
of which cogeneration units	9089	9231	10356	10905	11135		-442	-1246	-702	-4.1	-10.3	-5.9
Solids fired	4171	4171	5926	5327	3194		3	3	-4279	0.1	0.0	-57.3
Gas fired	13574	11700	14581	13102	16611		-3234	-7202	-4004	-18.2	-35.5	-19.4
Oil fired	839	825	637	623	308		-58	-40	-373	-8.3	-6.1	-54.8
Biomass-waste fired	533	1022	2293	3073	3979		789	1264	1974	52.5	69.9	98.5
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	42.2	43.1	43.4		-9.0	-8.8	-7.6			
Efficiency of gross thermal power generation (%)	39.9	41.3	50.1	49.5	52.7		0.9	0.3	0.7			
% of gross electricity from CHP	32.0	37.6	45.4	48.0	48.5		9.2	7.5	10.7			
Carbon free gross electricity generation (%)	9.7	12.9	22.9	31.3	36.8		9.6	17.7	20.8			
- nuclear	4.4	4.0	3.7	3.5	3.6		0.9	0.9	0.8			
- renewable energy forms	5.3	8.9	19.2	27.8	33.2		8.7	16.7	20.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	13.0	11.3	11.7	12.7	13.1	13.5	0.3	0.4	0.5	2.5	3.5	4.1
Private cars and motorcycles	138.7	143.4	149.5	170.3	180.1	201.9	-4.2	-6.6	-8.8	-2.4	-3.5	-4.2
Rail	12.3	16.1	16.3	19.2	21.4	26.7	-0.1	0.0	0.2	-0.4	-0.1	0.6
Aviation	9.8	17.8	19.7	27.0	31.1	41.7	-1.2	-1.9	-3.0	-4.3	-5.8	-6.6
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.8	-0.6	-0.5
Freight transport activity (Gtkm)												
Trucks	56.1	79.6	84.2	97.0	104.2	118.3	-5.1	-7.5	-9.8	-5.0	-6.7	-7.6
Rail	3.1	4.5	5.2	6.9	7.6	8.7	0.2	0.2	0.4	2.5	3.3	4.2
Inland navigation	35.7	41.3	42.2	49.9	54.0	58.9	0.5	0.8	1.0	1.1	1.6	1.8
Energy demand in transport (ktoe)												
Public road transport	104	95	91	87	82	79	0	-3	-6	-0.5	-3.7	-6.9
Private cars and motorcycles	5043	5286	5999	6104	6004	5986	-266	-405	-525	-4.2	-6.3	-8.1
Trucks	2899	4254	4933	5135	5127	5304	-512	-859	-1014	-9.1	-14.3	-16.1
Rail	147	176	172	184	173	143	-8	-15	-15	-4.1	-8.1	-9.4
Aviation	1608	3343	3670	4136	4200	4604	-290	-560	-864	-6.6	-11.8	-15.8
Inland navigation	556	667	204	235	249	264	0	-1	-5	0.0	-0.5	-1.7

Source: PRIMES

Poland: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68521	67174	67625	69502	72877	-2.1	-1.6	-0.1	0.8	
Solids	94459	91104	71298	68876	57053	53594	51365	45784	42936	-2.8	-2.2	-1.0	-1.8	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	5556	10643					
Renewable energy sources	2369	4763	4256	5016	7518	9779	12560	14712	15998	6.0	5.9	5.3	2.4	
Hydro	139	162	181	189	231	249	269	281	299	2.7	2.5	1.6	1.1	
Biomass & Waste	2230	4600	4072	4806	6908	9011	11264	12827	13921	6.2	5.4	5.0	2.1	
Wind	0	0	0	12	364	475	801	1268	1381		96.2	8.2	5.6	
Solar and others	0	0	0	0	5	31	208	316	376			46.4	6.1	
Geothermal	0	0	3	9	11	13	17	20	21		14.0	4.4	2.4	
Net Imports	2238	-152	10131	16954	29940	37534	44361	46983	52133	16.3	11.4	4.0	1.6	
Solids	-18913	-21202	-16309	-12482	-6650	-6258	-5502	-6455	-4664					
Oil	14468	15481	20381	21929	26391	30293	32564	34332	35331	3.5	2.6	2.1	0.8	
- Crude oil and Feedstocks	13085	13984	18827	18169	21886	24938	26677	28022	28764	3.7	1.5	2.0	0.8	
- Oil products	1383	1498	1554	3760	4505	5354	5887	6310	6567	1.2	11.2	2.7	1.1	
Natural gas	6773	5810	6607	8531	11147	14031	17064	19049	21407	-0.2	5.4	4.4	2.3	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	98092	104296	111545	116021	124531	-1.0	0.8	1.3	1.1	
Solids	75405	70500	56358	55184	50403	47336	45863	39329	38272	-2.9	-1.1	-0.9	-1.8	
Oil	13399	16003	20759	22525	26772	30582	32823	34518	35452	4.5	2.6	2.1	0.8	
Natural gas	8938	8995	9960	12235	14347	17131	20064	21849	24107	1.1	3.7	3.4	1.9	
Nuclear	0	0	0	0	0	0	0	5556	10643					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7429	9815	13304	15560	16918	6.0	5.7	6.0	2.4	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	51.4	45.4	41.1	33.9	30.7					
Oil	13.4	16.0	22.9	24.0	27.3	29.3	29.4	29.8	28.5					
Natural gas	8.9	9.0	11.0	13.0	14.6	16.4	18.0	18.8	19.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	8.5					
Renewable energy forms	2.4	4.8	4.7	5.3	7.6	9.4	11.9	13.4	13.6					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	155646	160199	172519	201969	226114	0.6	0.8	1.0	2.7	
Self consumption and grid losses	21063	28189	27977	28574	26865	27465	28452	38504	43579	2.9	-0.4	0.6	4.4	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	34849	33547	35189	29825	30547	-1.9	-0.3	0.1	-1.4	
Solids	41138	35842	34793	35942	32931	30477	29549	23565	23263	-1.7	-0.5	-1.1	-2.4	
Oil (including refinery gas)	1236	405	228	179	25	84	687	260	53	-15.6	-19.8	39.2	-22.6	
Gas (including derived gases)	673	488	783	1483	1165	1726	2308	2337	2991	1.5	4.1	7.1	2.6	
Biomass & Waste	372	114	157	546	727	1260	2645	3662	4240	-8.3	16.6	13.8	4.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32888	35850	37956	39250	40131	-1.1	-0.3	1.4	0.6	
Refineries	13160	14929	19949	19591	22897	25939	27697	29004	29695	4.2	1.4	1.9	0.7	
Biofuels and hydrogen production	0	0	0	55	453	975	1886	2277	2436			15.3	2.6	
District heating	9949	5985	4320	3639	3338	3309	3513	3540	4236	-8.0	-2.5	0.5	1.9	
Derived gases, cokeries etc.	14746	12045	9635	8541	6200	5627	4860	4428	3765	-4.2	-4.3	-2.4	-2.5	
Energy Branch Consumption	6809	7655	7401	7680	9418	10017	10341	11419	11831	0.8	2.4	0.9	1.4	
Non-Energy Uses	4193	3646	4218	4354	5146	6262	7243	8182	8947	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	63661	70431	76193	81019	84546	-0.7	1.3	1.8	1.0	
by sector														
Industry	25252	22720	18883	16373	17709	19664	21553	23388	24728	-2.9	-0.6	2.0	1.4	
- energy intensive industries	16252	15428	13374	11149	11584	12445	13216	14189	14991	-1.9	-1.4	1.3	1.3	
- other industrial sectors	9000	7292	5509	5225	6125	7219	8336	9199	9737	-4.8	1.1	3.1	1.6	
Residential	18126	23284	17516	18375	19557	20550	21585	22063	22627	-0.3	1.1	1.0	0.5	
Tertiary	8867	9229	10136	10334	11505	12598	13607	14692	15784	1.3	1.3	1.7	1.5	
Transport	7338	8256	9185	12087	14890	17619	19450	20876	21407	2.3	4.9	2.7	1.0	
by fuel														
Solids	17066	23299	13728	11262	11569	11287	11076	10720	10246	-2.2	-1.7	-0.4	-0.8	
Oil	9104	11582	15452	17798	20970	24206	25357	27127	27428	5.4	3.1	1.9	0.8	
Gas	7987	7735	7447	8400	10906	12453	13991	15124	16201	-0.7	3.9	2.5	1.5	
Electricity	8233	7703	8317	8498	8778	9439	10518	11940	13550	0.1	0.5	1.8	2.6	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6549	6960	7745	8048	8564	-7.8	-0.5	1.7	1.0	
Renewable energy forms	1631	4408	3889	4156	4888	6083	7502	8054	8549	9.1	2.3	4.4	1.3	
Other	0	0	0	0	1	3	5	7	7			16.6	2.9	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6730	8864	11625	14102	15299	4.9	5.6	2.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	370.5	377.2	387.1	334.5	291.7	-1.4	-0.1	0.4	-2.8	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	292.9	296.1	302.0	253.4	212.5	-1.3	0.1	0.3	-3.5	
Power generation/District heating	209.3	169.9	158.8	162.1	146.9	138.2	137.9	82.7	40.4	-2.7	-0.8	-0.6	-11.5	
Energy Branch	5.8	12.7	11.4	10.6	11.7	11.6	11.9	12.1	12.1	6.9	0.3	0.1	0.2	
Industry	44.0	59.9	46.3	33.2	38.1	41.6	44.0	47.4	48.2	0.5	-1.9	1.5	0.9	
Residential	33.1	44.4	27.9	30.2	32.3	32.3	31.9	31.2	30.2	-1.7	1.5	-0.1	-0.6	
Tertiary	19.4	20.7	20.1	20.4	22.5	24.3	25.2	25.9	26.5	0.4	1.1	1.1	0.5	
Transport	20.5	23.1	25.8	34.3	41.5	48.1	51.1	54.2	55.2	2.3	4.9	2.1	0.8	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.2	17.2	19.8	22.2	4.2	-1.0	4.1	2.6	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	86.2	87.7	90.0	77.8	67.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: EC proposal without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1	
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3	
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	325.6	270.7	236.2	205.1	190.3	-4.6	-2.8	-3.2	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.99	2.84	2.71	2.18	1.71	-0.4	-0.7	-1.0	-4.5	
Import Dependency %	2.2	-0.2	11.1	18.0	30.4	35.8	39.6	40.3	41.7					
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	48.4	60.4	71.8	83.3	91.4		3.6	4.0	2.4	
as % of GDP			16.1	15.8	16.1	15.7	15.2	14.7	14.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.6	50.2	44.2	40.6	38.4	-6.9	-5.0	-2.9	-1.4	
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.7	54.3	47.1	40.3	35.6	-5.8	-4.3	-3.1	-2.8	
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	81.5	70.5	62.4	55.7	50.9	-2.1	-2.0	-2.6	-2.0	
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.8	20.8	2.9	-0.2	-0.5	-1.4	
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.4	40.2	38.7	37.0	35.7	0.3	3.9	-0.4	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.58	0.52	0.47	0.25	0.11	0.8	-1.5	-1.9	-13.3	
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.11	2.08	2.00	1.96	1.89	0.9	-0.2	-0.5	-0.5	
Industry	1.74	2.64	2.45	2.02	2.15	2.12	2.04	2.02	1.95	3.5	-1.3	-0.5	-0.5	
Residential	1.83	1.90	1.59	1.64	1.65	1.57	1.48	1.41	1.33	-1.4	0.3	-1.1	-1.0	
Tertiary	2.19	2.25	1.98	1.97	1.96	1.93	1.85	1.76	1.68	-1.0	-0.1	-0.6	-1.0	
Transport	2.80	2.80	2.81	2.84	2.78	2.73	2.63	2.60	2.58	0.0	-0.1	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.2	12.2	14.8	16.7	17.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.1	5.7	10.1	11.5	12.0					
Gross Electricity generation by source (in GWh)														
			143147	155331	155646	160199	172519	201969	226114		0.8	1.0	2.7	
Nuclear energy			0	0	0	0	0	25159	48319					
Solids			134042	141361	133704	128478	121794	117242	113864		0.0	-0.9	-0.7	
Oil (including refinery gas)			2936	2964	1263	1062	2416	1867	1219		-8.1	6.7	-6.6	
Gas (including derived gases)			2979	5603	8178	12251	18517	19169	21689		10.6	8.5	1.6	
Biomass-waste			1080	3068	5586	9989	17343	20508	21450		17.9	12.0	2.1	
Hydro (pumping excluded)			2105	2201	2683	2895	3133	3266	3478		2.5	1.6	1.1	
Wind			5	135	4231	5524	9314	14744	16058		96.2	8.2	5.6	
Solar			0	0	0	0	3	14	37			25.7	29.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			30194	31711	34416	39129	40247	50247	54216		1.3	1.6	3.0	
<u>Nuclear energy</u>			0	0	0	0	0	2904	5577					
<u>Renewable energy</u>			640	1038	3323	4019	5866	8152	8773		17.9	5.8	4.1	
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7	
Wind			5	124	2344	2946	4707	6901	7498		84.2	7.2	4.8	
Solar			0	0	0	0	3	15	40			25.7	29.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			29554	30673	31093	35110	34380	39192	39866		0.5	1.0	1.5	
of which cogeneration units			6632	6800	6946	8145	9136	10615	12149		0.5	2.8	2.9	
Solids fired			28139	28775	28755	29745	26851	27782	23603		0.2	-0.7	-1.3	
Gas fired			820	1263	1664	2035	3286	3720	7635		7.3	7.0	8.8	
Oil fired			472	474	461	554	554	334	278		-0.2	1.9	-6.7	
Biomass-waste fired			122	160	213	2777	3689	7355	8350		5.8	33.0	8.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.2	51.1	47.8	43.2	45.4	40.9	42.1					
Efficiency of gross thermal power generation (%)			33.7	34.5	36.7	38.9	39.1	45.8	44.5					
% of gross electricity from CHP			12.2	12.9	24.5	28.0	26.6	27.7	28.2					
Carbon free gross electricity generation (%)			2.2	3.5	8.0	11.5	17.3	31.5	39.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	12.5	21.4					
- renewable energy forms			2.2	3.5	8.0	11.5	17.3	19.1	18.1					
Transport sector														
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.3	329.7	380.8	435.8	488.1	0.5	2.7	3.1	2.5	
Public road transport	46.3	34.0	31.7	29.9	28.8	29.2	31.9	34.4	36.5	-3.7	-1.0	1.0	1.4	
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.6	316.1	361.4	404.5	4.1	4.0	3.3	2.5	
Rail	55.4	31.6	28.8	22.3	20.6	22.1	25.0	29.8	34.4	-6.3	-3.3	2.0	3.2	
Aviation	2.0	2.3	2.6	3.1	4.0	5.6	7.5	9.8	12.3	3.1	4.3	6.3	5.1	
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2	
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	233.6	266.9	294.9	314.9	0.6	4.0	3.3	1.7	
Trucks	40.3	51.2	75.0	111.8	143.3	173.8	198.1	218.4	232.9	6.4	6.7	3.3	1.6	
Rail	81.6	68.2	54.0	43.8	49.7	59.4	68.4	76.0	81.4	-4.0	-0.8	3.2	1.8	
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7	
Energy demand in transport (ktoe)	7338	8256	9185	12087	14890	17619	19450	20876	21407	2.3	4.9	2.7	1.0	
Public road transport	314	229	217	190	183	180	188	191	184	-3.6	-1.7	0.3	-0.2	
Private cars and motorcycles	3299	4112	4876	5324	6441	7509	8300	8999	9127	4.0	2.8	2.6	1.0	
Trucks	2335	2847	3178	5748	7356	8858	9767	10364	10774	3.1	8.8	2.9	1.0	
Rail	1095	667	539	502	534	608	631	642	552	-6.8	-0.1	1.7	-1.3	
Aviation	196	371	369	319	374	461	561	677	766	6.5	0.1	4.1	3.2	
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.2	

Source: PRIMES

Poland: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	67174	67625	72877	550	2010	4148	0.8	3.1	6.0
Solids	94459	71298	68876	53594	51365	42936	-284	-162	-981	-0.5	-0.3	-2.2
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	10643	0	0	2276			27.2
Renewable energy sources	2369	4256	5016	9779	12560	15998	834	2171	2853	9.3	20.9	21.7
Hydro	139	181	189	249	269	299	15	9	0	6.2	3.3	0.0
Biomass & Waste	2230	4072	4806	9011	11264	13921	571	1560	1678	6.8	16.1	13.7
Wind	0	0	12	475	801	1381	238	501	989	100.7	167.2	252.3
Solar and others	0	0	0	31	208	376	7	96	178	28.4	85.3	89.9
Geothermal	0	3	9	13	17	21	3	5	8	27.9	47.3	63.4
Net Imports	2238	10131	16954	37534	44361	52133	-7346	-7573	-7167	-16.4	-14.6	-12.1
Solids	-18913	-16309	-12482	-6258	-5502	-4664	-8106	-9206	-8557	-438.7	-248.6	-219.8
Oil	14468	20381	21929	30293	32564	35331	222	-207	-489	0.7	-0.6	-1.4
- Crude oil and Feedstocks	13085	18827	18169	24938	26677	28764	175	-162	-380	0.7	-0.6	-1.3
- Oil products	1383	1554	3760	5354	5887	6567	46	-45	-109	0.9	-0.8	-1.6
Natural gas	6773	6607	8531	14031	17064	21407	393	971	801	2.9	6.0	3.9
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	104296	111545	124531	-6796	-5562	-3017	-6.1	-4.7	-2.4
Solids	75405	56358	55184	47336	45863	38272	-8390	-9367	-9538	-15.1	-17.0	-20.0
Oil	13399	20759	22525	30582	32823	35452	222	-207	-487	0.7	-0.6	-1.4
Natural gas	8938	9960	12235	17131	20064	24107	393	971	801	2.3	5.1	3.4
Nuclear	0	0	0	0	0	10643	0	0	2276			27.2
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	9815	13304	16918	979	3041	3931	11.1	29.6	30.3
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	45.4	41.1	30.7	-4.8	-6.0	-6.8			
Oil	13.4	22.9	24.0	29.3	29.4	28.5	2.0	1.2	0.3			
Natural gas	8.9	11.0	13.0	16.4	18.0	19.4	1.4	1.7	1.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0	2.0			
Renewable energy forms	2.4	4.7	5.3	9.4	11.9	13.6	1.5	3.2	3.4			
Gross Electricity Generation in GWh_e	134591	143147	155331	160199	172519	226114	-24882	-31673	-10353	-13.4	-15.5	-4.4
Self consumption and grid losses	21063	27977	28574	27465	28452	43579	-4935	-6120	6026	-15.2	-17.7	16.0
Fuel Inputs to Thermal Power Generation	43419	35960	38149	33547	35189	30547	-8133	-6862	-6237	-19.5	-16.3	-17.0
Solids	41138	34793	35942	30477	29549	23263	-8341	-9590	-9739	-21.5	-24.5	-29.5
Oil (including refinery gas)	1236	228	179	84	687	53	52	656	28	166.0	2115.9	114.0
Gas (including derived gases)	673	783	1483	1726	2308	2991	159	668	779	10.2	40.7	35.2
Biomass & Waste	372	157	546	1260	2645	4240	-3	1404	2694	-0.2	113.2	174.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	35850	37956	40131	650	513	-41	1.8	1.4	-0.1
Refineries	13160	19949	19591	25939	27697	29695	173	-165	-381	0.7	-0.6	-1.3
Biofuels and hydrogen production	0	0	55	975	1886	2436	135	476	454	16.0	33.7	22.9
District heating	9949	4320	3639	3309	3513	4236	-108	-61	32	-3.2	-1.7	0.8
Derived gases, cokeries etc.	14746	9635	8541	5627	4860	3765	450	263	-145	8.7	5.7	-3.7
Energy Branch Consumption	6809	7401	7680	10017	10341	11831	-187	-288	543	-1.8	-2.7	4.8
Non-Energy Uses	4193	4218	4354	6262	7243	8947	-26	-36	-18	-0.4	-0.5	-0.2
Final Energy Demand	59583	55720	57169	70431	76193	84546	-816	-1254	-922	-1.1	-1.6	-1.1
by sector												
Industry	25252	18883	16373	19664	21553	24728	-454	-834	-759	-2.3	-3.7	-3.0
- energy intensive industries	16252	13374	11149	12445	13216	14991	-376	-780	-751	-2.9	-5.6	-4.8
- other industrial sectors	9000	5509	5225	7219	8336	9737	-78	-55	-8	-1.1	-0.7	-0.1
Residential	18126	17516	18375	20550	21585	22627	39	269	441	0.2	1.3	2.0
Tertiary	8867	10136	10334	12598	13607	15784	-370	-560	-364	-2.9	-4.0	-2.3
Transport	7338	9185	12087	17619	19450	21407	-30	-129	-240	-0.2	-0.7	-1.1
by fuel												
Solids	17066	13728	11262	11287	11076	10246	-94	213	-182	-0.8	2.0	-1.7
Oil	9104	15452	17798	24206	25357	27428	719	-242	94	3.1	-0.9	0.3
Gas	7987	7447	8400	12453	13991	16201	21	-52	-192	0.2	-0.4	-1.2
Electricity	8233	8317	8498	9439	10518	13550	-1729	-2202	-1396	-15.5	-17.3	-9.3
Heat (from CHP and District Heating)	15563	6886	7056	6960	7745	8564	-244	135	484	-3.4	1.8	6.0
Renewable energy forms	1631	3889	4156	6083	7502	8549	510	894	271	9.2	13.5	3.3
Other	0	0	0	3	5	7	0	0	0	1.5	-0.8	-2.0
RES in Gross Final Energy Consumption ^(A)		4153	4481	8864	11625	15299	1265	2712	3264	16.6	30.4	27.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	377.2	387.1	291.7	-32.1	-36.1	-111.5	-7.9	-8.5	-27.6
CO₂ Emissions (energy related)	332.2	290.3	290.7	296.1	302.0	212.5	-31.7	-35.4	-110.8	-9.7	-10.5	-34.3
Power generation/District heating	209.3	158.8	162.1	138.2	137.9	40.4	-32.7	-34.3	-109.7	-19.1	-19.9	-73.1
Energy Branch	5.8	11.4	10.6	11.6	11.9	12.1	-1.1	-1.1	-0.2	-8.6	-8.4	-1.7
Industry	44.0	46.3	33.2	41.6	44.0	48.2	1.3	0.5	0.4	3.2	1.2	0.9
Residential	33.1	27.9	30.2	32.3	31.9	30.2	0.6	0.5	0.1	1.8	1.6	0.4
Tertiary	19.4	20.1	20.4	24.3	25.2	26.5	0.6	0.6	0.5	2.5	2.4	1.7
Transport	20.5	25.8	34.3	48.1	51.1	55.2	-0.4	-1.6	-1.9	-0.8	-3.0	-3.3
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.2	17.2	22.2	-0.4	-0.7	-0.7	-2.9	-3.9	-3.0
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	66.9	67.8	56.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	87.7	90.0	67.8	-7.5	-8.4	-25.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Poland: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	270.7	236.2	190.3	-17.6	-11.8	-4.6	-6.1	-4.7	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.84	2.71	1.71	-0.11	-0.17	-0.83	-3.8	-6.0	-32.7
Import Dependency %	2.2	11.1	18.0	35.8	39.6	41.7	-4.4	-4.6	-4.6			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	60.4	71.8	91.4	0.8	1.3	5.0	1.3	1.8	5.8
as % of GDP		16.1	15.8	15.7	15.2	14.0	0.2	0.3	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.3	5.0						
as % of GDP				0.21	0.27	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	50.2	44.2	38.4	-1.2	-1.7	-1.2	-2.3	-3.7	-3.0
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	54.3	47.1	35.6	0.1	0.6	0.7	0.2	1.3	2.0
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	70.5	62.4	50.9	-2.1	-2.6	-1.2	-2.9	-4.0	-2.3
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	25.0	24.0	20.8	0.0	0.0	-0.1	0.0	-0.1	-0.7
Freight transport (toe/Mtkm)	26.9	27.6	39.4	40.2	38.7	35.7	0.1	0.0	-0.1	0.2	0.0	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.52	0.47	0.11	-0.06	-0.06	-0.30	-10.8	-11.7	-72.7
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.08	2.00	1.89	0.05	0.03	0.01	2.6	1.6	0.6
Industry	1.74	2.45	2.02	2.12	2.04	1.95	0.11	0.10	0.08	5.6	5.1	4.0
Residential	1.83	1.59	1.64	1.57	1.48	1.33	0.02	0.00	-0.02	1.6	0.3	-1.5
Tertiary	2.19	1.98	1.97	1.93	1.85	1.68	0.10	0.12	0.07	5.5	6.6	4.1
Transport	2.80	2.81	2.84	2.73	2.63	2.58	-0.02	-0.06	-0.06	-0.7	-2.4	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	12.2	14.8	17.3	1.9	3.7	3.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.7	10.1	12.0	0.8	2.6	2.4			
Gross Electricity generation by source (in GWh_e)												
	143147	155331	160199	172519	226114	226114	-24882	-31673	-10353	-13.4	-15.5	-4.4
Nuclear energy	0	0	0	0	48319	48319	0	0	10325			27.2
Solids	134042	141361	128478	121794	113864	113864	-29816	-53735	-48055	-18.8	-30.6	-29.7
Oil (including refinery gas)	2936	2964	1062	2416	1219	1219	-922	248	-453	-46.5	11.4	-27.1
Gas (including derived gases)	2979	5603	12251	18517	21689	21689	1836	7579	5581	17.6	69.3	34.6
Biomass-waste	1080	3068	9989	17343	21450	21450	1079	8307	10749	12.1	91.9	100.5
Hydro (pumping excluded)	2105	2201	2895	3133	3478	3478	170	101	0	6.2	3.3	0.0
Wind	5	135	5524	9314	16058	16058	2772	5828	11500	100.7	167.2	252.3
Solar	0	0	0	3	37	37	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	30194	31711	39129	40247	54216	54216	4410	1174	10852	12.7	3.0	25.0
<u>Nuclear energy</u>	0	0	0	0	5577	5577	0	0	1192			27.2
<u>Renewable energy</u>	640	1038	4019	5866	8773	8773	1634	3078	5421	68.5	110.4	161.7
Hydro (pumping excluded)	635	914	1072	1156	1235	1235	0	0	0	0.0	0.0	0.0
Wind	5	124	2946	4707	7498	7498	1634	3078	5421	124.4	189.0	261.0
Solar	0	0	0	3	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	29554	30673	35110	34380	39866	39866	2777	-1905	4240	8.6	-5.2	11.9
of which cogeneration units	6632	6800	8145	9136	12149	12149	836	1142	3053	11.4	14.3	33.6
Solids fired	28139	28775	29745	26851	23603	23603	0	-6845	-4699	0.0	-20.3	-16.6
Gas fired	820	1263	2035	3286	7635	7635	228	1479	4257	12.6	81.8	126.0
Oil fired	472	474	554	554	278	278	82	82	-18	17.4	17.4	-5.9
Biomass-waste fired	122	160	2777	3689	8350	8350	2467	3379	4700	795.7	1090.1	128.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	49.2	51.1	43.2	45.4	42.1	42.1	-12.9	-9.7	-15.3			
Efficiency of gross thermal power generation (%)	33.7	34.5	38.9	39.1	44.5	44.5	1.9	-1.3	0.0			
% of gross electricity from CHP	12.2	12.9	28.0	26.6	28.2	28.2	9.5	7.2	10.9			
Carbon free gross electricity generation (%)	2.2	3.5	11.5	17.3	39.5	39.5	3.7	9.7	15.5			
- nuclear	0.0	0.0	0.0	0.0	21.4	21.4	0.0	0.0	5.3			
- renewable energy forms	2.2	3.5	11.5	17.3	18.1	18.1	3.7	9.7	10.2			
Transport sector												
Passenger transport activity (Gpkm)												
	207.0	216.5	243.8	329.7	380.8	488.1	-1.0	-2.5	-4.1	-0.3	-0.7	-0.8
Public road transport	46.3	31.7	29.9	29.2	31.9	36.5	0.1	0.2	0.2	0.2	0.5	0.6
Private cars and motorcycles	102.8	153.1	188.3	272.6	316.1	404.5	-0.3	-1.6	-3.3	-0.1	-0.5	-0.8
Rail	55.4	28.8	22.3	22.1	25.0	34.4	-0.5	-0.6	0.0	-2.1	-2.2	0.1
Aviation	2.0	2.6	3.1	5.6	7.5	12.3	-0.3	-0.5	-1.0	-5.0	-6.8	-7.6
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	0.2	0.6	0.7
Freight transport activity (Gtkm)												
	122.9	130.2	156.0	233.6	266.9	314.9	-0.6	-1.4	-1.9	-0.3	-0.5	-0.6
Trucks	40.3	75.0	111.8	173.8	198.1	232.9	-0.1	-0.8	-1.9	0.0	-0.4	-0.8
Rail	81.6	54.0	43.8	59.4	68.4	81.4	-0.6	-0.6	0.0	-0.9	-0.9	0.0
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.5	0.0	0.0	0.0	0.2	0.5	0.5
Energy demand in transport (ktoe)												
	7338	9185	12087	17619	19450	21407	-30	-129	-240	-0.2	-0.7	-1.1
Public road transport	314	217	190	180	188	184	0	1	1	0.2	0.5	0.6
Private cars and motorcycles	3299	4876	5324	7509	8300	9127	0	-19	-37	0.0	-0.2	-0.4
Trucks	2335	3178	5748	8858	9767	10774	-2	-41	-87	0.0	-0.4	-0.8
Rail	1095	539	502	608	631	552	-1	-18	-1	-0.2	-2.8	-0.1
Aviation	196	369	319	461	561	766	-28	-51	-115	-5.6	-8.3	-13.1
Inland navigation	99	6	2	2	3	3	0	0	0	0.2	0.5	0.6

Source: PRIMES

Portugal: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2808	2602	3109	3583	5446	6237	7840	9046	10483	1.0	5.8	3.7	2.9
Solids	115	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	2692	2602	3109	3583	5446	6237	7840	9046	10483	1.4	5.8	3.7	2.9
Hydro	787	717	974	407	871	871	872	872	872	2.1	-1.1	0.0	0.0
Biomass & Waste	1891	1831	2053	2936	3414	3876	4824	5472	5953	0.8	5.2	3.5	2.1
Wind	0	1	14	152	984	1092	1349	1569	1778	66.9	52.5	3.2	2.8
Solar and others	11	15	18	23	92	278	666	989	1702	5.4	17.4	21.9	9.8
Geothermal	3	37	49	66	85	118	130	145	178	31.4	5.6	4.3	3.2
Net Imports	15160	17876	21588	24040	23272	24108	23808	23258	22064	3.6	0.8	0.2	-0.8
Solids	2789	3797	3913	3223	3395	3307	3307	1654	471	3.4	-1.4	-0.3	-17.7
Oil	12367	14001	15556	16338	16123	16537	16198	16571	16695	2.3	0.4	0.0	0.3
- Crude oil and Feedstocks	11360	13547	12022	13459	13499	13829	13688	13990	14090	0.6	1.2	0.1	0.3
- Oil products	1007	454	3534	2878	2625	2708	2510	2581	2605	13.4	-2.9	-0.4	0.4
Natural gas	0	0	2039	3893	3648	4113	4219	4955	4829		6.0	1.5	1.4
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Gross Inland Consumption	16890	19611	24108	26677	28112	29703	30977	31604	31823	3.6	1.5	1.0	0.3
Solids	2580	3493	3803	3347	3395	3307	3307	1654	471	4.0	-1.1	-0.3	-17.7
Oil	11614	13437	15083	15410	15518	15896	15527	15872	15972	2.6	0.3	0.0	0.3
Natural gas	0	0	2034	3751	3648	4113	4219	4955	4829		6.0	1.5	1.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Renewable energy forms	2692	2602	3109	3583	5446	6237	7840	9046	10483	1.4	5.8	3.7	2.9
as % in Gross Inland Consumption													
Solids	15.3	17.8	15.8	12.5	12.1	11.1	10.7	5.2	1.5				
Oil	68.8	68.5	62.6	57.8	55.2	53.5	50.1	50.2	50.2				
Natural gas	0.0	0.0	8.4	14.1	13.0	13.8	13.6	15.7	15.2				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	15.9	13.3	12.9	13.4	19.4	21.0	25.3	28.6	32.9				
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	58713	63760	70156	77739	85242	4.3	3.1	1.8	2.0
Self consumption and grid losses	4441	4776	5435	6125	6470	7101	7816	9147	9685	2.0	1.8	1.9	2.2
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	7406	7760	7670	7094	6147	4.2	1.3	0.4	-2.2
Solids	2027	2919	3198	3319	3390	3302	3302	1649	467	4.7	0.6	-0.3	-17.8
Oil (including refinery gas)	2105	2371	1670	1884	1199	1168	614	736	854	-2.3	-3.3	-6.5	3.4
Gas (including derived gases)	19	18	1234	2309	1811	2169	2199	2826	2613	51.6	3.9	2.0	1.7
Biomass & Waste	149	148	356	430	925	1007	1429	1742	2040	9.1	10.0	4.4	3.6
Geothermal heat	3	37	49	65	82	115	126	140	174	31.4	5.2	4.4	3.3
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11484	14055	12700	13608	13972	14481	14601	15058	15231	1.0	1.0	0.4	0.4
Refineries	11152	13579	12251	13608	13785	14113	13968	14263	14358	0.9	1.2	0.1	0.3
Biofuels and hydrogen production	0	0	0	0	188	368	633	795	873			12.9	3.3
District heating	0	16	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1			
Energy Branch Consumption	658	870	881	900	852	857	834	874	836	3.0	-0.3	-0.2	0.0
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2839	2986	3113	1.0	1.0	1.0	0.9
Final Energy Demand	11208	13042	16937	16654	20202	21493	22703	23830	24627	4.2	1.8	1.2	0.8
by sector													
Industry	4139	4247	5518	5656	5877	6093	6336	6604	6800	2.9	0.6	0.8	0.7
- energy intensive industries	2497	2646	3437	3757	3845	3927	4052	4213	4339	3.2	1.1	0.5	0.7
- other industrial sectors	1642	1601	2081	1899	2032	2166	2284	2391	2462	2.4	-0.2	1.2	0.8
Residential	2290	2569	2804	3206	3653	4090	4538	4872	5167	2.0	2.7	2.2	1.3
Tertiary	1052	1373	2098	2766	3101	3220	3318	3486	3665	7.2	4.0	0.7	1.0
Transport	3728	4853	6517	7026	7572	8090	8512	8869	8994	5.7	1.5	1.2	0.6
by fuel													
Solids	617	546	465	16	5	5	4	5	4	-2.8	-36.0	-1.8	-0.6
Oil	6683	8187	10469	10492	11001	11304	11372	11463	11338	4.6	0.5	0.3	0.0
Gas	103	97	853	1307	1784	1887	1964	2066	2158	23.6	7.7	1.0	0.9
Electricity	2024	2477	3299	3983	4548	4972	5394	5921	6512	5.0	3.3	1.7	1.9
Heat (from CHP and District Heating)	28	36	134	328	324	314	337	402	448	16.8	9.2	0.4	2.9
Renewable energy forms	1752	1698	1716	2529	2540	3010	3630	3969	4163	-0.2	4.0	3.6	1.4
Other	0	0	0	0	1	1	2	3	3			15.0	2.7
RES in Gross Final Energy Consumption ^(A)			2907	3266	5174	5900	7386	8508	9866	5.9	3.6	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	84.4	85.5	84.7	80.4	75.4	3.5	0.0	0.0	-1.2
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	61.2	62.7	61.2	57.0	51.9	4.1	0.4	0.0	-1.6
Power generation/District heating	14.8	19.2	20.9	24.5	21.4	21.8	20.1	15.5	10.7	3.5	0.3	-0.6	-6.1
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	4.3	0.2	-0.7	-0.6
Industry	8.2	8.4	10.8	7.3	8.5	8.5	8.4	8.1	7.8	2.8	-2.4	-0.1	-0.7
Residential	1.6	1.9	2.0	2.3	2.4	2.7	2.8	3.0	3.1	2.0	2.0	1.5	0.9
Tertiary	1.9	2.2	3.2	4.2	4.3	4.1	3.8	3.7	3.6	5.4	3.2	-1.3	-0.6
Transport	11.0	14.4	19.4	21.0	22.1	23.2	23.9	24.5	24.7	5.8	1.3	0.8	0.4
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.2	6.5	6.7	6.9	4.7	-1.4	0.4	0.6
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	140.0	141.8	140.4	133.3	125.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: EC proposal without RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	172.7	160.4	145.6	129.7	116.7	0.2	0.3	-1.7	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.18	2.11	1.97	1.80	1.63	0.5	-1.1	-1.0	-1.9	
Import Dependency %	86.7	89.0	87.2	88.2	81.0	79.4	75.2	72.0	67.8					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.4	24.7	28.7	32.7	35.0		3.3	3.0	2.0	
as % of GDP			10.8	12.3	13.2	13.3	13.5	13.4	12.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.3	96.5	89.2	83.1	79.7	1.7	0.3	-1.5	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	110.4	109.8	107.2	101.7	97.0	-2.0	1.0	-0.3	-1.0	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	123.3	111.7	100.6	92.8	87.6	3.9	2.1	-2.0	-1.4	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.4	37.7	35.7	33.6	30.8	0.2	-1.1	-1.0	-1.5	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.1	57.1	56.3	1.3	-0.3	-0.4	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.32	0.27	0.19	0.12	-1.0	-3.0	-2.3	-8.0	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.85	1.79	1.71	1.65	1.59	0.3	-1.2	-0.8	-0.7	
Industry	1.99	1.97	1.96	1.30	1.44	1.40	1.32	1.23	1.14	-0.1	-3.0	-0.9	-1.4	
Residential	0.71	0.74	0.71	0.70	0.67	0.65	0.62	0.61	0.60	0.0	-0.6	-0.7	-0.4	
Tertiary	1.77	1.61	1.50	1.53	1.40	1.27	1.15	1.07	0.97	-1.6	-0.7	-2.0	-1.6	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.80	2.77	2.75	0.1	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	24.9	26.7	31.6	34.6	38.8					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.4	7.2	8.7	9.5					
Gross Electricity generation by source (in GWh)														
			43364	46180	58713	63760	70156	77739	85242		3.1	1.8	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15472	15072	15072	8171	2774		0.5	-0.3	-15.6	
Oil (including refinery gas)			9483	9244	7603	7133	4077	5127	5085		-2.2	-6.0	2.2	
Gas (including derived gases)			5745	11580	10409	12812	12958	18296	17872		6.1	2.2	3.3	
Biomass-waste			1802	3434	3410	4883	8324	10468	13358		6.6	9.3	4.8	
Hydro (pumping excluded)			11321	4730	10126	10131	10136	10136	10142		-1.1	0.0	0.0	
Wind			168	1773	11445	12703	15681	18240	20669		52.5	3.2	2.8	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	850	1046	1260	1344		5.2	22.9	2.5	
Net Generation Capacity in MW_e			10643	13440	22049	22680	25866	30577	38274		7.6	1.6	4.0	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10409	11547	14954	18588	26124		9.9	3.7	5.7	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	6020	6622	8127	9394	11077		50.6	3.0	3.1	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	352	441	543	567				2.5	
<u>Thermal power</u>			6585	8156	11640	11133	10912	11989	12150		5.9	-0.6	1.1	
of which cogeneration units			1372	1373	1855	2029	2246	2765	3195		3.1	1.9	3.6	
Solids fired			1903	1914	1866	1818	1818	1421	568		-0.2	-0.3	-11.0	
Gas fired			1868	3724	6043	5559	5238	6520	6577		12.5	-1.4	2.3	
Oil fired			2338	2008	1981	1919	1510	1260	1388		-1.6	-2.7	-0.8	
Biomass-waste fired			463	493	1733	1811	2315	2758	3576		14.1	2.9	4.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	26	31	31	41		2.1	6.8	2.8	
Avg. Load factor of net power capacity (%)			44.8	37.8	29.6	31.3	30.2	28.1	24.8					
Efficiency of gross thermal power generation (%)			42.1	42.6	43.0	44.4	45.6	51.3	55.0					
% of gross electricity from CHP			11.3	10.1	10.9	12.8	16.2	19.9	21.0					
Carbon free gross electricity generation (%)			30.8	21.8	43.0	45.1	54.2	59.4	69.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	43.0	45.1	54.2	59.4	69.8					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.7	124.2	135.3	147.0	157.6	5.3	2.4	1.9	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.9	12.2	12.5	1.4	-0.5	0.6	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.5	96.8	104.0	110.4	7.7	3.0	1.8	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.0	5.5	6.2	7.0	-3.2	0.4	1.4	2.5	
Aviation	7.1	9.1	11.7	13.2	15.3	17.7	20.7	24.1	27.1	5.1	2.7	3.1	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.5	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.9	63.5	68.9	73.7	4.7	2.1	2.1	1.5	
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	58.8	63.9	68.4	5.4	2.1	2.1	1.5	
Rail	1.5	2.0	2.2	2.4	2.7	3.0	3.3	3.5	3.7	4.1	2.2	1.9	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.4	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7572	8090	8512	8869	8994	5.7	1.5	1.2	0.6	
Public road transport	67	90	100	108	103	100	100	97	91	4.2	0.2	-0.2	-1.0	
Private cars and motorcycles	1575	2299	2945	3058	3288	3427	3488	3501	3346	6.5	1.1	0.6	-0.4	
Trucks	1387	1717	2551	2872	3062	3337	3606	3851	4074	6.3	1.8	1.7	1.2	
Rail	82	80	88	66	67	65	62	61	52	0.6	-2.6	-0.8	-1.8	
Aviation	574	620	790	881	1005	1108	1199	1299	1371	3.2	2.4	1.8	1.3	
Inland navigation	43	46	43	41	47	52	56	60	61	0.0	0.8	1.9	0.7	

Source: PRIMES

Portugal: EC proposal without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6237	7840	10483	749	1780	2940	13.6	29.4	39.0
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	-116.9	-120.2	237.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6237	7840	10483	749	1780	2940	13.6	29.4	39.0
Hydro	787	974	407	871	872	872	1	0	0	0.1	0.0	0.0
Biomass & Waste	1891	2053	2936	3876	4824	5953	288	907	1076	8.0	23.2	22.1
Wind	0	14	152	1092	1349	1778	250	340	377	29.6	33.8	26.9
Solar and others	11	18	23	278	666	1702	177	494	1485	174.1	286.6	685.6
Geothermal	3	49	66	118	130	178	34	39	2	40.3	42.2	1.4
Net Imports	15160	21588	24040	24108	23808	22064	-1743	-3655	-6111	-6.7	-13.3	-21.7
Solids	2789	3913	3223	3307	3307	471	-990	-1839	-4277	-23.0	-35.7	-90.1
Oil	12367	15556	16338	16537	16198	16695	-386	-1285	-913	-2.3	-7.3	-5.2
- Crude oil and Feedstocks	11360	12022	13459	13829	13688	14090	-307	-895	-649	-2.2	-6.1	-4.4
- Oil products	1007	3534	2878	2708	2510	2605	-78	-390	-265	-2.8	-13.5	-9.2
Natural gas	0	2039	3893	4113	4219	4829	-368	-531	-921	-8.2	-11.2	-16.0
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	29703	30977	31823	-994	-1874	-3169	-3.2	-5.7	-9.1
Solids	2580	3803	3347	3307	3307	471	-990	-1839	-4277	-23.0	-35.7	-90.1
Oil	11614	15083	15410	15896	15527	15972	-385	-1284	-912	-2.4	-7.6	-5.4
Natural gas	0	2034	3751	4113	4219	4829	-368	-531	-921	-8.2	-11.2	-16.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6237	7840	10483	749	1780	2940	13.6	29.4	39.0
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.1	10.7	1.5	-2.9	-5.0	-12.1			
Oil	68.8	62.6	57.8	53.5	50.1	50.2	0.5	-1.0	1.9			
Natural gas	0.0	8.4	14.1	13.8	13.6	15.2	-0.7	-0.8	-1.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	21.0	25.3	32.9	3.1	6.9	11.4			
Gross Electricity Generation in GWh_e	28350	43364	46180	63760	70156	85242	-4612	-7124	-8185	-6.7	-9.2	-8.8
Self consumption and grid losses	4441	5435	6125	7101	7816	9685	-806	-1280	-2214	-10.2	-14.1	-18.6
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7760	7670	6147	-1356	-2377	-4585	-14.9	-23.7	-42.7
Solids	2027	3198	3319	3302	3302	467	-990	-1840	-4278	-23.1	-35.8	-90.2
Oil (including refinery gas)	2105	1670	1884	1168	614	854	-187	-656	-147	-13.8	-51.7	-14.7
Gas (including derived gases)	19	1234	2309	2169	2199	2613	-343	-419	-723	-13.7	-16.0	-21.7
Biomass & Waste	149	356	430	1007	1429	2040	131	502	563	15.0	54.1	38.2
Geothermal heat	3	49	65	115	126	174	33	37	0	40.4	41.2	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	14481	14601	15231	-258	-737	-486	-1.7	-4.8	-3.1
Refineries	11152	12251	13608	14113	13968	14358	-307	-895	-649	-2.1	-6.0	-4.3
Biofuels and hydrogen production	0	0	0	368	633	873	50	158	163	15.6	33.3	22.9
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	857	834	836	-54	-116	-171	-5.9	-12.2	-17.0
Non-Energy Uses	2103	2330	2405	2684	2839	3113	-2	-4	-3	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	21493	22703	24627	-265	-528	-662	-1.2	-2.3	-2.6
by sector												
Industry	4139	5518	5656	6093	6336	6800	-129	-284	-344	-2.1	-4.3	-4.8
- energy intensive industries	2497	3437	3757	3927	4052	4339	-116	-219	-237	-2.9	-5.1	-5.2
- other industrial sectors	1642	2081	1899	2166	2284	2462	-13	-65	-107	-0.6	-2.8	-4.2
Residential	2290	2804	3206	4090	4538	5167	77	145	198	1.9	3.3	4.0
Tertiary	1052	2098	2766	3220	3318	3665	-150	-269	-322	-4.5	-7.5	-8.1
Transport	3728	6517	7026	8090	8512	8994	-63	-122	-194	-0.8	-1.4	-2.1
by fuel												
Solids	617	465	16	5	4	4	1	1	1	19.0	31.6	55.2
Oil	6683	10469	10492	11304	11372	11338	-179	-563	-723	-1.6	-4.7	-6.0
Gas	103	853	1307	1887	1964	2158	-20	-106	-187	-1.0	-5.1	-8.0
Electricity	2024	3299	3983	4972	5394	6512	-327	-502	-513	-6.2	-8.5	-7.3
Heat (from CHP and District Heating)	28	134	328	314	337	448	-7	24	8	-2.1	7.8	1.7
Renewable energy forms	1752	1716	2529	3010	3630	4163	267	618	751	9.7	20.5	22.0
Other	0	0	0	1	2	3	0	0	0	1.1	2.9	2.6
RES in Gross Final Energy Consumption ^(A)		2907	3266	5900	7386	9866	690	1645	2835	13.2	28.7	40.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	85.5	84.7	75.4	-6.1	-12.7	-22.0	-6.6	-13.0	-22.6
CO₂ Emissions (energy related)	39.0	58.5	61.6	62.7	61.2	51.9	-6.0	-12.5	-21.8	-8.7	-17.0	-29.6
Power generation/District heating	14.8	20.9	24.5	21.8	20.1	10.7	-5.3	-10.3	-19.0	-19.6	-33.9	-64.0
Energy Branch	1.5	2.3	2.3	2.3	2.2	2.1	-0.1	-0.2	-0.1	-2.1	-7.9	-5.6
Industry	8.2	10.8	7.3	8.5	8.4	7.8	-0.2	-1.0	-1.4	-2.3	-10.2	-15.0
Residential	1.6	2.0	2.3	2.7	2.8	3.1	0.0	-0.1	-0.1	-1.4	-2.8	-3.2
Tertiary	1.9	3.2	4.2	4.1	3.8	3.6	0.0	-0.2	-0.2	-1.1	-5.2	-5.5
Transport	11.0	19.4	21.0	23.2	23.9	24.7	-0.3	-0.8	-1.0	-1.3	-3.1	-3.8
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.2	6.5	6.9	-0.1	-0.2	-0.2	-1.8	-2.7	-3.1
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	16.6	17.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	141.8	140.4	125.0	-10.1	-21.1	-36.5			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Portugal: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	160.4	145.6	116.7	-5.4	-8.8	-11.6	-3.2	-5.7	-9.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.11	1.97	1.63	-0.13	-0.27	-0.48	-5.6	-12.0	-22.6
Import Dependency %	86.7	87.2	88.2	79.4	75.2	67.8	-3.0	-6.7	-11.1			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	24.7	28.7	35.0	0.2	0.9	2.2	1.0	3.4	6.6
as % of GDP		10.8	12.3	13.3	13.5	12.8	0.1	0.4	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	1.0	2.2						
as % of GDP				0.14	0.45	0.80						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	96.5	89.2	79.7	-2.0	-4.0	-4.0	-2.1	-4.3	-4.8
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	109.8	107.2	97.0	2.1	3.4	3.7	1.9	3.3	4.0
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	111.7	100.6	87.6	-5.2	-8.1	-7.7	-4.5	-7.5	-8.1
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.7	35.7	30.8	-0.2	-0.4	-0.6	-0.6	-1.1	-1.8
Freight transport (toe/Mtkm)	55.4	62.9	63.8	59.0	58.1	56.3	0.0	0.1	0.1	0.0	0.1	0.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.27	0.12	-0.05	-0.10	-0.18	-14.0	-27.8	-60.8
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.79	1.71	1.59	-0.01	-0.05	-0.06	-0.3	-2.7	-3.9
Industry	1.99	1.96	1.30	1.40	1.32	1.14	0.00	-0.09	-0.14	-0.3	-6.2	-10.7
Residential	0.71	0.71	0.70	0.65	0.62	0.60	-0.02	-0.04	-0.04	-3.2	-5.9	-6.9
Tertiary	1.77	1.50	1.53	1.27	1.15	0.97	0.04	0.03	0.03	3.5	2.5	2.8
Transport	2.95	2.97	2.98	2.87	2.80	2.75	-0.02	-0.05	-0.05	-0.5	-1.7	-1.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	26.7	31.6	38.8	38.8	3.5	7.7	12.0			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.4	7.2	9.5	9.5	0.6	1.8	1.8			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15072	15072	2774	2774	-5572	-10530	-25243	-27.0	-41.1	-90.1
Oil (including refinery gas)	9483	9244	7133	4077	5085	5085	-1344	-3668	-1260	-15.9	-47.4	-19.9
Gas (including derived gases)	5745	11580	12812	12958	17872	17872	-1449	-2693	-3715	-10.2	-17.2	-17.2
Biomass-waste	1802	3434	4883	8324	13358	13358	125	2789	3469	2.6	50.4	35.1
Hydro (pumping excluded)	11321	4730	10131	10136	10142	10142	9	5	0	0.1	0.0	0.0
Wind	168	1773	12703	15681	20669	20669	2901	3958	4379	29.6	33.8	26.9
Solar	1	3	176	2861	14000	14000	0	2643	13738	0.0	1211.1	5246.5
Geothermal and other renewables	80	105	850	1046	1344	1344	717	373	447	539.6	55.4	49.9
Net Generation Capacity in MW_e	10643	13440	22680	25866	38274	38274	679	2235	10286	3.1	9.5	36.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	4058	5284	11547	14954	26124	26124	1722	3927	12552	17.5	35.6	92.5
Hydro (pumping excluded)	3958	4234	4435	4490	4490	4490	0	0	0	0.0	0.0	0.0
Wind	100	1047	6622	8127	11077	11077	1370	2036	2562	26.1	33.4	30.1
Solar	1	3	138	1896	9990	9990	0	1724	9757	0.0	1001.6	4184.4
Other renewables (tidal etc.)	0	0	352	441	567	567	352	167	232		60.9	69.3
<u>Thermal power</u>	6585	8156	11133	10912	12150	12150	-1043	-1692	-2265	-8.6	-13.4	-15.7
of which cogeneration units	1372	1373	2029	2246	3195	3195	-177	24	33	-8.0	1.1	1.1
Solids fired	1903	1914	1818	1818	568	568	-647	-1222	-2677	-26.3	-40.2	-82.5
Gas fired	1868	3724	5559	5238	6577	6577	-357	-682	-519	-6.0	-11.5	-7.3
Oil fired	2338	2008	1919	1510	1388	1388	-228	-431	-159	-10.6	-22.2	-10.3
Biomass-waste fired	463	493	1811	2315	3576	3576	179	633	1090	11.0	37.6	43.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	13	16	26	31	41	41	10	10	0	60.9	46.4	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	31.3	30.2	24.8	24.8	-3.1	-6.0	-11.8			
Efficiency of gross thermal power generation (%)	42.1	42.6	44.4	45.6	55.0	55.0	-1.1	-1.3	2.1			
% of gross electricity from CHP	11.3	10.1	12.8	16.2	21.0	21.0	0.0	3.2	3.3			
Carbon free gross electricity generation (%)	30.8	21.8	45.1	54.2	69.8	69.8	8.5	17.6	29.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	30.8	21.8	45.1	54.2	69.8	69.8	8.5	17.6	29.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	52.7	88.5	100.7	124.2	135.3	157.6	-0.9	-1.6	-2.6	-0.7	-1.2	-1.6
Private cars and motorcycles	10.3	11.8	11.1	11.5	11.9	12.5	0.0	0.1	0.1	0.2	0.5	0.7
Rail	28.6	60.0	71.4	89.5	96.8	110.4	0.0	-0.2	-0.6	0.0	-0.2	-0.5
Aviation	6.3	4.6	4.6	5.0	5.5	7.0	0.0	-0.1	-0.1	-1.0	-1.9	-2.0
Inland navigation	7.1	11.7	13.2	17.7	20.7	27.1	-0.8	-1.3	-2.0	-4.5	-6.1	-6.8
Freight transport activity (Gtkm)	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	0.2	0.5	0.7
Trucks	26.4	41.9	46.0	57.9	63.5	73.7	-0.1	-0.3	-0.5	-0.1	-0.4	-0.7
Rail	23.1	38.9	42.6	53.6	58.8	68.4	-0.1	-0.2	-0.5	-0.1	-0.4	-0.7
Inland navigation	1.5	2.2	2.4	3.0	3.3	3.7	0.0	0.0	0.0	-0.7	-1.2	-1.1
Energy demand in transport (ktoe)	1.9	0.8	1.0	1.3	1.4	1.5	0.0	0.0	0.0	0.0	0.2	0.4
Public road transport	3728	6517	7026	8090	8512	8994	-63	-122	-194	-0.8	-1.4	-2.1
Private cars and motorcycles	67	100	108	100	100	91	0	1	0	0.2	0.5	0.1
Trucks	1575	2945	3058	3427	3488	3346	1	-6	-12	0.0	-0.2	-0.4
Rail	1387	2551	2872	3337	3606	4074	-3	-13	-26	-0.1	-0.3	-0.6
Aviation	82	88	66	65	62	52	-1	1	2	-0.8	2.0	4.7
Inland navigation	574	790	881	1108	1199	1371	-61	-105	-158	-5.2	-8.1	-10.4
Inland navigation	43	43	41	52	56	61	0	0	0	0.1	0.3	0.5

Source: PRIMES

Romania: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	41400	32600	28774	28181	29183	30405	33280	34814	36610	-3.6	0.1	1.3	1.0	
Solids	7935	7889	5879	5793	6232	3471	3462	4137	4544	-3.0	0.6	-5.7	2.8	
Oil	7947	7104	6389	6120	5647	6183	6172	6167	6164	-2.2	-1.2	0.9	0.0	
Natural gas	22911	14446	10968	9701	9757	10648	11008	10383	9822	-7.1	-1.2	1.2	-1.1	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Renewable energy sources	2607	3162	4131	5134	6072	7234	9029	10446	12326	4.7	3.9	4.0	3.2	
Hydro	1460	1435	1271	1737	1671	1693	1705	1730	1788	-1.4	2.8	0.2	0.5	
Biomass & Waste	1147	1726	2854	3314	4224	5240	6733	7941	9721	9.5	4.0	4.8	3.7	
Wind	0	0	0	0	50	58	98	144	155			6.9	4.7	
Solar and others	0	0	0	0	10	73	246	345	340			38.0	3.3	
Geothermal	0	0	7	82	117	170	247	286	322		33.1	7.8	2.7	
Net Imports	20360	14542	8099	10719	12113	14631	16112	19453	22359	-8.8	4.1	2.9	3.3	
Solids	2423	2870	1905	2904	3110	4660	4387	4810	5109	-2.4	5.0	3.5	1.5	
Oil	11194	6852	3542	3874	5043	5727	6775	7650	8399	-10.9	3.6	3.0	2.2	
- Crude oil and Feedstocks	16094	8735	4836	8751	9815	10952	12377	13565	14579	-11.3	7.3	2.3	1.7	
- Oil products	-4900	-1883	-1294	-4877	-4772	-5224	-5602	-5915	-6180					
Natural gas	5928	4794	2712	4190	4265	4655	5391	7454	9341	-7.5	4.6	2.4	5.7	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Gross Inland Consumption	61492	47109	37069	39147	41296	45036	49393	54267	58969	-4.9	1.1	1.8	1.8	
Solids	10126	10796	7757	8769	9342	8131	7849	8947	9653	-2.6	1.9	-1.7	2.1	
Oil	19106	13886	10148	10162	10690	11910	12947	13817	14563	-6.1	0.5	1.9	1.2	
Natural gas	28838	19240	13680	13942	14023	15303	16399	17837	19163	-7.2	0.2	1.6	1.6	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Renewable energy forms	2607	3162	4137	5090	6016	7165	8940	10340	12197	4.7	3.8	4.0	3.2	
as % in Gross Inland Consumption														
Solids	16.5	22.9	20.9	22.4	22.6	18.1	15.9	16.5	16.4					
Oil	31.1	29.5	27.4	26.0	25.9	26.4	26.2	25.5	24.7					
Natural gas	46.9	40.8	36.9	35.6	34.0	34.0	33.2	32.9	32.5					
Nuclear	0.0	0.0	3.8	3.7	3.6	6.4	7.3	6.8	6.4					
Renewable energy forms	4.2	6.7	11.2	13.0	14.6	15.9	18.1	19.1	20.7					
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	62659	69836	78389	91970	105829	-2.0	1.9	2.3	3.0	
Self consumption and grid losses	14388	11292	8909	10341	8959	8330	8953	11027	13427	-4.7	0.1	0.0	4.1	
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8236	7427	8378	10685	13077	-7.6	-2.5	0.2	4.6	
Solids	8166	7352	5442	5982	6172	4689	4683	6014	7084	-4.0	1.3	-2.7	4.2	
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	0	-12.2	-29.1			
Gas (including derived gases)	8984	6090	3507	3343	2011	2369	2569	2802	2916	-9.0	-5.4	2.5	1.3	
Biomass & Waste	36	37	4	3	0	315	1126	1869	3077	-19.0			10.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	25764	21571	14558	17946	19507	21326	22487	23558	24579	-5.5	3.0	1.4	0.9	
Refineries	23718	15646	11318	14978	15462	17135	18549	19732	20743	-7.1	3.2	1.8	1.1	
Biofuels and hydrogen production	0	0	0	0	82	187	310	570	974			14.3	12.1	
District heating	496	1901	1737	823	1284	1059	1043	911	855	13.4	-3.0	-2.1	-2.0	
Derived gases, cokeries etc.	1551	4024	1503	2144	2679	2945	2585	2345	2006	-0.3	5.9	-0.4	-2.5	
Energy Branch Consumption	3594	5270	4137	4184	4333	4513	4711	5027	5338	1.4	0.5	0.8	1.3	
Non-Energy Uses	908	1326	2291	2448	2425	2632	2920	3225	3520	9.7	0.6	1.9	1.9	
Final Energy Demand	36348	26449	22374	24625	28098	31729	35072	38559	41953	-4.8	2.3	2.2	1.8	
by sector														
Industry	25106	14528	8788	9751	10889	12361	13596	15102	16767	-10.0	2.2	2.2	2.1	
- energy intensive industries	15699	10582	5962	6928	7598	8411	8998	9817	10641	-9.2	2.5	1.7	1.7	
- other industrial sectors	9407	3946	2826	2823	3292	3950	4598	5285	6126	-11.3	1.5	3.4	2.9	
Residential	4190	6461	8557	8093	8573	9203	10005	10789	11429	7.4	0.0	1.6	1.3	
Tertiary	2845	2401	1646	2576	3272	3731	3963	4153	4237	-5.3	7.1	1.9	0.7	
Transport	4407	3058	3384	4204	5364	6434	7509	8515	9560	-2.6	4.7	3.4	2.4	
by fuel														
Solids	2678	1529	703	1429	1829	1949	1803	1651	1428	-12.5	10.0	-0.1	-2.3	
Oil	8030	5234	5292	6547	7732	8959	9986	10801	11498	-4.1	3.9	2.6	1.4	
Gas	20495	10249	6885	7721	8800	9677	10177	11031	11834	-10.3	2.5	1.5	1.5	
Electricity	4355	3282	3122	3481	3833	4357	5006	5977	6948	-3.3	2.1	2.7	3.3	
Heat (from CHP and District Heating)	377	4679	3570	2135	1670	1766	2216	2679	3372	25.2	-7.3	2.9	4.3	
Renewable energy forms	612	1476	2802	3312	4233	5020	5883	6416	6908	16.4	4.2	3.3	1.6	
Other	0	0	0	0	1	1	2	4	5			13.7	9.8	
RES in Gross Final Energy Consumption ^(A)			4197	5132	5993	7074	8703	9949	11563		3.6	3.8	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	155.9	159.3	165.8	169.0	171.3	-6.4	1.3	0.6	0.3	
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	94.7	95.4	99.4	106.9	111.1	-6.7	1.3	0.5	1.1	
Power generation/District heating	75.9	59.2	40.6	37.2	33.6	27.5	27.8	31.3	32.4	-6.1	-1.9	-1.9	1.6	
Energy Branch	6.2	7.5	7.4	8.0	8.5	8.9	9.3	9.6	9.9	1.8	1.4	0.8	0.6	
Industry	58.1	30.2	17.6	20.9	23.2	25.7	26.0	26.7	27.0	-11.3	2.8	1.2	0.4	
Residential	7.5	5.2	6.5	7.2	8.2	8.5	8.8	9.6	10.5	-1.4	2.3	0.7	1.8	
Tertiary	6.7	3.1	1.8	4.4	5.8	6.5	6.4	6.2	5.9	-12.1	12.2	0.9	-0.9	
Transport	12.3	8.6	9.6	12.1	15.4	18.3	21.1	23.4	25.4	-2.4	4.8	3.2	1.9	
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.9	21.1	23.5	26.0	28.1	-5.6	3.4	2.8	1.8	
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	42.8	43.0	43.0	36.1	32.2	-6.0	0.6	-0.1	-2.9	
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	58.7	59.9	62.4	63.6	64.5						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	393.7	319.2	266.8	227.6	195.4	-3.3	-4.4	-3.8	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.29	2.12	2.01	1.97	1.88	-1.8	0.2	-1.3	-0.7
Import Dependency %	33.1	30.9	21.8	27.4	29.3	32.5	32.6	35.8	37.9				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	20.7	26.5	32.9	38.8	45.0		4.0	4.7	3.2
as % of GDP			23.4	18.7	19.8	18.8	17.8	16.3	14.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	75.0	64.8	56.0	49.8	44.7	-7.5	-2.8	-2.9	-2.2
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.4	39.3	32.5	27.2	22.7	8.2	-6.8	-4.1	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.0	92.5	73.8	59.1	47.1	-4.0	1.0	-3.9	-4.4
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.7	28.5	27.2	25.7	25.3	7.6	-2.6	-0.9	-0.7
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.2	29.6	28.9	28.1	27.3	0.5	-3.1	-0.5	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.36	0.28	0.24	0.24	0.21	-10.1	-0.6	-3.9	-1.5
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.87	1.86	1.78	1.71	1.64	-3.7	1.6	-0.5	-0.8
Industry	2.31	2.08	2.00	2.14	2.13	2.08	1.91	1.77	1.61	-1.4	0.6	-1.1	-1.7
Residential	1.78	0.81	0.76	0.89	0.95	0.92	0.88	0.89	0.92	-8.2	2.3	-0.8	0.5
Tertiary	2.37	1.30	1.12	1.69	1.79	1.73	1.62	1.50	1.38	-7.2	4.8	-1.0	-1.6
Transport	2.79	2.81	2.85	2.89	2.87	2.84	2.81	2.75	2.66	0.2	0.1	-0.2	-0.6
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	20.4	21.6	24.1	25.0	26.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.8	8.9				
Gross Electricity generation by source (in GWh)													
			51925	59402	62659	69836	78389	91970	105829		1.9	2.3	3.0
Nuclear energy			5455	5554	6207	11614	14892	15219	15554		1.3	9.1	0.4
Solids			16409	19761	22386	20748	21021	28505	34569		3.2	-0.6	5.1
Oil (including refinery gas)			4145	3256	243	243	0	0	0		-24.7		
Gas (including derived gases)			11002	10316	13331	15061	16196	17746	18729		1.9	2.0	1.5
Biomass-waste			138	311	472	1802	5305	8680	14327		13.1	27.4	10.4
Hydro (pumping excluded)			14775	20203	19432	19682	19828	20114	20795		2.8	0.2	0.5
Wind			0	0	583	679	1135	1676	1798			6.9	4.7
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			19962	19838	23110	22404	22623	19700	19780		1.5	-0.2	-1.3
<u>Nuclear energy</u>			654	650	1330	1342	1726	1764	1802		7.4	2.6	0.4
<u>Renewable energy</u>			5935	6215	6789	7208	7842	8298	8408		1.4	1.5	0.7
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	421	489	840	1227	1316			7.2	4.6
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	14990	13854	13056	9639	9569		1.1	-1.4	-3.1
of which cogeneration units			5378	5459	1678	2461	3464	4568	5604		-11.0	7.5	4.9
Solids fired			7285	7139	7122	7250	7395	4704	3936		-0.2	0.4	-6.1
Gas fired			3692	3459	5345	4575	3480	2929	2826		3.8	-4.2	-2.1
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	81	328	977	1565	2509		14.7	28.3	9.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	28.8	33.9	37.7	50.3	57.0				
Efficiency of gross thermal power generation (%)			25.6	28.6	38.0	43.8	43.6	44.2	44.5				
% of gross electricity from CHP			30.2	25.8	18.6	22.7	27.2	29.7	32.5				
Carbon free gross electricity generation (%)			39.2	43.9	42.6	48.4	52.5	49.7	49.6				
- nuclear			10.5	9.3	9.9	16.6	19.0	16.5	14.7				
- renewable energy forms			28.7	34.5	32.7	31.7	33.5	33.2	34.9				
Transport sector													
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.9	121.4	148.1	178.0	-2.7	4.1	4.7	3.9
Public road transport	24.0	12.3	7.7	9.4	11.7	14.5	16.8	18.8	20.8	-10.7	4.3	3.7	2.2
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.4	71.3	89.0	109.2	132.1	9.6	5.8	4.9	4.0
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.0	16.3	-9.2	-3.5	3.7	3.4
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	3.9	6.0	8.8	1.6	7.3	9.0	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.8	123.2	145.8	167.6	184.8	-8.4	11.8	3.7	2.4
Trucks	29.0	19.7	14.3	51.5	72.0	88.5	104.9	120.5	131.6	-6.8	17.5	3.8	2.3
Rail	48.9	17.9	16.4	16.6	18.2	20.5	23.7	27.2	31.0	-10.4	1.1	2.7	2.7
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.3	17.2	20.0	22.2	2.3	16.0	4.0	2.6
Energy demand in transport (ktoe)	4407	3058	3384	4204	5364	6434	7509	8515	9560	-2.6	4.7	3.4	2.4
Public road transport	329	176	117	93	109	129	144	153	159	-9.9	-0.6	2.8	1.0
Private cars and motorcycles	591	845	1681	1609	1994	2429	2861	3268	3861	11.0	1.7	3.7	3.0
Trucks	2617	1272	893	2130	2828	3366	3897	4374	4694	-10.2	12.2	3.3	1.9
Rail	282	470	449	208	217	234	231	243	248	4.8	-7.0	0.6	0.7
Aviation	275	192	128	113	147	191	274	361	469	-7.3	1.3	6.5	5.5
Inland navigation	312	103	115	51	70	85	101	116	128	-9.5	-4.9	3.8	2.4

Source: PRIMES

Romania: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	30405	33280	36610	-1791	-1692	-105	-5.6	-4.8	-0.3
Solids	7935	5879	5793	3471	3462	4544	-2220	-3492	-2922	-39.0	-50.2	-39.1
Oil	7947	6389	6120	6183	6172	6164	0	0	0	0.0	0.0	0.0
Natural gas	22911	10968	9701	10648	11008	9822	-277	0	0	-2.5	0.0	0.0
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Renewable energy sources	2607	4131	5134	7234	9029	12326	705	1800	2817	10.8	24.9	29.6
Hydro	1460	1271	1737	1693	1705	1788	60	52	0	3.7	3.2	0.0
Biomass & Waste	1147	2854	3314	5240	6733	9721	510	1384	2308	10.8	25.9	31.1
Wind	0	0	0	58	98	155	50	83	129	628.2	591.3	496.4
Solar and others	0	0	0	73	246	340	38	175	213	106.6	247.6	169.2
Geothermal	0	7	82	170	247	322	47	105	167	38.3	74.1	108.1
Net Imports	20360	8099	10719	14631	16112	22359	-119	-1906	-3158	-0.8	-10.6	-12.4
Solids	2423	1905	2904	4660	4387	5109	14	-1190	-2554	0.3	-21.3	-33.3
Oil	11194	3542	3874	5727	6775	8399	-5	-243	-385	-0.1	-3.5	-4.4
- Crude oil and Feedstocks	16094	4836	8751	10952	12377	14579	-7	-331	-521	-0.1	-2.6	-3.5
- Oil products	-4900	-1294	-4877	-5224	-5602	-6180	2	88	136	0.0	-1.5	-2.2
Natural gas	5928	2712	4190	4655	5391	9341	-121	-455	-189	-2.5	-7.8	-2.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	45036	49393	58969	-1910	-3598	-3263	-4.1	-6.8	-5.2
Solids	10126	7757	8769	8131	7849	9653	-2206	-4682	-5476	-21.3	-37.4	-36.2
Oil	19106	10148	10162	11910	12947	14563	-5	-243	-385	0.0	-1.8	-2.6
Natural gas	28838	13680	13942	15303	16399	19163	-398	-455	-189	-2.5	-2.7	-1.0
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7165	8940	12197	698	1781	2787	10.8	24.9	29.6
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	18.1	15.9	16.4	-4.0	-7.8	-7.9			
Oil	31.1	27.4	26.0	26.4	26.2	24.7	1.1	1.3	0.7			
Natural gas	46.9	36.9	35.6	34.0	33.2	32.5	0.5	1.4	1.4			
Nuclear	0.0	3.8	3.7	6.4	7.3	6.4	0.3	0.5	0.3			
Renewable energy forms	4.2	11.2	13.0	15.9	18.1	20.7	2.1	4.6	5.6			
Gross Electricity Generation in GWh_e	63398	51925	59402	69836	78389	105829	-9847	-14548	-13895	-12.4	-15.7	-11.6
Self consumption and grid losses	14388	8909	10341	8330	8953	13427	-1917	-2753	-1441	-18.7	-23.5	-9.7
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7427	8378	13077	-2423	-3841	-2813	-24.6	-31.4	-17.7
Solids	8166	5442	5982	4689	4683	7084	-2382	-4366	-4759	-33.7	-48.2	-40.2
Oil (including refinery gas)	6202	1684	775	54	0	0	54	0	0			
Gas (including derived gases)	8984	3507	3343	2369	2569	2916	-384	-246	345	-13.9	-8.8	13.4
Biomass & Waste	36	4	3	315	1126	3077	289	771	1602	1109.9	217.7	108.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	21326	22487	24579	299	-265	-591	1.4	-1.2	-2.3
Refineries	23718	11318	14978	17135	18549	20743	-7	-331	-521	0.0	-1.8	-2.5
Biofuels and hydrogen production	0	0	0	187	310	974	26	76	174	16.2	32.6	21.8
District heating	496	1737	823	1059	1043	855	10	-23	-196	0.9	-2.2	-18.6
Derived gases, cokeries etc.	1551	1503	2144	2945	2585	2006	270	13	-48	10.1	0.5	-2.3
Energy Branch Consumption	3594	4137	4184	4513	4711	5338	-141	-267	-193	-3.0	-5.4	-3.5
Non-Energy Uses	908	2291	2448	2632	2920	3520	-3	-6	-8	-0.1	-0.2	-0.2
Final Energy Demand	36548	22374	24625	31729	35072	41993	-290	-833	-1158	-0.9	-2.3	-2.7
by sector												
Industry	25106	8788	9751	12361	13596	16767	-147	-521	-808	-1.2	-3.7	-4.6
- energy intensive industries	15699	5962	6928	8411	8998	10641	-80	-412	-590	-0.9	-4.4	-5.3
- other industrial sectors	9407	2826	2823	3950	4598	6126	-67	-109	-218	-1.7	-2.3	-3.4
Residential	4190	8557	8093	9203	10005	11429	-22	10	4	-0.2	0.1	0.0
Tertiary	2845	1646	2576	3731	3963	4237	-80	-199	-280	-2.1	-4.8	-6.2
Transport	4407	3384	4204	6434	7509	9560	-41	-124	-74	-0.6	-1.6	-0.8
by fuel												
Solids	2678	703	1429	1949	1803	1428	98	-89	-143	5.3	-4.7	-9.1
Oil	8030	5292	6547	8959	9986	11498	2	-213	-357	0.0	-2.1	-3.0
Gas	20495	6885	7721	9677	10177	11834	35	-241	-737	0.4	-2.3	-5.9
Electricity	4355	3122	3481	4357	5006	6948	-686	-998	-1048	-13.6	-16.6	-13.1
Heat (from CHP and District Heating)	377	3570	2135	1766	2216	3372	-50	-100	143	-2.8	-4.3	4.4
Renewable energy forms	612	2802	3312	5020	5883	6908	311	808	984	6.6	15.9	16.6
Other	0	0	0	1	2	5	0	0	0	2.6	1.5	2.6
RES in Gross Final Energy Consumption ^(A)		4197	5132	7074	8703	11563	665	1652	2519	10.4	23.4	27.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	159.3	165.8	171.3	-11.4	-24.1	-33.2	-6.7	-12.7	-16.2
CO₂ Emissions (energy related)	166.7	83.6	89.7	95.4	99.4	111.1	-10.1	-21.0	-29.2	-9.6	-17.4	-20.8
Power generation/District heating	75.9	40.6	37.2	27.5	27.8	32.4	-10.5	-19.0	-25.3	-27.6	-40.6	-43.9
Energy Branch	6.2	7.4	8.0	8.9	9.3	9.9	-0.3	-0.5	-0.5	-3.4	-4.9	-4.8
Industry	58.1	17.6	20.9	25.7	26.0	27.0	0.8	-0.5	-1.6	3.3	-1.8	-5.7
Residential	7.5	6.5	7.2	8.5	8.8	10.5	-0.1	-0.3	-0.5	-1.4	-3.6	-4.3
Tertiary	6.7	1.8	4.4	6.5	6.4	5.9	0.2	-0.1	-0.5	2.4	-2.0	-8.6
Transport	12.3	9.6	12.1	18.3	21.1	25.4	-0.2	-0.6	-0.8	-1.0	-2.8	-3.0
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.1	23.5	28.1	0.0	-1.3	-2.5	0.0	-5.2	-8.3
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	42.8	43.0	32.2	-1.3	-1.8	-1.4	-3.0	-3.9	-4.1
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	59.9	62.4	64.5	-4.3	-9.1	-12.5			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Romania: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	319.2	266.8	195.4	-13.5	-19.4	-10.8	-4.1	-6.8	-5.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.12	2.01	1.88	-0.13	-0.26	-0.37	-5.8	-11.4	-16.5
Import Dependency %	33.1	21.8	27.4	32.5	32.6	37.9	1.1	-1.4	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	26.5	32.9	45.0	0.3	0.6	1.9	1.1	1.9	4.4
as % of GDP		23.4	18.7	18.8	17.8	14.9	0.2	0.3	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.7	2.0						
as % of GDP				0.23	0.39	0.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	64.8	56.0	44.7	-0.8	-2.1	-2.2	-1.2	-3.7	-4.6
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	39.3	32.5	22.7	-0.1	0.0	0.0	-0.2	0.1	0.0
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	92.5	73.8	47.1	-2.0	-3.7	-3.1	-2.1	-4.8	-6.2
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.5	27.2	25.3	-0.1	-0.2	0.8	-0.4	-0.8	3.4
Freight transport (toe/Mtkm)	39.2	41.4	30.7	29.6	28.9	27.3	-0.1	-0.5	-0.7	-0.5	-1.6	-2.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.28	0.24	0.21	-0.07	-0.12	-0.14	-19.7	-32.0	-39.2
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.86	1.78	1.64	0.04	0.00	-0.04	2.1	-0.1	-2.1
Industry	2.31	2.00	2.14	2.08	1.91	1.61	0.09	0.04	-0.02	4.6	1.9	-1.1
Residential	1.78	0.76	0.89	0.92	0.88	0.92	-0.01	-0.03	-0.04	-1.2	-3.7	-4.3
Tertiary	2.37	1.12	1.69	1.73	1.62	1.38	0.08	0.05	-0.04	4.6	3.0	-2.5
Transport	2.79	2.85	2.89	2.84	2.81	2.66	-0.01	-0.03	-0.06	-0.4	-1.2	-2.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	21.6	24.1	26.7	2.3	5.2	6.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	8.9	0.4	0.9	1.7			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	69836	78389	105829	105829	-9847	-14548	-13895	-12.4	-15.7	-11.6
Nuclear energy	5455	5554	11614	14892	15554	15554	0	0	0	0.0	0.0	0.0
Solids	16409	19761	20748	21021	34569	34569	-9193	-17667	-24688	-30.7	-45.7	-41.7
Oil (including refinery gas)	4145	3256	243	0	0	0	243	0	0			
Gas (including derived gases)	11002	10316	15061	16196	18729	18729	-3772	-2586	880	-20.0	-13.8	4.9
Biomass-waste	138	311	1802	5305	14327	1589	4126	8417		742.7	349.9	142.4
Hydro (pumping excluded)	14775	20203	19682	19828	20795	20795	700	608	0	3.7	3.2	0.0
Wind	0	0	679	1135	1798	1798	586	971	1496	628.2	591.3	496.4
Solar	0	0	7	12	58	58	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	19962	19838	22404	22623	19780	19780	-240	530	-642	-1.1	2.4	-3.1
<u>Nuclear energy</u>	654	650	1342	1726	1802	1802	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	5935	6215	7208	7842	8408	8408	419	719	1098	6.2	10.1	15.0
Hydro (pumping excluded)	5935	6212	6713	6993	7046	7046	0	0	0	0.0	0.0	0.0
Wind	0	0	489	840	1316	1316	419	719	1098	596.6	596.8	503.8
Solar	0	3	6	9	46	46	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	13373	12972	13854	13056	9569	9569	-659	-190	-1740	-4.5	-1.4	-15.4
of which cogeneration units	5378	5459	2461	3464	5604	5604	245	320	1248	11.1	10.2	28.7
Solids fired	7285	7139	7250	7395	3936	3936	-425	-471	-3229	-5.5	-6.0	-45.1
Gas fired	3692	3459	4575	3480	2826	2826	-540	-385	117	-10.6	-10.0	4.3
Oil fired	2375	2354	1702	1204	298	298	0	0	0	0.0	0.0	0.0
Biomass-waste fired	20	20	328	977	2509	2509	306	666	1372	1404.7	214.4	120.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	27.0	30.8	33.9	37.7	57.0	57.0	-4.1	-7.6	-5.7			
Efficiency of gross thermal power generation (%)	25.6	28.6	43.8	43.6	44.5	44.5	1.1	2.4	-0.5			
% of gross electricity from CHP	30.2	25.8	22.7	27.2	32.5	32.5	4.3	6.6	9.0			
Carbon free gross electricity generation (%)	39.2	43.9	48.4	52.5	49.6	49.6	9.6	14.4	14.0			
- nuclear	10.5	9.3	16.6	19.0	14.7	14.7	2.1	3.0	1.7			
- renewable energy forms	28.7	34.5	31.7	33.5	34.9	34.9	7.5	11.4	12.3			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	68.0	51.7	60.9	97.9	121.4	178.0	-0.2	-0.6	-1.9	-0.2	-0.5	-1.1
Private cars and motorcycles	24.0	7.7	9.4	14.5	16.8	20.8	0.1	0.1	0.3	0.5	0.8	1.2
Rail	12.6	31.5	42.4	71.3	89.0	132.1	-0.2	-0.5	-1.8	-0.3	-0.6	-1.4
Aviation	30.6	11.6	8.0	9.7	11.7	16.3	0.0	0.0	0.1	0.1	0.1	0.6
Inland navigation	0.7	0.8	1.2	2.4	3.9	8.8	-0.1	-0.2	-0.4	-3.2	-4.2	-4.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5
Freight transport activity (Gtkm)												
Trucks	80.0	33.3	76.5	123.2	145.8	184.8	-0.2	-0.5	-1.5	-0.2	-0.4	-0.8
Rail	29.0	14.3	51.5	88.5	104.9	131.6	-0.4	-0.8	-2.1	-0.5	-0.8	-1.6
Inland navigation	48.9	16.4	16.6	20.5	23.7	31.0	0.1	0.2	0.4	0.6	0.8	1.3
Inland navigation	2.1	2.6	8.4	14.3	17.2	22.2	0.1	0.1	0.2	0.4	0.6	0.9
Energy demand in transport (ktoe)												
Public road transport	4407	3384	4204	6434	7509	9560	-41	-124	-74	-0.6	-1.6	-0.8
Private cars and motorcycles	329	117	93	129	144	159	0	0	-2	0.2	0.0	-1.3
Trucks	591	1681	1609	2429	2861	3861	-11	-27	134	-0.4	-0.9	3.6
Rail	2617	893	2130	3366	3897	4694	-25	-72	-178	-0.7	-1.8	-3.6
Aviation	282	449	208	234	231	248	1	-12	0	0.6	-4.9	0.0
Inland navigation	275	128	113	191	274	469	-6	-14	-28	-3.3	-4.7	-5.7
Inland navigation	312	115	51	85	101	128	0	0	1	0.3	0.4	0.5

Source: PRIMES

Slovak Republic: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	5248	4808	5970	6305	5328	6373	6395	7502	8094	1.3	-1.1	1.8	2.4	
Solids	1397	1017	1018	637	846	700	388	590	742	-3.1	-1.8	-7.5	6.7	
Oil	81	74	59	55	37	37	37	38	38	-3.1	-4.6	0.0	0.4	
Natural gas	338	264	133	126	120	137	151	155	148	-8.9	-1.0	2.3	-0.2	
Nuclear	3105	2950	4255	4573	3191	4071	4071	4576	4713	3.2	-2.8	2.5	1.5	
Renewable energy sources	328	503	506	914	1134	1428	1749	2143	2453	4.4	8.4	4.4	3.4	
Hydro	162	427	406	399	402	431	434	436	438	9.7	-0.1	0.8	0.1	
Biomass & Waste	166	76	100	507	707	950	1188	1484	1742	-5.0	21.7	5.3	3.9	
Wind	0	0	0	1	17	20	34	87	96			7.3	11.0	
Solar and others	0	0	0	0	6	24	88	130	170			31.7	6.8	
Geothermal	0	0	0	8	2	3	5	6	6			7.6	3.0	
Net Imports	16086	12482	11623	13163	12955	13408	14308	14656	15301	-3.2	1.1	1.0	0.7	
Solids	6055	4131	3437	3794	3586	3229	3008	2882	2882	-5.5	0.4	-1.7	2.0	
Oil	4231	3704	2711	3935	3968	3996	3872	3997	3982	-4.4	3.9	-0.2	0.3	
- Crude oil and Feedstocks	5892	5405	5283	5768	5900	5941	5833	6021	6007	-1.1	1.1	-0.1	0.3	
- Oil products	-1661	-1701	-2573	-1833	-1932	-1946	-1961	-2025	-2025					
Natural gas	5353	4528	5707	5757	5501	6297	6927	7116	6802	0.6	-0.4	2.3	-0.2	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18283	19781	20703	22158	23395	-1.8	0.4	1.3	1.2	
Solids	7771	5414	4261	4288	4432	3928	3396	3472	4425	-5.8	0.4	-2.6	2.7	
Oil	4229	3487	2925	4045	4005	4032	3908	4035	4020	-3.6	3.2	-0.2	0.3	
Natural gas	5088	5217	5776	5925	5621	6434	7077	7271	6950	1.3	-0.3	2.3	-0.2	
Nuclear	3105	2950	4255	4573	3191	4071	4071	4576	4713	3.2	-2.8	2.5	1.5	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	1056	1370	2293	3061	3530	4.3	7.8	8.1	4.4	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	24.2	19.9	16.4	15.7	18.9					
Oil	20.2	19.7	16.7	20.8	21.9	20.4	18.9	18.2	17.2					
Natural gas	24.3	29.5	33.0	30.5	30.7	32.5	34.2	32.8	29.7					
Nuclear	14.8	16.7	24.3	23.6	17.5	20.6	19.7	20.7	20.1					
Renewable energy forms	1.6	2.8	2.8	4.4	5.8	6.9	11.1	13.8	15.1					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30304	34686	38755	48220	54540	2.6	0.0	2.5	3.5	
Self consumption and grid losses	4853	5351	5235	4704	3349	3634	3962	5292	7444	0.8	-4.4	1.7	6.5	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2601	2363	3075	3995	4930	-1.9	-0.2	1.7	4.8	
Solids	2054	1835	1617	1638	1482	924	446	655	1782	-2.4	-0.9	-11.3	14.9	
Oil (including refinery gas)	243	119	37	99	4	26	0	6	0	-17.1	-20.3			
Gas (including derived gases)	936	1216	1002	845	979	1286	1512	1653	1129	0.7	-0.2	4.4	-2.9	
Biomass & Waste	0	0	0	40	137	127	1117	1680	2019			23.4	6.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	9907	10122	9945	10164	9995	-1.2	2.1	0.0	0.0	
Refineries	6314	5182	5410	6374	6701	6757	6719	6968	6969	-1.5	2.2	0.0	0.4	
Biofuels and hydrogen production	0	0	0	11	51	123	231	275	317			16.2	3.2	
District heating	237	731	584	717	752	807	603	601	533	9.4	2.6	-2.2	-1.2	
Derived gases, cokeries etc.	2458	2060	2026	2233	2403	2435	2392	2320	2175	-1.9	1.7	0.0	-0.9	
Energy Branch Consumption	1154	990	905	2482	2029	2108	2163	2222	2292	-2.4	8.4	0.6	0.6	
Non-Energy Uses	1203	651	1109	1239	1252	1331	1502	1670	1774	-0.8	1.2	1.8	1.7	
Final Energy Demand	14893	11085	10822	10560	11614	12428	13036	13685	14194	-3.1	0.7	1.2	0.9	
by sector														
Industry	6706	4339	3953	4413	4923	5231	5341	5444	5483	-5.1	2.2	0.8	0.3	
- energy intensive industries	4081	3091	3145	3590	4025	4266	4289	4348	4354	-2.6	2.5	0.6	0.2	
- other industrial sectors	2626	1248	808	823	898	965	1052	1097	1130	-11.1	1.1	1.6	0.7	
Residential	2275	2158	2822	2533	2623	2760	2971	3218	3448	2.2	-0.7	1.3	1.5	
Tertiary	4473	3078	2498	1809	1927	2116	2288	2510	2717	-5.7	-2.6	1.7	1.7	
Transport	1440	1509	1549	1805	2141	2321	2436	2513	2545	0.7	3.3	1.3	0.4	
by fuel														
Solids	4319	2322	1511	1455	1880	1929	1854	1742	1627	-10.0	2.2	-0.1	-1.3	
Oil	3294	1873	1870	2195	2464	2569	2579	2613	2595	-5.5	2.8	0.5	0.1	
Gas	4319	3907	4537	3651	3658	3968	4134	4232	4511	0.5	-2.1	1.2	0.9	
Electricity	2013	1868	1893	1965	2229	2537	2869	3344	3714	-0.6	1.6	2.6	2.6	
Heat (from CHP and District Heating)	781	1111	1011	951	1223	1086	1179	1205	1143	2.6	1.9	-0.4	-0.3	
Renewable energy forms	166	4	1	344	160	338	421	547	602	-42.8	74.2	10.2	3.6	
Other	0	0	0	0	0	0	1	1	1			15.7	2.9	
RES in Gross Final Energy Consumption ^(A)			407	761	892	1116	1875	2739	3151		8.2	7.7	5.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	52.4	53.1	51.6	50.3	49.0	-3.7	1.1	-0.2	-0.5	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	38.4	38.2	35.6	34.7	33.5	-4.1	0.9	-0.8	-0.6	
Power generation/District heating	12.1	12.9	10.6	10.5	9.7	8.3	5.7	4.8	3.9	-1.3	-0.9	-5.1	-3.7	
Energy Branch	2.5	1.8	1.5	5.0	4.5	4.4	4.4	4.5	4.1	-4.6	11.4	-0.3	-0.6	
Industry	17.8	12.2	10.3	10.4	12.1	12.5	12.2	11.5	11.0	-5.3	1.7	0.0	-1.0	
Residential	4.4	2.9	4.1	3.5	3.5	4.0	4.3	4.8	5.3	-0.6	-1.5	2.0	2.1	
Tertiary	12.6	5.7	4.2	2.5	2.4	2.5	2.4	2.4	2.4	-10.3	-5.4	0.3	-0.3	
Transport	4.0	4.2	4.4	5.2	6.1	6.5	6.6	6.7	6.7	0.8	3.4	0.7	0.2	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.1	5.8	6.2	6.4	-0.7	3.0	2.9	1.0	
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	9.8	10.1	9.4	9.1	-3.3	1.0	0.5	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	75.9	76.9	74.7	72.9	70.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	365.5	315.2	266.9	239.9	221.2	-3.2	-4.4	-3.1	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	1.93	1.72	1.57	1.43	-2.3	0.5	-2.0	-1.8
Import Dependency %	76.7	70.6	66.5	67.8	70.9	67.8	69.1	66.1	65.4				
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.3	11.2	13.3	15.4	16.6		2.7	3.7	2.3
as % of GDP			23.3	19.5	18.6	17.9	17.2	16.7	15.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.9	46.2	38.7	33.9	31.2	-6.4	-5.8	-3.4	-2.1
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.5	50.8	44.8	41.2	38.8	2.0	-5.1	-2.8	-1.4
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.6	49.6	43.6	39.9	36.8	-5.6	-5.5	-2.6	-1.7
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.1	27.1	25.9	24.3	3.6	0.5	-0.7	-1.1
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	23.9	23.0	22.1	21.5	2.0	1.0	-0.5	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.16	0.10	0.07	0.05	-3.8	-1.5	-6.5	-6.1
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.09	2.05	1.96	1.85	1.79	-2.0	-0.2	-0.6	-0.9
Industry	2.65	2.82	2.61	2.37	2.47	2.39	2.28	2.10	2.01	-0.2	-0.5	-0.8	-1.2
Residential	1.93	1.35	1.46	1.39	1.35	1.44	1.45	1.49	1.55	-2.8	-0.8	0.7	0.6
Tertiary	2.81	1.87	1.69	1.37	1.25	1.18	1.09	0.97	0.89	-4.9	-2.9	-1.4	-2.0
Transport	2.80	2.76	2.82	2.89	2.87	2.80	2.70	2.66	2.62	0.1	0.1	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.4	8.7	13.9	19.3	21.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.5	8.2	9.5	10.9				
Gross Electricity generation by source (in GWh)													
			30431	31346	30304	34686	38755	48220	54540		0.0	2.5	3.5
Nuclear energy			16491	17724	12371	16180	16180	19509	20135		-2.8	2.7	2.2
Solids			4969	4825	5555	4034	2001	3438	10371		1.1	-9.7	17.9
Oil (including refinery gas)			144	455	102	501	0	127	0		-3.4		
Gas (including derived gases)			4102	3527	6767	8134	10446	11656	8617		5.1	4.4	-1.9
Biomass-waste			0	172	633	586	4666	7379	9155			22.1	7.0
Hydro (pumping excluded)			4725	4637	4680	5011	5049	5071	5094		-0.1	0.8	0.1
Wind			0	7	194	230	394	1008	1120			7.3	11.0
Solar			0	0	2	9	18	33	49			24.7	10.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			6795	7307	7780	8253	8383	9606	10382		1.4	0.7	2.2
<u>Nuclear energy</u>			2326	2439	1652	2119	2132	2385	2457		-3.4	2.6	1.4
<u>Renewable energy</u>			1669	1838	2041	2183	2316	2770	2869		2.0	1.3	2.2
Hydro (pumping excluded)			1668	1832	1900	2012	2020	2024	2029		1.3	0.6	0.0
Wind			1	5	139	164	281	719	800		63.8	7.3	11.0
Solar			0	0	2	7	15	26	40			24.6	10.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2800	3031	4087	3951	3935	4451	5056		3.9	-0.4	2.5
of which cogeneration units			1220	1400	1723	1479	2059	2475	2656		3.5	1.8	2.6
Solids fired			1598	1661	1846	1502	1034	839	1037		1.5	-5.6	0.0
Gas fired			1184	1221	2051	2241	1921	2074	2103		5.6	-0.7	0.9
Oil fired			18	115	115	115	115	115	115		20.7	0.0	0.0
Biomass-waste fired			1	34	75	92	865	1423	1801		54.2	27.8	7.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.5	44.3	42.3	45.9	50.7	54.4	55.3				
Efficiency of gross thermal power generation (%)			29.8	29.4	43.2	48.2	47.9	48.7	49.1				
% of gross electricity from CHP			26.0	15.8	32.3	26.0	31.3	29.6	23.8				
Carbon free gross electricity generation (%)			69.7	71.9	59.0	63.5	67.9	68.4	65.2				
- nuclear			54.2	56.5	40.8	46.6	41.8	40.5	36.9				
- renewable energy forms			15.5	15.4	18.2	16.8	26.1	28.0	28.3				
Transport sector													
Passenger transport activity (Gpkm)													
	41.5	34.2	35.8	36.4	39.0	42.4	47.4	52.6	57.2	-1.5	0.9	2.0	1.9
Public road transport	19.5	11.2	8.4	8.1	7.9	7.8	7.7	7.7	7.7	-8.1	-0.6	-0.3	0.0
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.5	31.9	36.9	41.9	46.2	4.5	1.7	2.6	2.3
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.5	0.9
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.0	4.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	35.6	29.7	25.6	32.0	41.6	47.3	50.0	52.0	53.7	-3.3	5.0	1.9	0.7
Trucks	14.2	15.9	14.3	22.6	31.6	36.1	38.2	39.9	41.4	0.1	8.2	1.9	0.8
Rail	21.4	13.8	11.2	9.5	10.0	11.2	11.8	12.1	12.2	-6.2	-1.1	1.6	0.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1440	1509	1549	1805	2141	2321	2436	2513	2545	0.7	3.3	1.3	0.4
Public road transport	96	79	70	59	55	51	48	45	42	-3.1	-2.5	-1.2	-1.4
Private cars and motorcycles	671	729	886	964	1016	1068	1160	1230	1251	2.8	1.4	1.3	0.8
Trucks	572	583	510	693	967	1094	1112	1115	1121	-1.1	6.6	1.4	0.1
Rail	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.2	-0.8
Aviation	0	0	0	39	54	58	66	77	86			2.1	2.7
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovak Republic: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	6373	6395	8094	409	-95	466	6.9	-1.5	6.1
Solids	1397	1018	637	700	388	742	-145	-443	-22	-17.1	-53.3	-2.9
Oil	81	59	55	37	37	38	-1	-3	-2	-3.0	-7.0	-5.7
Natural gas	338	133	126	137	151	148	-8	-6	-34	-5.3	-3.8	-18.5
Nuclear	3105	4255	4573	4071	4071	4713	216	5	5	5.6	0.1	0.1
Renewable energy sources	328	506	914	1428	1749	2453	347	353	519	32.0	25.3	26.9
Hydro	162	406	399	431	434	438	6	3	0	1.5	0.6	0.0
Biomass & Waste	166	100	507	950	1188	1742	311	257	317	48.6	27.6	22.2
Wind	0	0	1	20	34	96	15	23	68	353.6	208.2	238.3
Solar and others	0	0	0	24	88	170	13	69	132	118.9	350.5	342.3
Geothermal	0	0	8	3	5	6	1	2	3	39.5	73.8	90.3
Net Imports	16086	11623	13163	13408	14308	15301	-948	-1036	-1414	-6.6	-6.8	-8.5
Solids	6055	3437	3794	3229	3008	3683	-468	-1022	-771	-12.7	-25.4	-17.3
Oil	4231	2711	3935	3996	3872	3982	-143	-390	-330	-3.4	-9.2	-7.7
- Crude oil and Feedstocks	5892	5283	5768	5941	5833	6007	-192	-489	-407	-3.1	-7.7	-6.3
- Oil products	-1661	-2573	-1833	-1946	-1961	-2025	49	98	77	-2.5	-4.8	-3.6
Natural gas	5353	5707	5757	6297	6927	6802	-350	-272	-1548	-5.3	-3.8	-18.5
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19781	20703	23395	-539	-1131	-948	-2.7	-5.2	-3.9
Solids	7771	4261	4288	3928	3396	4425	-613	-1465	-793	-13.5	-30.1	-15.2
Oil	4229	2925	4045	4032	3908	4020	-144	-393	-332	-3.4	-9.1	-7.6
Natural gas	5088	5776	5925	6434	7077	6950	-358	-278	-1582	-5.3	-3.8	-18.5
Nuclear	3105	4255	4573	4071	4071	4713	216	5	5	5.6	0.1	0.1
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1370	2293	3530	359	1000	1754	35.5	77.4	98.8
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	19.9	16.4	18.9	-2.5	-5.9	-2.5			
Oil	20.2	16.7	20.8	20.4	18.9	17.2	-0.2	-0.8	-0.7			
Natural gas	24.3	33.0	30.5	32.5	34.2	29.7	-0.9	0.5	-5.3			
Nuclear	14.8	24.3	23.6	20.6	19.7	20.1	1.6	1.0	0.8			
Renewable energy forms	1.6	2.8	4.4	6.9	11.1	15.1	2.0	5.2	7.8			
Gross Electricity Generation in GWh_e	23428	30431	31346	34686	38755	54540	-2978	-4277	-612	-7.9	-9.9	-1.1
Self consumption and grid losses	4853	5235	4704	3634	3962	7444	-356	-642	1324	-8.9	-14.0	21.6
Fuel Inputs to Thermal Power Generation	3232	2656	2622	2363	3075	4930	-954	-901	-59	-28.7	-22.7	-1.2
Solids	2054	1617	1638	924	446	1782	-669	-1356	-493	-42.0	-75.3	-21.7
Oil (including refinery gas)	243	37	99	26	0	0	-85	-118	-10	-76.9	-100.0	-100.0
Gas (including derived gases)	936	1002	845	1286	1512	1129	-154	-216	-747	-10.7	-12.5	-39.8
Biomass & Waste	0	0	40	127	1117	2019	-45	789	1191	-26.3	240.3	143.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	10122	9945	9995	-100	-612	-717	-1.0	-5.8	-6.7
Refineries	6314	5410	6374	6757	6719	6969	-197	-495	-414	-2.8	-6.9	-5.6
Biofuels and hydrogen production	0	0	11	123	231	317	16	56	51	15.5	32.0	19.3
District heating	237	584	717	807	603	533	-12	-105	-220	-1.5	-14.9	-29.2
Derived gases, cokeries etc.	2458	2026	2233	2435	2392	2175	93	-68	-133	4.0	-2.8	-5.8
Energy Branch Consumption	1154	905	2482	2108	2163	2292	-30	-59	-46	-1.4	-2.7	-2.0
Non-Energy Uses	1203	1109	1239	1331	1502	1774	-6	-6	-9	-0.5	-0.4	-0.5
Final Energy Demand	14893	10822	10560	12428	13036	14194	-157	-476	-656	-1.2	-3.5	-4.4
by sector												
Industry	6706	3953	4413	5231	5341	5483	-37	-241	-378	-0.7	-4.3	-6.5
- energy intensive industries	4081	3145	3590	4266	4289	4354	-29	-219	-303	-0.7	-4.9	-6.5
- other industrial sectors	2626	808	823	965	1052	1130	-8	-23	-75	-0.8	-2.1	-6.2
Residential	2275	2822	2533	2760	2971	3448	-48	-52	-29	-1.7	-1.7	-0.8
Tertiary	4473	2498	1809	2116	2288	2717	-44	-125	-159	-2.1	-5.2	-5.5
Transport	1440	1549	1805	2321	2436	2545	-27	-57	-90	-1.2	-2.3	-3.4
by fuel												
Solids	4319	1511	1455	1929	1854	1627	9	-122	-295	0.5	-6.2	-15.3
Oil	3294	1870	2195	2569	2579	2595	-27	-97	-140	-1.0	-3.6	-5.1
Gas	4319	4537	3651	3968	4134	4511	196	115	-223	5.2	2.9	-4.7
Electricity	2013	1893	1965	2537	2869	3714	-228	-312	-166	-8.2	-9.8	-4.3
Heat (from CHP and District Heating)	781	1011	951	1086	1179	1143	-148	-63	-64	-12.0	-5.1	-5.3
Renewable energy forms	166	1	344	338	421	602	41	4	232	13.8	0.9	62.6
Other	0	0	0	0	1	1	0	0	0	2.3	3.6	-28.5
RES in Gross Final Energy Consumption ^(A)		407	761	1116	1875	3151	279	807	1707	33.3	75.6	118.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	53.1	51.6	49.0	-3.9	-9.2	-15.0	-6.9	-15.2	-23.5
CO₂ Emissions (energy related)	53.3	35.1	37.1	38.2	35.6	33.5	-3.7	-8.8	-14.5	-8.9	-19.8	-30.2
Power generation/District heating	12.1	10.6	10.5	8.3	5.7	3.9	-3.9	-7.8	-11.4	-32.2	-57.6	-74.6
Energy Branch	2.5	1.5	5.0	4.4	4.4	4.1	-0.2	-0.5	-0.9	-4.7	-10.1	-17.3
Industry	17.8	10.3	10.4	12.5	12.2	11.0	0.2	-0.5	-1.6	1.4	-3.6	-13.0
Residential	4.4	4.1	3.5	4.0	4.3	5.3	0.2	0.1	-0.1	4.2	2.0	-1.5
Tertiary	12.6	4.2	2.5	2.5	2.5	2.4	0.2	0.2	0.0	9.6	6.4	-0.6
Transport	4.0	4.4	5.2	6.5	6.6	6.7	-0.1	-0.3	-0.4	-1.9	-4.6	-6.0
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.1	5.8	6.4	-0.1	-0.2	-0.4	-1.5	-3.9	-5.6
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.8	10.1	9.1	-0.1	-0.2	-0.2	-1.3	-1.8	-1.9
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	76.9	74.7	70.9	-5.7	-13.3	-21.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	315.2	266.9	221.2	-8.6	-14.6	-9.0	-2.7	-5.2	-3.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	1.93	1.72	1.43	-0.13	-0.31	-0.54	-6.4	-15.4	-27.3
Import Dependency %	76.7	66.5	67.8	67.8	69.1	65.4	-2.9	-1.2	-3.3			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.2	13.3	16.6	0.3	0.6	0.9	2.9	4.8	5.5
as % of GDP		23.3	19.5	17.9	17.2	15.7	0.5	0.8	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.6	0.9						
as % of GDP				0.51	0.80	0.84						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.2	38.7	31.2	-0.3	-1.7	-2.2	-0.7	-4.3	-6.5
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	50.8	44.8	38.8	-0.9	-0.8	-0.3	-1.7	-1.7	-0.8
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	49.6	43.6	36.8	-1.0	-2.4	-2.2	-2.1	-5.2	-5.5
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	28.1	27.1	24.3	-0.3	-0.5	-0.6	-1.1	-1.8	-2.4
Freight transport (toe/Mtkm)	17.9	21.9	22.7	23.9	23.0	21.5	-0.1	-0.3	-0.5	-0.6	-1.5	-2.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.16	0.10	0.05	-0.06	-0.12	-0.16	-25.8	-53.8	-74.5
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.05	1.96	1.79	0.06	0.03	-0.07	3.0	1.5	-3.6
Industry	2.65	2.61	2.37	2.39	2.28	2.01	0.05	0.02	-0.15	2.1	0.8	-6.9
Residential	1.93	1.46	1.39	1.44	1.45	1.55	0.08	0.05	-0.01	6.1	3.8	-0.7
Tertiary	2.81	1.69	1.37	1.18	1.09	0.89	0.13	0.12	0.04	11.9	12.2	5.2
Transport	2.80	2.82	2.89	2.80	2.70	2.62	-0.02	-0.07	-0.07	-0.7	-2.4	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	8.7	13.9	21.2	2.3	6.3	11.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.5	8.2	10.9	0.6	2.1	2.1			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	30431	31346	34686	38755	54540	54540	-2978	-4277	-612	-7.9	-9.9	-1.1
Nuclear energy	16491	17724	16180	16180	20135	20135	937	0	0	6.1	0.0	0.0
Solids	4969	4825	4034	2001	10371	10371	-2110	-5795	-2142	-34.3	-74.3	-17.1
Oil (including refinery gas)	144	455	501	0	0	0	0	-529	-162	0.0	-100.0	-100.0
Gas (including derived gases)	4102	3527	8134	10446	8617	8617	-1873	-1214	-3792	-18.7	-10.4	-30.6
Biomass-waste	0	172	586	4666	9155	9155	-184	2965	4694	-23.9	174.3	105.2
Hydro (pumping excluded)	4725	4637	5011	5049	5094	5094	73	30	0	1.5	0.6	0.0
Wind	0	7	230	394	1120	1120	179	266	789	353.6	208.2	238.3
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	6795	7307	8253	8383	10382	10382	-318	403	1394	-3.7	5.1	15.5
<u>Nuclear energy</u>	2326	2439	2119	2132	2457	2457	108	0	0	5.4	0.0	0.0
<u>Renewable energy</u>	1669	1838	2183	2316	2869	2869	145	198	564	7.1	9.3	24.5
Hydro (pumping excluded)	1668	1832	2012	2020	2029	2029	16	7	0	0.8	0.4	0.0
Wind	1	5	164	281	800	800	129	191	564	366.9	211.7	239.0
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	3951	3935	5056	5056	-571	205	830	-12.6	5.5	19.6
of which cogeneration units	1220	1400	1479	2059	2656	2656	-148	369	836	-9.1	21.8	45.9
Solids fired	1598	1661	1502	1034	1037	1037	-194	-367	-638	-11.4	-26.2	-38.1
Gas fired	1184	1221	2241	1921	2103	2103	-406	-163	7	-15.3	-7.8	0.3
Oil fired	18	115	115	115	115	115	0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	92	865	1801	1801	29	734	1460	45.2	560.8	428.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	45.9	50.7	55.3	55.3	-2.1	-8.3	-11.4			
Efficiency of gross thermal power generation (%)	29.8	29.4	48.2	47.9	49.1	49.1	3.1	1.0	-1.8			
% of gross electricity from CHP	26.0	15.8	26.0	31.3	23.8	23.8	2.5	6.7	2.1			
Carbon free gross electricity generation (%)	69.7	71.9	63.5	67.9	65.2	7.7	14.3	10.7				
- nuclear	54.2	56.5	46.6	41.8	36.9	6.2	4.1	0.4				
- renewable energy forms	15.5	15.4	16.8	26.1	28.3	1.5	10.2	10.3				
Transport sector												
Passenger transport activity (Gpkm)	41.5	35.8	36.4	42.4	47.4	57.2	-0.1	-0.4	-0.7	-0.3	-0.8	-1.2
Public road transport	19.5	8.4	8.1	7.8	7.7	7.7	0.0	0.0	0.1	0.3	0.6	0.9
Private cars and motorcycles	15.6	24.1	25.6	31.9	36.9	46.2	-0.2	-0.4	-0.7	-0.5	-1.1	-1.5
Rail	6.4	3.2	2.5	2.4	2.5	2.7	0.0	0.0	0.0	0.1	0.4	0.9
Aviation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-5.4	-6.9	-7.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	35.6	25.6	32.0	47.3	50.0	53.7	-0.1	-0.3	-0.4	-0.3	-0.6	-0.8
Trucks	14.2	14.3	22.6	36.1	38.2	41.4	-0.2	-0.4	-0.6	-0.6	-1.1	-1.4
Rail	21.4	11.2	9.5	11.2	11.8	12.2	0.1	0.1	0.2	0.6	1.0	1.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)	1440	1549	1805	2321	2436	2545	-27	-57	-90	-1.2	-2.3	-3.4
Public road transport	96	70	59	51	48	42	0	0	-1	0.0	0.0	-1.4
Private cars and motorcycles	671	886	964	1068	1160	1251	-7	-16	-28	-0.6	-1.3	-2.2
Trucks	572	510	693	1094	1112	1121	-10	-24	-39	-0.9	-2.1	-3.3
Rail	100	83	49	51	49	45	0	0	0	0.1	0.0	-0.1
Aviation	0	0	39	58	66	86	-11	-18	-23	-15.9	-21.1	-21.1
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2902	3020	3085	3492	3587	3053	3378	3775	4950	0.6	1.5	-0.6	3.9	
Solids	1432	1216	1062	1184	1157	394	247	301	1294	-2.9	0.9	-14.3	18.0	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.9			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1530	1530	0.3	1.9	0.0	0.3	
Renewable energy sources	254	542	788	787	943	1177	1648	1943	2126	12.0	1.8	5.7	2.6	
Hydro	254	279	330	298	348	351	355	363	371	2.7	0.6	0.2	0.5	
Biomass & Waste	0	263	458	489	581	717	1115	1359	1491	2.4	6.7	2.9		
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	13	108	176	219	261			29.6	4.0	
Geothermal	0	0	0	0	0	0	0	0	0			6.6	3.7	
Net Imports	2567	3056	3369	3810	4315	4708	4677	4505	4100	2.8	2.5	0.8	-1.3	
Solids	130	187	245	323	291	333	323	310	260	6.5	1.7	1.0	-2.2	
Oil	1798	2231	2418	2589	2879	2931	2912	2919	2874	3.0	1.8	0.1	-0.1	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.1	-0.1	
- Oil products	1202	1644	2267	2589	2878	2930	2911	2918	2873	6.5	2.4	0.1	-0.1	
Natural gas	723	750	820	925	1094	1220	1224	1234	1052	1.3	2.9	1.1	-1.5	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	7902	7761	8055	8280	9050	1.5	2.1	0.2	1.2	
Solids	1645	1402	1306	1539	1448	727	570	611	1554	-2.3	1.0	-8.9	10.6	
Oil	1748	2281	2381	2560	2879	2931	2912	2919	2874	3.1	1.9	0.1	-0.1	
Natural gas	763	746	826	929	1098	1220	1224	1234	1052	0.8	2.9	1.1	-1.5	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1530	1530	0.3	1.9	0.0	0.3	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	943	1177	1648	1943	2126	12.0	1.8	5.7	2.6	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	18.3	9.4	7.1	7.4	17.2					
Oil	31.7	37.4	37.1	35.0	36.4	37.8	36.2	35.3	31.8					
Natural gas	13.8	12.2	12.9	12.7	13.9	15.7	15.2	14.9	11.6					
Nuclear	21.6	20.4	19.1	20.8	18.8	19.1	18.4	18.5	16.9					
Renewable energy forms	4.6	9.3	12.3	10.8	11.9	15.2	20.5	23.5	23.5					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15470	14050	15652	19879	25406	0.9	1.3	0.1	5.0	
Self consumption and grid losses	1516	1427	1625	1908	2025	1758	1907	2499	4442	0.7	2.2	-0.6	8.8	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1396	795	977	1292	2235	-1.4	0.4	-3.5	8.6	
Solids	1296	1315	1253	1411	1332	600	429	435	1370	-0.3	0.6	-10.7	12.3	
Oil (including refinery gas)	155	119	12	9	1	0	0	0	1	-22.8	-20.3	-13.1	14.8	
Gas (including derived gases)	92	90	62	58	42	102	165	391	260	-3.8	-3.8	14.7	4.6	
Biomass & Waste	0	0	15	30	21	91	381	466	604		3.2	33.6	4.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	195	256	287	315	296	-8.2	-2.6	4.0	0.3	
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.1	-0.1	
Biofuels and hydrogen production	0	0	0	0	44	115	202	234	265			16.5	2.8	
District heating	53	76	83	89	150	140	84	80	29	4.7	6.0	-5.6	-10.1	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	116	89	92	139	287	-0.9	0.3	-2.3	12.0	
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9	
Final Energy Demand	3368	3940	4431	4880	5475	5779	6041	6182	6321	2.8	2.1	1.0	0.5	
by sector														
Industry	1468	1179	1423	1655	1829	1917	1995	2042	2099	-0.3	2.5	0.9	0.5	
- energy intensive industries	728	587	839	1036	1143	1221	1280	1317	1353	1.4	3.1	1.1	0.6	
- other industrial sectors	740	593	584	619	686	696	715	725	746	-2.3	1.6	0.4	0.4	
Residential	850	1176	1122	1183	1230	1285	1373	1372	1404	2.8	0.9	1.1	0.2	
Tertiary	122	259	578	573	576	545	551	551	546	16.9	0.0	-0.5	-0.1	
Transport	928	1326	1309	1469	1839	2031	2123	2217	2272	3.5	3.5	1.4	0.7	
by fuel														
Solids	243	115	97	80	85	91	102	134	138	-8.8	-1.3	1.8	3.1	
Oil	1507	2098	2231	2392	2678	2704	2668	2663	2601	4.0	1.8	0.0	-0.3	
Gas	603	468	569	665	787	841	814	605	599	-0.6	3.3	0.3	-3.0	
Electricity	837	807	905	1096	1196	1269	1387	1523	1703	0.8	2.8	1.5	2.1	
Heat (from CHP and District Heating)	177	192	195	196	189	187	205	203	191	1.0	-0.3	0.8	-0.7	
Renewable energy forms	0	260	435	452	540	688	863	1052	1088		2.2	4.8	2.3	
Other	0	0	0	0	0	0	1	1	1			19.5	2.7	
RES in Gross Final Energy Consumption ^(A)			780	767	926	1138	1560	1837	1998		1.7	5.4	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.5	17.6	16.7	15.7	14.4	0.3	1.0	-2.0	-1.5	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.1	13.4	12.6	11.7	10.4	0.6	1.4	-2.4	-1.9	
Power generation/District heating	6.2	6.2	5.5	6.2	5.9	3.0	2.3	1.7	0.6	-1.1	0.6	-9.0	-12.4	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9				
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.0	2.0	-0.7	0.5	0.1	-2.0	
Residential	1.7	2.1	1.3	1.4	1.5	1.4	1.4	1.3	1.2	-2.5	1.0	-0.6	-1.0	
Tertiary	0.0	0.0	1.0	1.0	1.0	0.8	0.7	0.7	0.5	46.9	0.2	-3.2	-3.6	
Transport	2.7	3.9	3.8	4.3	5.3	5.7	5.8	5.9	6.0	3.5	3.5	0.8	0.4	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2	-1.2	0.3	1.2	0.7	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.1	2.9	2.9	2.8	-0.6	-0.4	-1.5	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	113.7	97.7	92.5	87.3	79.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	234.6	200.1	185.3	172.1	172.9	-0.3	-1.6	-2.3	-0.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.04	1.73	1.57	1.41	1.15	-0.9	-0.7	-2.6	-3.1
Import Dependency %	46.5	50.1	52.5	52.2	54.6	60.7	58.1	54.4	45.3				
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.4	7.4	8.2	8.8		3.7	3.5	1.8
as % of GDP			15.6	14.5	15.5	16.5	17.0	17.1	16.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.1	74.2	70.1	67.9	-0.9	-1.5	-1.5	-0.9
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	72.7	69.6	63.1	59.6	0.2	-2.3	-1.3	-1.5
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	68.9	56.7	51.0	45.7	41.2	14.2	-3.7	-3.0	-2.1
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	42.9	39.7	37.7	36.7	5.3	-1.5	-1.3	-0.8
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	45.5	44.9	43.5	40.8	2.3	-1.0	0.1	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.32	0.18	0.12	0.08	0.02	-2.0	-0.6	-9.1	-15.9
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.81	1.71	1.61	1.54	-0.8	-0.1	-0.9	-1.0
Industry	1.72	1.55	1.65	1.38	1.35	1.34	1.25	0.99	0.97	-0.4	-2.0	-0.8	-2.5
Residential	1.98	1.80	1.17	1.21	1.18	1.05	0.99	0.96	0.88	-5.2	0.1	-1.7	-1.2
Tertiary	0.17	0.13	1.65	1.76	1.69	1.46	1.28	1.19	0.89	25.7	0.3	-2.8	-3.5
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.71	2.68	2.64	0.0	0.0	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.3	19.1	25.0	28.6	29.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.8	8.0	9.0	10.0				
Gross Electricity generation by source (in GWh)													
			13622	15114	15470	14050	15652	19879	25406		1.3	0.1	5.0
Nuclear energy			4760	5883	5751	5751	5751	6931	6931		1.9	0.0	1.9
Solids			4484	5229	5230	2706	2109	2976	8639		1.6	-8.7	15.1
Oil (including refinery gas)			106	36	5	3	2	1	8		-26.0	-8.7	13.8
Gas (including derived gases)			321	324	208	872	1608	2773	1897		-4.3	22.7	1.7
Biomass-waste			117	181	222	628	2034	2953	3581		6.6	24.8	5.8
Hydro (pumping excluded)			3833	3460	4052	4085	4128	4218	4319		0.6	0.2	0.5
Wind			0	0	2	6	19	25	30			27.1	4.4
Solar			0	0	0	1	1	2	3			11.2	8.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2861	3188	3236	3382	3248	3536	4000		1.2	0.0	2.1
<u>Nuclear energy</u>			656	656	666	666	666	800	800		0.2	0.0	1.9
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2
Wind			0	0	2	7	22	29	34			27.1	4.4
Solar			0	0	0	1	1	1	2			11.2	8.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			1241	1557	1587	1675	1521	1666	2108		2.5	-0.4	3.3
of which cogeneration units			244	363	324	397	604	729	827		2.9	6.4	3.2
Solids fired			996	1013	1029	1069	708	585	893		0.3	-3.7	2.4
Gas fired			81	374	375	381	399	555	594		16.6	0.6	4.1
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.5
Biomass-waste fired			21	71	83	152	377	527	620		14.7	16.4	5.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			51.1	50.7	51.0	45.1	52.5	60.1	64.0				
Efficiency of gross thermal power generation (%)			32.2	32.9	34.9	45.5	50.7	57.9	54.3				
% of gross electricity from CHP			3.5	3.2	4.4	15.9	22.8	19.6	16.8				
Carbon free gross electricity generation (%)			63.9	63.0	64.8	74.5	76.2	71.1	58.5				
- nuclear			34.9	38.9	37.2	40.9	36.7	34.9	27.3				
- renewable energy forms			29.0	24.1	27.6	33.6	39.5	36.2	31.2				
Transport sector													
Passenger transport activity (Gpkm)													
	18.1	15.5	17.2	18.7	21.1	23.0	25.0	27.1	29.2	-0.5	2.1	1.7	1.6
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.3	1.3
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.6	22.2	24.0	25.7	3.9	2.6	1.6	1.5
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.5	1.6	-6.8	2.6	3.4	2.5
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	4.9	4.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	9.1	6.4	8.2	14.3	19.9	23.0	25.2	27.4	29.4	-1.1	9.3	2.4	1.6
Trucks	4.9	3.3	5.3	11.0	15.4	17.6	19.4	21.1	22.4	0.8	11.2	2.4	1.4
Rail	4.2	3.1	2.9	3.2	4.5	5.4	5.8	6.3	7.0	-3.8	4.8	2.4	2.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	928	1326	1309	1469	1839	2031	2123	2217	2272	3.5	3.5	1.4	0.7
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	-0.1	-0.5
Private cars and motorcycles	498	727	867	828	923	948	947	974	1016	5.7	0.6	0.2	0.7
Trucks	330	492	368	582	845	1003	1091	1154	1169	1.1	8.7	2.6	0.7
Rail	29	29	34	29	39	45	43	42	32	1.4	1.3	1.1	-2.8
Aviation	27	20	25	23	24	29	34	41	47	-0.8	-0.1	3.5	3.2
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovenia: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3053	3378	4950	-425	-319	901	-12.2	-8.6	22.3
Solids	1432	1062	1184	394	247	1294	-633	-859	0	-61.7	-77.7	0.0
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1530	0	0	168	0.0	0.0	12.4
Renewable energy sources	254	788	787	1177	1648	2126	208	539	733	21.4	48.6	52.6
Hydro	254	330	298	351	355	371	39	31	0	12.4	9.7	0.0
Biomass & Waste	0	458	489	717	1115	1491	95	395	567	15.2	54.8	61.4
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	108	176	261	74	113	166	221.7	179.5	175.2
Geothermal	0	0	0	0	0	0	0	0	0	64.1	106.5	178.0
Net Imports	2567	3369	3810	4708	4677	4100	-499	-851	-1630	-9.6	-15.4	-28.4
Solids	130	245	323	333	323	260	-51	-137	-249	-13.2	-29.8	-48.9
Oil	1798	2418	2589	2931	2912	2874	-386	-570	-845	-11.6	-16.4	-22.7
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-11.1	-15.4	-20.9
- Oil products	1202	2267	2589	2930	2911	2873	-385	-570	-844	-11.6	-16.4	-22.7
Natural gas	723	820	925	1220	1224	1052	-63	-144	-537	-4.9	-10.5	-33.8
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	7761	8055	9050	-925	-1170	-729	-10.6	-12.7	-7.5
Solids	1645	1306	1539	727	570	1554	-683	-996	-249	-48.5	-63.6	-13.8
Oil	1748	2381	2560	2931	2912	2874	-386	-570	-845	-11.6	-16.4	-22.7
Natural gas	763	826	929	1220	1224	1052	-63	-144	-537	-4.9	-10.5	-33.8
Nuclear	1192	1228	1518	1483	1483	1530	0	0	168	0.0	0.0	12.4
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1177	1648	2126	208	539	733	21.4	48.6	52.6
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	9.4	7.1	17.2	-6.9	-9.9	-1.3			
Oil	31.7	37.1	35.0	37.8	36.2	31.8	-0.4	-1.6	-6.3			
Natural gas	13.8	12.9	12.7	15.7	15.2	11.6	0.9	0.4	-4.6			
Nuclear	21.6	19.1	20.8	19.1	18.4	16.9	2.0	2.3	3.0			
Renewable energy forms	4.6	12.3	10.8	15.2	20.5	23.5	4.0	8.4	9.2			
Gross Electricity Generation in GWh_e	12440	13622	15114	14050	15652	25406	-2023	-2339	1140	-12.6	-13.0	4.7
Self consumption and grid losses	1516	1625	1908	1758	1907	4442	-451	-566	1264	-20.4	-22.9	39.8
Fuel Inputs to Thermal Power Generation	1543	1342	1507	795	977	2235	-642	-642	61	-44.7	-39.7	2.8
Solids	1296	1253	1411	600	429	1370	-692	-998	-289	-53.5	-69.9	-17.4
Oil (including refinery gas)	155	12	9	0	0	1	-1	-1	0	-56.7	-73.7	4.8
Gas (including derived gases)	92	62	58	102	165	260	-9	47	-56	-7.7	39.2	-17.7
Biomass & Waste	0	15	30	91	381	604	59	311	406	185.2	437.7	205.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	256	287	296	-5	-25	-43	-2.0	-7.9	-12.7
Refineries	540	169	1	1	1	1	0	0	0	-11.1	-15.4	-20.9
Biofuels and hydrogen production	0	0	0	115	202	265	10	32	9	9.1	19.2	3.6
District heating	53	83	89	140	84	29	-15	-57	-52	-9.5	-40.4	-64.0
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	89	92	287	-26	-33	112	-22.3	-26.6	64.5
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5779	6041	6321	-468	-684	-937	-7.5	-10.2	-12.9
by sector												
Industry	1468	1423	1655	1917	1995	2099	-52	-77	-94	-2.7	-3.7	-4.3
- energy intensive industries	728	839	1036	1221	1280	1353	-20	-34	-41	-1.6	-2.6	-2.9
- other industrial sectors	740	584	619	696	715	746	-32	-43	-54	-4.4	-5.7	-6.7
Residential	850	1122	1183	1285	1373	1404	-83	-93	-158	-6.1	-6.4	-10.1
Tertiary	122	578	573	545	551	546	-141	-188	-254	-20.5	-25.4	-31.7
Transport	928	1309	1469	2031	2123	2272	-192	-326	-431	-8.6	-13.3	-15.9
by fuel												
Solids	243	97	80	91	102	138	8	3	40	10.0	3.0	41.1
Oil	1507	2231	2392	2704	2668	2601	-384	-569	-844	-12.4	-17.6	-24.5
Gas	603	569	665	841	814	599	-41	-127	-419	-4.6	-13.5	-41.2
Electricity	837	905	1096	1269	1387	1703	-135	-152	-11	-9.6	-9.9	-0.6
Heat (from CHP and District Heating)	177	195	196	187	205	191	-25	-24	-19	-11.6	-10.6	-9.0
Renewable energy forms	0	435	452	688	863	1088	108	185	316	18.6	27.3	41.0
Other	0	0	0	0	1	1	0	0	0	4.5	-0.7	-11.2
RES in Gross Final Energy Consumption ^(A)		780	767	1138	1560	1998	198	492	680	21.0	46.0	51.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	17.6	16.7	14.4	-4.4	-6.6	-11.0	-20.2	-28.3	-43.3
CO₂ Emissions (energy related)	13.2	14.0	15.2	13.4	12.6	10.4	-4.1	-6.2	-10.5	-23.6	-32.8	-50.3
Power generation/District heating	6.2	5.5	6.2	3.0	2.3	0.6	-2.9	-4.2	-7.1	-49.6	-64.3	-92.0
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.1	-14.3	-38.9
Industry	2.5	2.3	2.3	2.6	2.5	2.0	-0.1	-0.2	-0.7	-2.4	-6.5	-24.8
Residential	1.7	1.3	1.4	1.4	1.4	1.2	-0.3	-0.4	-0.7	-17.4	-21.9	-36.5
Tertiary	0.0	1.0	1.0	0.8	0.7	0.5	-0.3	-0.4	-0.6	-25.8	-34.5	-55.9
Transport	2.7	3.8	4.3	5.7	5.8	6.0	-0.6	-1.1	-1.4	-9.6	-15.8	-18.7
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.0	1.1	1.2	0.0	0.0	-0.1	-2.1	-3.6	-5.7
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.1	2.9	2.8	-0.3	-0.4	-0.4	-8.0	-11.3	-11.8
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	97.7	92.5	79.8	-24.7	-36.6	-60.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	200.1	185.3	172.9	-23.8	-26.9	-13.9	-10.6	-12.7	-7.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.73	1.57	1.15	-0.29	-0.47	-0.99	-14.5	-23.1	-46.3
Import Dependency %	46.5	52.5	52.2	60.7	58.1	45.3	0.7	-1.9	-13.3			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.4	7.4	8.8	0.3	0.5	0.8	5.1	7.1	10.3
as % of GDP		15.6	14.5	16.5	17.0	16.8	0.8	1.1	1.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.5	0.8						
as % of GDP				0.82	1.14	1.59						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.1	74.2	67.9	-2.2	-2.9	-3.1	-2.7	-3.7	-4.3
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	72.7	69.6	59.6	-4.7	-4.7	-6.7	-6.1	-6.4	-10.1
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	56.7	51.0	41.2	-14.7	-17.4	-19.2	-20.5	-25.4	-31.7
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	42.9	39.7	36.7	-1.1	-1.6	-1.8	-2.4	-3.9	-4.6
Freight transport (toe/Mtkm)	39.1	48.9	42.6	45.5	44.9	40.8	-3.6	-6.3	-7.6	-7.3	-12.3	-15.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.18	0.12	0.02	-0.13	-0.18	-0.26	-42.6	-59.2	-92.3
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.81	1.71	1.54	-0.06	-0.12	-0.27	-3.3	-6.8	-14.7
Industry	1.72	1.65	1.38	1.34	1.25	0.97	0.00	-0.04	-0.26	0.3	-3.0	-21.4
Residential	1.98	1.17	1.21	1.05	0.99	0.88	-0.14	-0.20	-0.36	-12.1	-16.6	-29.3
Tertiary	0.17	1.65	1.76	1.46	1.28	0.89	-0.10	-0.18	-0.49	-6.6	-12.1	-35.4
Transport	2.88	2.89	2.94	2.81	2.71	2.64	-0.03	-0.08	-0.09	-1.1	-2.9	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	19.1	25.0	29.7	29.7	4.6	9.7	12.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	8.0	10.0	0.8	2.2	2.0			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14050	15652	25406	25406	-2023	-2339	1140	-12.6	-13.0	4.7
Nuclear energy	4760	5883	5751	5751	6931	6931	0	0	761	0.0	0.0	12.3
Solids	4484	5229	2706	2109	8639	8639	-2824	-4569	-1096	-51.1	-68.4	-11.3
Oil (including refinery gas)	106	36	3	2	8	8	-4	-3	1	-60.6	-57.7	15.3
Gas (including derived gases)	321	324	872	1608	1897	1897	22	455	-837	2.6	39.5	-30.6
Biomass-waste	117	181	628	2034	3581	3581	333	1411	2311	112.8	226.6	181.9
Hydro (pumping excluded)	3833	3460	4085	4128	4319	4319	449	366	0	12.4	9.7	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3382	3248	4000	4000	-131	-318	-82	-3.7	-8.9	-2.0
<u>Nuclear energy</u>	656	656	666	666	800	800	0	0	88	0.0	0.0	12.3
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1675	1521	2108	2108	-131	-318	-169	-7.3	-17.3	-7.4
of which cogeneration units	244	363	397	604	827	827	-6	14	45	-1.5	2.4	5.7
Solids fired	996	1013	1069	708	893	893	-48	-309	-311	-4.3	-30.4	-25.8
Gas fired	81	374	381	399	594	594	-144	-233	-290	-27.5	-36.9	-32.8
Oil fired	142	99	73	37	0	0	0	-23	0	0.0	-37.6	-51.9
Biomass-waste fired	21	71	152	377	620	620	61	247	432	66.9	189.9	228.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	45.1	52.5	64.0	64.0	-4.0	-1.7	0.7			
Efficiency of gross thermal power generation (%)	32.2	32.9	45.5	50.7	54.3	54.3	5.5	5.7	0.0			
% of gross electricity from CHP	3.5	3.2	15.9	22.8	16.8	16.8	2.8	3.5	0.4			
Carbon free gross electricity generation (%)	63.9	63.0	74.5	76.2	58.5	58.5	14.2	19.8	9.9			
- nuclear	34.9	38.9	40.9	36.7	27.3	27.3	5.2	4.8	1.9			
- renewable energy forms	29.0	24.1	33.6	39.5	31.2	31.2	9.1	15.0	8.1			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.0	25.0	29.2	-0.6	-1.0	-1.3	-2.7	-3.7	-4.3
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.1	2.8	3.9	4.6
Private cars and motorcycles	10.0	14.7	16.8	20.6	22.2	25.7	-0.7	-1.0	-1.4	-3.2	-4.5	-5.2
Rail	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.1	0.1	3.6	4.9	6.4
Aviation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	-0.1	-4.4	-5.8	-6.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.0	25.2	29.4	-1.2	-1.7	-2.2	-4.8	-6.3	-6.9
Trucks	4.9	5.3	11.0	17.6	19.4	22.4	-1.4	-2.0	-2.6	-7.2	-9.3	-10.5
Rail	4.2	2.9	3.2	5.4	5.8	7.0	0.2	0.3	0.4	4.1	5.2	6.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2031	2123	2272	-192	-326	-431	-8.6	-13.3	-15.9
Public road transport	43	15	7	8	8	7	0	0	-1	-0.6	-3.1	-12.5
Private cars and motorcycles	498	867	828	948	947	1016	-51	-77	-94	-5.1	-7.5	-8.5
Trucks	330	368	582	1003	1091	1169	-141	-246	-328	-12.3	-18.4	-21.9
Rail	29	34	29	45	43	32	1	1	-1	3.3	1.3	-3.4
Aviation	27	25	23	29	34	47	-2	-3	-7	-5.3	-8.1	-12.7
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	34196	36222	38052	37255	46991	-0.7	0.9	1.1	2.1	
Solids	11679	10170	7740	6265	5856	3300	781	1800	2577	-4.0	-2.8	-18.3	12.7	
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	9823	16449	1.6	-0.2	-0.5	0.9	
Renewable energy sources	6276	5722	7185	8710	12292	17683	22183	25632	27964	1.4	5.5	6.1	2.3	
Hydro	2184	1987	2534	1681	2387	2288	2334	2438	2552	1.5	-0.6	-0.2	0.9	
Biomass & Waste	4067	3684	4205	5129	6565	9617	12021	13807	15577	0.3	4.6	6.2	2.6	
Wind	1	23	406	1825	3032	5185	6868	8035	8238	79.0	22.3	8.5	1.8	
Solar and others	21	25	33	68	301	584	949	1341	1586	4.5	24.9	12.2	5.3	
Geothermal	2	3	8	8	9	10	11	11	11	12.3	1.2	2.0	0.2	
Net Imports	59857	75415	98351	122830	126875	122645	115607	116553	110451	5.1	2.6	-0.9	-0.5	
Solids	7038	9146	12636	14418	15657	11783	2515	5653	7076	6.0	2.2	-16.7	10.9	
Oil	49166	58363	69866	78279	78335	75301	73728	73713	72780	3.6	1.2	-0.6	-0.1	
- Crude oil and Feedstocks	53256	55362	58393	59850	60615	59288	58619	58633	58238	0.9	0.4	-0.3	-0.1	
- Oil products	-4091	3001	11473	18429	17720	16013	15109	15080	14542	4.4	-1.6	-0.4		
Natural gas	3690	7521	15467	30248	32619	34374	37197	34975	28074	15.4	7.7	1.3	-2.8	
Electricity	-36	386	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Gross Inland Consumption	89401	102207	122698	143487	152555	149883	144304	144209	147825	3.2	2.2	-0.6	0.2	
Solids	18942	19515	20643	20698	21513	15083	3296	7453	9654	0.9	0.4	-17.1	11.3	
Oil	45547	54556	63223	69507	69984	66467	64472	64115	63164	3.3	1.0	-0.8	-0.2	
Natural gas	4970	7722	15219	29844	32749	34474	37197	34975	28074	11.8	8.0	1.3	-2.8	
Nuclear	13701	14305	16046	14842	15753	14989	14989	9823	16449	1.6	-0.2	-0.5	0.9	
Electricity	-36	385	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Renewable energy forms	6276	5723	7185	8711	12292	18536	24125	27863	30482	1.4	5.5	7.0	2.4	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	14.1	10.1	2.3	5.2	6.5					
Oil	50.9	53.4	51.5	48.4	45.9	44.3	44.7	44.5	42.7					
Natural gas	5.6	7.6	12.4	20.8	21.5	23.0	25.8	24.3	19.0					
Nuclear	15.3	14.0	13.1	10.3	10.3	10.0	10.4	6.8	11.1					
Renewable energy forms	7.0	5.6	5.9	6.1	8.1	12.4	16.7	19.3	20.6					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	309638	313763	322183	354998	389108	4.0	3.3	0.4	1.9	
Self consumption and grid losses	21388	24573	32539	40790	39150	37684	35949	41846	50701	4.3	1.9	-0.8	3.5	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33993	29247	22596	27564	25931	4.7	2.5	-4.0	1.4	
Solids	13881	13585	18249	17641	18906	12581	1026	5366	7669	2.8	0.4	-25.3	22.3	
Oil (including refinery gas)	2170	3654	4442	5246	1823	519	563	603	721	7.4	-8.5	-11.1	2.5	
Gas (including derived gases)	486	987	3075	11140	12101	13061	15320	14683	9549	20.3	14.7	2.4	-4.6	
Biomass & Waste	145	377	694	1389	1163	3086	5687	6912	7992	16.9	5.3	17.2	3.5	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64770	65415	65397	65209	64814	0.9	0.3	0.1	-0.1	
Refineries	53753	56041	60048	60507	60349	59250	58655	58636	58276	1.1	0.1	-0.3	-0.1	
Biofuels and hydrogen production	0	0	65	259	2181	4084	5204	5316	5501	42.1	9.1	0.6		
District heating	0	0	0	0	0	0	0	0	0		-0.9	-1.7		
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2081	1538	1257	1037	-3.0	-3.0	-3.7	-3.9	
Energy Branch Consumption	4757	5473	6118	6397	5737	5490	5273	5370	5807	2.5	-0.6	-0.8	1.0	
Non-Energy Uses	5847	8006	9094	7823	8080	8579	9072	9405	9593	4.5	-1.2	1.2	0.6	
Final Energy Demand	56647	63536	79422	97170	106257	106780	106443	107202	107413	3.4	3.0	0.0	0.1	
by sector														
Industry	20014	20476	25474	31036	33986	36217	37795	38109	38193	2.4	2.9	1.1	0.1	
- energy intensive industries	13069	13620	17260	20421	22153	23648	24362	24342	24289	2.8	2.5	1.0	0.0	
- other industrial sectors	6945	6856	8213	10615	11833	12569	13433	13767	13904	1.7	3.7	1.3	0.3	
Residential	9266	9986	11871	15150	16424	15556	14428	14073	13805	2.5	3.3	-1.3	-0.4	
Tertiary	5041	7007	9219	11556	11759	10473	9877	9775	9654	6.2	2.5	-1.7	-0.2	
Transport	22326	26069	32858	39428	44088	44534	44343	45245	45761	3.9	3.0	0.1	0.3	
by fuel														
Solids	3524	2235	1671	1782	1610	1610	1572	1517	1523	-7.2	-0.4	-0.2	-0.3	
Oil	33488	38971	45784	52776	55911	53410	51086	50530	49600	3.2	2.0	-0.9	-0.3	
Gas	4873	6841	12141	17978	20513	21113	21390	19664	17807	9.6	5.4	0.4	-1.8	
Electricity	10817	12116	16205	20827	22966	23527	24307	26417	28556	4.1	3.5	0.6	1.6	
Heat (from CHP and District Heating)	0	39	74	0	17	17	25	24	23		-13.8	4.0	-0.9	
Renewable energy forms	3945	3335	3547	3806	5237	7092	8049	9035	9886	-1.1	4.0	4.4	2.1	
Other	0	0	0	0	3	11	14	16	18			15.4	2.5	
RES in Gross Final Energy Consumption ^(A)			6709	8189	11663	16408	21888	25314	27584	5.7	6.5	2.3		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	461.4	418.4	366.3	376.7	358.6	3.1	1.7	-2.3	-0.2	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	349.0	315.1	267.5	276.6	257.4	3.4	2.1	-2.6	-0.4	
Power generation/District heating	63.6	68.2	94.1	113.2	109.3	82.1	41.9	57.5	46.5	4.0	1.5	-9.1	1.1	
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.0	12.5	12.1	11.2	1.6	0.0	-0.8	-1.1	
Industry	41.9	43.4	48.9	58.2	63.5	66.1	65.7	62.0	58.3	1.6	2.6	0.3	-1.2	
Residential	12.9	13.6	16.4	20.4	20.8	17.7	15.6	12.1	9.5	2.5	2.4	-2.9	-4.8	
Tertiary	7.7	10.5	12.9	16.2	15.7	13.6	12.9	12.1	11.1	5.3	2.0	-1.9	-1.5	
Transport	65.6	76.9	97.3	116.7	126.2	122.7	118.9	120.8	120.7	4.0	2.6	-0.6	0.2	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.5	40.0	39.4	38.4	37.5	1.6	2.8	0.2	-0.5	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	63.3	59.4	61.7	63.7	2.5	-0.2	-2.2	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	160.7	145.7	127.6	131.2	124.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.2	120.7	102.3	92.7	88.3	0.2	-1.0	-3.3	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.29	2.10	1.85	1.92	1.74	0.1	-0.1	-2.1	-0.6
Import Dependency %	64.2	71.6	76.5	81.2	78.8	77.2	75.2	75.8	70.2				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	101.9	126.1	146.3	159.5	168.2		3.6	3.7	1.4
as % of GDP			9.2	9.1	9.6	10.1	10.4	10.2	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	98.1	89.5	82.5	78.2	0.3	0.8	-1.9	-1.3
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	99.9	81.8	67.3	59.8	54.8	-0.4	0.0	-3.9	-2.0
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.4	71.4	59.2	53.4	49.4	3.8	-0.7	-4.5	-1.8
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.0	35.3	34.5	34.7	0.6	-0.4	-1.4	-0.2
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	56.4	51.0	47.7	44.8	-2.3	-1.3	-1.7	-1.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.35	0.26	0.13	0.16	0.12	0.0	-1.7	-9.5	-0.8
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.13	2.06	2.00	1.93	1.86	-0.2	-0.4	-0.6	-0.7
Industry	2.10	2.12	1.92	1.87	1.87	1.82	1.74	1.63	1.53	-0.9	-0.3	-0.7	-1.3
Residential	1.39	1.36	1.39	1.34	1.27	1.14	1.08	0.86	0.69	0.0	-0.9	-1.6	-4.4
Tertiary	1.53	1.50	1.40	1.40	1.34	1.30	1.31	1.24	1.15	-0.9	-0.5	-0.2	-1.3
Transport	2.94	2.95	2.96	2.96	2.86	2.75	2.68	2.67	2.64	0.1	-0.3	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	10.6	14.9	20.0	22.8	24.7				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	9.1	11.9	12.2	12.7				
Gross Electricity generation by source (in GWh)													
			222776	290555	309638	313763	322183	354998	389108		3.3	0.4	1.9
Nuclear energy			62195	57529	61059	58096	58096	41858	74744		-0.2	-0.5	2.6
Solids			78694	77443	81164	55278	6148	32646	48517		0.3	-22.7	22.9
Oil (including refinery gas)			19567	23770	9107	3581	3716	4125	4098		-7.4	-8.6	1.0
Gas (including derived gases)			24741	85513	89151	94548	113805	106869	75498		13.7	2.5	-4.0
Biomass-waste			3374	5457	5480	13823	30527	42194	53361		5.0	18.7	5.7
Hydro (pumping excluded)			29465	19549	27753	26603	27144	28345	29674		-0.6	-0.2	0.9
Wind			4723	21215	35251	60295	79860	93431	95794		22.3	8.5	1.8
Solar			18	78	674	1539	2887	5190	7066		43.7	15.7	9.4
Geothermal and other renewables			0	0	0	0	0	339	356				
Net Generation Capacity in MW_e			60718	80297	91566	98635	108268	114015	126568		4.2	1.7	1.6
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4907	8632		-0.2	-0.6	2.1
<u>Renewable energy</u>			14974	22714	30615	40529	49742	58839	65345		7.4	5.0	2.8
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25717	34062	41508	46766		22.0	7.6	3.2
Solar			14	52	435	992	1857	3334	4572		41.5	15.6	9.4
Other renewables (tidal etc.)			0	0	0	0	0	176	185				
<u>Thermal power</u>			38166	50004	53516	51120	51540	50268	52592		3.4	-0.4	0.2
of which cogeneration units			5017	7578	7277	7762	9863	10930	11906		3.8	3.1	1.9
Solids fired			11352	11485	11277	10503	10163	9614	9574		-0.1	-1.0	-0.6
Gas fired			19801	32257	35544	34221	32713	30898	32454		6.0	-0.8	-0.1
Oil fired			6518	5375	5589	5216	3925	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1106	1179	4739	6508	8058		8.4	15.7	5.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	37.3	35.2	33.1	34.4	33.6				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.8	49.2	58.7	58.0	60.2				
% of gross electricity from CHP			7.4	13.5	12.0	12.5	17.0	17.0	16.7				
Carbon free gross electricity generation (%)			44.8	35.7	42.1	51.1	61.6	59.5	67.1				
- nuclear			27.9	19.8	19.7	18.5	18.0	11.8	19.2				
- renewable energy forms			16.9	15.9	22.3	32.6	43.6	47.7	47.9				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	673.8	735.1	787.4	821.8	5.3	2.9	1.8	1.1
Public road transport	33.4	39.6	50.3	54.6	57.8	62.0	65.7	68.4	70.8	4.2	1.4	1.3	0.8
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	455.7	486.6	511.6	524.0	5.5	3.1	1.4	0.7
Rail	19.9	20.8	25.4	27.2	29.7	33.0	38.2	43.3	49.5	2.5	1.6	2.6	2.6
Aviation	39.5	51.4	73.6	82.2	99.3	120.8	142.3	161.8	175.2	6.4	3.0	3.7	2.1
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.3	2.3	2.3	-0.7	1.8	0.2	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	335.2	360.6	379.5	384.3	4.1	5.1	1.3	0.6
Trucks	83.8	101.6	148.7	233.2	267.4	280.0	299.2	315.6	319.3	5.9	6.0	1.1	0.7
Rail	11.2	11.0	11.6	11.1	12.8	15.2	17.1	18.2	18.7	0.4	1.0	2.9	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	40.0	44.3	45.7	46.3	-0.6	1.3	2.3	0.4
Energy demand in transport (ktoe)	22326	26069	32858	39428	44088	44534	44343	45245	45761	3.9	3.0	0.1	0.3
Public road transport	224	221	275	284	283	279	260	246	254	2.1	0.3	-0.8	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17626	17410	17158	17490	18705	6.2	2.1	-0.3	0.9
Trucks	9634	9647	11587	14854	16949	16416	15800	15540	14958	1.9	3.9	-0.7	-0.5
Rail	528	626	847	1166	1233	1340	1317	1308	1020	4.8	3.8	0.7	-2.5
Aviation	2456	3105	4486	5323	6324	7289	7908	8757	8941	6.2	3.5	2.3	1.2
Inland navigation	1655	1871	1378	1534	1673	1801	1900	1903	1883	-1.8	2.0	1.3	-0.1

Source: PRIMES

Spain: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	36222	38052	46991	-184	-2498	7743	-0.5	-6.2	19.7
Solids	11679	7740	6265	3300	781	2577	-1364	-3471	0	-29.3	-81.6	0.0
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	188.2
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	16449	0	0	5797	0.0	0.0	54.4
Renewable energy sources	6276	7185	8710	17683	22183	27964	1181	973	1945	7.2	4.6	7.5
Hydro	2184	2534	1681	2288	2334	2552	44	36	0	1.9	1.6	0.0
Biomass & Waste	4067	4205	5129	9617	12021	15577	1039	620	648	12.1	5.4	4.3
Wind	1	406	1825	5185	6868	8238	1	145	946	0.0	2.2	13.0
Solar and others	21	33	68	584	949	1586	94	170	349	19.3	21.8	28.2
Geothermal	2	8	8	10	11	11	2	2	3	21.7	28.4	32.4
Net Imports	59857	98351	122830	122645	115607	110451	-17441	-25124	-32221	-12.5	-17.9	-22.6
Solids	7038	12636	14418	11783	2515	7076	-5020	-14878	-16629	-29.9	-85.5	-70.1
Oil	49166	69866	78279	75301	73728	72780	-6835	-10695	-12465	-8.3	-12.7	-14.6
- Crude oil and Feedstocks	53256	58393	59850	59288	58619	58238	-3907	-6227	-7346	-6.2	-9.6	-11.2
- Oil products	-4091	11473	18429	16013	15109	14542	-2928	-4468	-5119	-15.5	-22.8	-26.0
Natural gas	3690	15467	30248	34374	37197	28074	-6190	-1164	-5212	-15.3	-3.0	-15.7
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	149883	144304	147825	-17616	-27603	-24454	-10.5	-16.1	-14.2
Solids	18942	20643	20698	15083	3296	9654	-6385	-18349	-16629	-29.7	-84.8	-63.3
Oil	45547	63223	69507	66467	64472	63164	-6826	-10675	-12440	-9.3	-14.2	-16.5
Natural gas	4970	15219	29844	34474	37197	28074	-6190	-1164	-5212	-15.2	-3.0	-15.7
Nuclear	13701	16046	14842	14989	14989	16449	0	0	5797	0.0	0.0	54.4
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	18536	24125	30482	1785	2585	4030	10.7	12.0	15.2
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	10.1	2.3	6.5	-2.8	-10.3	-8.7			
Oil	50.9	51.5	48.4	44.3	44.7	42.7	0.6	1.0	-1.2			
Natural gas	5.6	12.4	20.8	23.0	25.8	19.0	-1.3	3.5	-0.3			
Nuclear	15.3	13.1	10.3	10.0	10.4	11.1	1.1	1.7	4.9			
Renewable energy forms	7.0	5.9	6.1	12.4	16.7	20.6	2.4	4.2	5.3			
Gross Electricity Generation in GWh_e	150944	222776	290555	313763	322183	389108	-49998	-64636	-27687	-13.7	-16.7	-6.6
Self consumption and grid losses	21388	32539	40790	37684	35949	50701	-7197	-11940	-4633	-16.0	-24.9	-8.4
Fuel Inputs to Thermal Power Generation	16682	26461	35416	29247	22596	25931	-10194	-15664	-13900	-25.8	-40.9	-34.9
Solids	13881	18249	17641	12581	1026	7669	-6484	-18305	-16524	-34.0	-94.7	-68.3
Oil (including refinery gas)	2170	4442	5246	519	563	721	-38	-40	-5	-6.8	-6.7	-0.7
Gas (including derived gases)	486	3075	11140	13061	15320	9549	-4955	1868	1032	-27.5	13.9	12.1
Biomass & Waste	145	694	1389	3086	5687	7992	1284	814	1598	71.3	16.7	25.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	65415	65397	64814	-3261	-5536	-7184	-4.7	-7.8	-10.0
Refineries	53753	60048	60507	59250	58655	58276	-3906	-6226	-7346	-6.2	-9.6	-11.2
Biofuels and hydrogen production	0	65	259	4084	5204	5501	433	799	330	11.8	18.1	6.4
District heating	0	0	0	0	0	0	0	0	0	-16.5	-17.2	-33.9
Derived gases, cokeries etc.	4131	3031	3077	2081	1538	1037	212	-108	-168	11.4	-6.6	-13.9
Energy Branch Consumption	4757	6118	6397	5490	5273	5807	-485	-878	-742	-8.1	-14.3	-11.3
Non-Energy Uses	5847	9094	7823	8579	9072	9593	-20	-9	-20	-0.2	-0.1	-0.2
Final Energy Demand	56647	79422	97170	106780	106443	107413	-10874	-16216	-18736	-9.2	-13.2	-14.9
by sector												
Industry	20014	25474	31036	36217	37795	38193	-1160	-1595	-2339	-3.1	-4.0	-5.8
- energy intensive industries	13069	17260	20421	23648	24362	24289	-504	-778	-1293	-2.1	-3.1	-5.1
- other industrial sectors	6945	8213	10615	12569	13433	13904	-656	-817	-1046	-5.0	-5.7	-7.0
Residential	9266	11871	15150	15556	14428	13805	-2110	-3340	-3859	-11.9	-18.8	-21.8
Tertiary	5041	9219	11556	10473	9877	9654	-2982	-3874	-4318	-22.2	-28.2	-30.9
Transport	22326	32858	39428	44534	44343	45761	-4622	-7407	-8220	-9.4	-14.3	-15.2
by fuel												
Solids	3524	1671	1782	1610	1572	1523	19	-30	-75	1.2	-1.9	-4.7
Oil	33488	45784	52776	53410	51086	49600	-6533	-10238	-11828	-10.9	-16.7	-19.3
Gas	4873	12141	17978	21113	21390	17807	-1051	-2888	-6222	-4.7	-11.9	-25.9
Electricity	10817	16205	20827	23527	24307	28556	-3661	-4491	-1981	-13.5	-15.6	-6.5
Heat (from CHP and District Heating)	0	74	0	17	25	23	-4	-2	-2	-18.1	-9.2	-6.3
Renewable energy forms	3945	3547	3806	7092	8049	9886	351	1433	1371	5.2	21.7	16.1
Other	0	0	0	11	14	18	4	1	1	66.4	6.7	5.3
RES in Gross Final Energy Consumption ^(A)		6709	8189	16408	21888	27584	934	2183	3424	6.0	11.1	14.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	418.4	366.3	358.6	-72.7	-125.6	-143.9	-14.8	-25.5	-28.6
CO₂ Emissions (energy related)	203.3	283.2	339.4	315.1	267.5	257.4	-60.7	-107.8	-123.9	-16.1	-28.7	-32.5
Power generation/District heating	63.6	94.1	113.2	82.1	41.9	46.5	-37.5	-68.2	-71.5	-31.4	-62.0	-60.6
Energy Branch	11.5	13.6	14.7	13.0	12.5	11.2	-1.0	-1.5	-1.8	-6.8	-10.9	-14.1
Industry	41.9	48.9	58.2	66.1	65.7	58.3	-0.2	-4.3	-8.9	-0.2	-6.2	-13.2
Residential	12.9	16.4	20.4	17.7	15.6	9.5	-3.9	-5.4	-10.4	-18.1	-25.8	-52.3
Tertiary	7.7	12.9	16.2	13.6	12.9	11.1	-3.0	-3.4	-4.2	-18.0	-20.6	-27.6
Transport	65.6	97.3	116.7	122.7	118.9	120.7	-15.1	-24.9	-27.0	-11.0	-17.3	-18.3
CO₂ Emissions (non energy related)	24.9	29.2	36.5	40.0	39.4	37.5	-0.7	-1.4	-2.1	-1.7	-3.4	-5.3
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	63.3	59.4	63.7	-11.3	-16.5	-17.9	-15.2	-21.7	-21.9
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	145.7	127.6	124.9	-25.3	-43.8	-50.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Spain: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	120.7	102.3	88.3	-14.2	-19.6	-14.6	-10.5	-16.1	-14.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.10	1.85	1.74	-0.14	-0.33	-0.47	-6.3	-15.1	-21.3
Import Dependency %	64.2	76.5	81.2	77.2	75.2	70.2	-2.2	-2.4	-8.3			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	126.1	146.3	168.2	12.6	17.8	22.4	11.1	13.9	15.3
as % of GDP		9.2	9.1	10.1	10.4	10.0	1.0	1.3	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				12.9	18.4	23.1						
as % of GDP				1.04	1.30	1.38						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	98.1	89.5	78.2	-3.1	-3.8	-4.8	-3.1	-4.0	-5.8
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	81.8	67.3	54.8	-11.1	-15.6	-15.3	-11.9	-18.8	-21.8
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	71.4	59.2	49.4	-20.3	-23.2	-22.1	-22.2	-28.2	-30.9
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.0	35.3	34.7	-1.2	-2.0	-1.2	-3.2	-5.3	-3.4
Freight transport (toe/Mtkm)	87.8	69.3	61.1	56.4	51.0	44.8	-4.1	-7.6	-9.3	-6.8	-12.9	-17.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.26	0.13	0.12	-0.07	-0.15	-0.16	-20.4	-54.3	-57.8
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.06	2.00	1.86	0.00	-0.05	-0.12	0.1	-2.2	-6.3
Industry	2.10	1.92	1.87	1.82	1.74	1.53	0.05	-0.04	-0.13	3.0	-2.2	-7.9
Residential	1.39	1.39	1.34	1.14	1.08	0.69	-0.09	-0.10	-0.44	-7.0	-8.6	-39.0
Tertiary	1.53	1.40	1.40	1.30	1.31	1.15	0.07	0.12	0.05	5.3	10.5	4.8
Transport	2.94	2.96	2.96	2.75	2.68	2.64	-0.05	-0.10	-0.10	-1.8	-3.5	-3.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	14.9	20.0	24.7	2.2	4.4	6.2			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	9.1	11.9	12.7	1.8	3.5	2.6			
Gross Electricity generation by source (in GWh_e)												
	222776	290555	313763	322183	389108	49998	-49998	-64636	-27687	-13.7	-16.7	-6.6
Nuclear energy	62195	57529	58096	58096	58096	74744	0	0	26254	0.0	0.0	54.1
Solids	78694	77443	55278	6148	48517	26615	-26615	-81322	-84412	-32.5	-93.0	-63.5
Oil (including refinery gas)	19567	23770	3581	3716	4098	167	-167	-151	127	-4.5	-3.9	3.2
Gas (including derived gases)	24741	85513	94548	113805	75498	-29401	-29401	7101	-3102	-23.7	6.7	-3.9
Biomass-waste	3374	5457	13823	30527	53361	5461	5461	7592	21028	65.3	33.1	65.0
Hydro (pumping excluded)	29465	19549	26603	27144	29674	508	508	419	0	1.9	1.6	0.0
Wind	4723	21215	60295	79860	95794	14	14	1683	10996	0.0	2.2	13.0
Solar	18	78	1539	2887	7066	201	201	43	1065	15.1	1.5	17.8
Geothermal and other renewables	0	0	0	0	356	0	0	0	356			
Net Generation Capacity in MW_e	60718	80297	98635	108268	126568	-98	-98	-866	9111	-0.1	-0.8	7.8
<u>Nuclear energy</u>	7579	7579	6986	6986	8632	0	0	0	3032	0.0	0.0	54.1
<u>Renewable energy</u>	14974	22714	40529	49742	65345	133	133	397	9156	0.3	0.8	16.3
Hydro (pumping excluded)	12725	12725	13820	13822	13822	0	0	0	0.0	0.0	0.0	0.0
Wind	2235	9937	25717	34062	46766	5	5	370	8257	0.0	1.1	21.4
Solar	14	52	992	1857	4572	128	128	27	714	14.8	1.5	18.5
Other renewables (tidal etc.)	0	0	0	0	185	0	0	0	185			
<u>Thermal power</u>	38166	50004	51120	51540	52592	-231	-231	-1263	-3077	-0.4	-2.4	-5.5
of which cogeneration units	5017	7578	7762	9863	11906	-291	-291	-593	424	-3.6	-5.7	3.7
Solids fired	11352	11485	10503	10163	9574	-68	-68	-1179	-6804	-0.6	-10.4	-41.5
Gas fired	19801	32257	34221	32713	32454	-246	-246	-1170	650	-0.7	-3.5	2.0
Oil fired	6518	5375	5216	3925	2504	0	0	0	0	0.0	0.0	0.0
Biomass-waste fired	495	887	1179	4739	8058	83	83	1086	3076	7.5	29.7	61.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	35.2	33.1	33.6	-5.5	-5.5	-6.0	-5.1			
Efficiency of gross thermal power generation (%)	41.1	46.7	49.2	58.7	60.2	1.6	1.6	9.0	6.7			
% of gross electricity from CHP	7.4	13.5	12.5	17.0	16.7	1.2	1.2	2.4	2.0			
Carbon free gross electricity generation (%)	44.8	35.7	51.1	61.6	67.1	8.7	8.7	12.8	18.8			
- nuclear	27.9	19.8	18.5	18.0	19.2	2.5	2.5	3.0	7.6			
- renewable energy forms	16.9	15.9	32.6	43.6	47.9	6.2	6.2	9.8	11.2			
Transport sector												
Passenger transport activity (Gpkm)	276.7	461.8	535.3	673.8	735.1	821.8	-26.3	-37.4	-46.1	-3.7	-4.8	-5.3
Public road transport	33.4	50.3	54.6	62.0	65.7	70.8	2.6	3.6	4.4	4.4	5.8	6.6
Private cars and motorcycles	182.0	310.7	369.2	455.7	486.6	524.0	-25.7	-36.7	-44.0	-5.3	-7.0	-7.7
Rail	19.9	25.4	27.2	33.0	38.2	49.5	0.8	2.3	2.8	2.6	6.3	6.0
Aviation	39.5	73.6	82.2	120.8	142.3	175.2	-3.9	-6.6	-9.2	-3.1	-4.4	-5.0
Inland navigation	2.1	1.9	2.1	2.3	2.3	2.3	-0.1	-0.1	-0.1	-2.9	-2.9	-3.0
Freight transport activity (Gtkm)	128.0	191.3	276.4	335.2	360.6	384.3	-22.8	-31.0	-36.7	-6.4	-7.9	-8.7
Trucks	83.8	148.7	233.2	280.0	299.2	319.3	-25.0	-34.2	-40.5	-8.2	-10.3	-11.2
Rail	11.2	11.6	11.1	15.2	17.1	18.7	1.3	1.8	2.1	9.1	11.9	12.9
Inland navigation	33.0	31.0	32.0	40.0	44.3	46.3	0.9	1.4	1.7	2.4	3.3	3.7
Energy demand in transport (ktoe)	22326	32858	39428	44534	44343	45761	-4622	-7407	-8220	-9.4	-14.3	-15.2
Public road transport	224	275	284	279	260	254	0	-20	-32	0.1	-7.2	-11.3
Private cars and motorcycles	7830	14286	16266	17410	17158	18705	-1525	-2225	-843	-8.1	-11.5	-4.3
Trucks	9634	11587	14854	16416	15800	14958	-2831	-4564	-5669	-14.7	-22.4	-27.5
Rail	528	847	1166	1340	1317	1020	53	9	81	4.1	0.7	8.6
Aviation	2456	4486	5323	7289	7908	8941	-310	-577	-1731	-4.1	-6.8	-16.2
Inland navigation	1655	1378	1534	1801	1900	1883	-9	-30	-25	-0.5	-1.6	-1.3

Source: PRIMES

Sweden: EC proposal without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	29728	31514	30077	34378	35789	35306	34066	32580	31478	0.1	1.8	-0.5	-0.8	
Solids	216	321	231	302	299	70	47	6	5	0.7	2.6	-16.9	-19.7	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19475	18830	15869	11772	8696	-1.8	2.8	-2.0	-5.8	
Renewable energy sources	11745	13149	15065	15406	16014	16407	18151	20802	22777	2.5	0.6	1.3	2.3	
Hydro	6234	5856	6757	6260	6259	6270	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9221	9527	11232	13052	13716	4.1	1.1	2.0	2.0	
Wind	1	9	39	80	497	497	506	1323	2621	54.2	28.9	0.2	17.9	
Solar and others	3	5	5	6	37	113	133	146	159	5.3	21.3	13.7	1.8	
Geothermal	0	0	0	0	0	0	0	0	0			4.6	-0.4	
Net Imports	17923	19281	19172	19867	20507	18336	17413	17045	16256	0.7	0.7	-1.6	-0.7	
Solids	2329	2657	2340	2462	2921	3084	3029	2891	2431	0.0	2.2	0.4	-2.2	
Oil	15169	16014	15654	17198	17514	15311	14149	13765	13627	0.3	1.1	-2.1	-0.4	
- Crude oil and Feedstocks	16989	17815	20372	19825	20256	18862	18076	17784	17655	1.8	-0.1	-1.1	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2742	-3551	-3927	-4020	-4028					
Natural gas	577	755	776	843	999	1403	1647	1713	1556	3.0	2.6	5.1	-0.6	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54259	51533	49297	47358	45393	0.1	1.3	-1.0	-0.8	
Solids	2677	2893	2442	2626	3221	3154	3076	2896	2436	-0.9	2.8	-0.5	-2.3	
Oil	14555	15754	14382	14646	15477	13202	11966	11498	11286	-0.1	0.7	-2.5	-0.6	
Natural gas	577	755	776	843	999	1403	1647	1713	1556	3.0	2.6	5.1	-0.6	
Nuclear	17764	18040	14781	18670	19475	18830	15869	11772	8696	-1.8	2.8	-2.0	-5.8	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16014	16407	18151	20802	22777	2.5	0.6	1.3	2.3	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.1	6.2	6.1	5.4					
Oil	30.9	31.2	30.1	28.4	28.5	25.6	24.3	24.3	24.9					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.3	3.6	3.4					
Nuclear	37.7	35.8	30.9	36.2	35.9	36.5	32.2	24.9	19.2					
Renewable energy forms	24.9	26.1	31.5	29.9	29.5	31.8	36.8	43.9	50.2					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166939	167730	168739	176416	184225	0.0	1.4	0.1	0.9	
Self consumption and grid losses	13436	14222	14818	15557	17023	15614	15849	17936	18572	1.0	1.4	-0.7	1.6	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3999	2945	3960	5599	5144	8.1	2.1	-0.1	2.6	
Solids	558	705	467	494	564	0	0	0	0	-1.8	1.9			
Oil (including refinery gas)	253	737	276	316	44	17	9	1	1	0.9	-16.9	-14.6	-24.7	
Gas (including derived gases)	253	406	414	490	4	5	23	0	0	5.0	-37.5	19.7	-41.0	
Biomass & Waste	427	1398	2083	3166	3388	2922	3928	5598	5143	17.2	5.0	1.5	2.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24200	22675	21913	21336	20926	2.1	-0.4	-1.0	-0.5	
Refineries	18041	19475	21618	20537	20234	18851	18071	17782	17654	1.8	-0.7	-1.1	-0.2	
Biofuels and hydrogen production	0	0	0	210	435	713	897	918	1012			7.5	1.2	
District heating	1123	2373	1973	1722	1586	1224	1079	791	593	5.8	-2.2	-3.8	-5.8	
Derived gases, cokeries etc.	1415	1615	1704	1835	1944	1886	1867	1844	1668	1.9	1.3	-0.4	-1.1	
Energy Branch Consumption	1758	1629	1532	1424	1543	1489	1466	1510	1454	-1.4	0.1	-0.5	-0.1	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2602	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34382	33207	32891	32931	33901	0.9	0.3	-0.4	0.3	
by sector														
Industry	11857	11527	12047	12042	13170	14407	14921	15231	16097	0.2	0.9	1.3	0.8	
- energy intensive industries	8574	8572	9161	9204	9952	10959	11353	11571	12288	0.7	0.8	1.3	0.8	
- other industrial sectors	3283	2955	2886	2838	3218	3449	3568	3660	3810	-1.3	1.1	1.0	0.7	
Residential	6840	8032	7546	7882	7828	6331	6137	5873	5715	1.0	0.4	-2.4	-0.7	
Tertiary	4555	5378	5581	4577	4491	4006	3747	3736	3728	2.1	-2.1	-1.8	-0.1	
Transport	7263	7666	8128	8643	8893	8462	8087	8090	8361	1.1	0.9	-0.9	0.3	
by fuel														
Solids	1231	1192	1141	1345	1619	2116	2050	1924	1562	-0.8	3.6	2.4	-2.7	
Oil	12004	12567	12341	11087	11337	9392	8695	8463	8457	0.3	-0.8	-2.6	-0.3	
Gas	587	611	673	746	1523	1909	1916	1898	1579	1.4	8.5	2.3	-1.9	
Electricity	10348	10711	11068	11382	11693	11357	11506	12117	12730	0.7	0.6	-0.2	1.0	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3734	2921	2561	1963	1700	7.6	0.5	-3.7	-4.0	
Renewable energy forms	4639	3981	4528	4410	4476	5509	6158	6562	7869	-0.2	-0.1	3.2	2.5	
Other	0	0	0	0	1	3	4	4	5			16.0	2.7	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14594	15260	16669	18822	21163		-0.1	1.3	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.4	63.5	59.6	57.5	54.7	-0.1	-0.1	-1.8	-0.9	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.8	45.0	41.9	40.2	37.8	0.0	0.0	-1.9	-1.0	
Power generation/District heating	6.3	7.9	5.1	5.5	3.5	0.8	0.3	0.0	0.0	-2.0	-3.8	-22.6		
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.3	2.0	1.8	1.7	2.3	1.3	-1.1	-1.3	
Industry	11.6	12.5	11.0	12.2	16.3	16.1	15.6	14.8	12.2	-0.5	4.0	-0.4	-2.4	
Residential	4.8	4.6	3.7	1.4	1.6	1.1	1.0	0.7	0.5	-2.6	-8.3	-4.4	-6.1	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.4	2.3	2.3	2.2	0.0	-6.2	-2.3	-0.4	
Transport	20.7	21.8	23.2	24.0	24.3	22.3	20.7	20.6	21.1	1.1	0.5	-1.6	0.2	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.5	6.3	6.2	6.1	-0.3	0.7	-1.0	-0.2	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.1	11.5	11.0	10.8	-0.4	-1.1	-1.8	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.8	87.0	81.6	78.7	74.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Int. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.5	136.1	117.0	102.0	90.3	-1.9	-1.4	-3.2	-2.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.94	0.87	0.85	0.85	0.83	-0.1	-1.2	-1.0	-0.2
Import Dependency %	37.5	37.5	39.0	37.2	36.4	34.2	33.8	34.3	34.1				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.2	39.6	43.5	47.9	51.8		3.8	2.2	1.8
as % of GDP			9.5	10.7	10.5	10.5	10.3	10.3	10.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.8	71.4	65.7	60.7	59.4	-5.6	-2.9	-1.3	-1.0
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	84.0	61.3	54.0	47.4	42.9	-0.7	-1.7	-4.3	-2.3
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.3	50.2	42.1	37.9	34.7	0.5	-4.5	-4.0	-1.9
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	34.4	31.3	29.5	29.3	-0.6	-0.9	-1.6	-0.6
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	36.5	32.1	30.1	28.6	1.3	-0.3	-2.9	-1.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.00	0.00	0.00	0.00	-3.1	-4.9		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.31	1.26	1.20	1.17	1.06	-0.7	0.0	-0.8	-1.2
Industry	0.97	1.08	0.91	1.01	1.24	1.12	1.04	0.97	0.76	-0.6	3.1	-1.7	-3.1
Residential	0.70	0.57	0.49	0.18	0.20	0.18	0.16	0.13	0.09	-3.5	-8.7	-2.1	-5.4
Tertiary	1.23	1.00	1.00	0.68	0.65	0.60	0.62	0.61	0.60	-2.0	-4.1	-0.5	-0.3
Transport	2.85	2.85	2.85	2.77	2.74	2.63	2.56	2.55	2.52	0.0	-0.4	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.6	44.1	48.6	54.5	59.6				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.7	10.5	11.1	12.0				
Gross Electricity generation by source (in GWh)													
			145524	158341	166939	167730	168739	176416	184225		1.4	0.1	0.9
Nuclear energy			57306	72364	75517	73058	61577	45647	33721		2.8	-2.0	-5.8
Solids			1141	1241	806	0	0	0	0		-3.4		
Oil (including refinery gas)			1828	1004	261	212	62	3	3		-17.7	-13.3	-26.9
Gas (including derived gases)			1714	1394	155	29	128	1	1		-21.4	-1.9	-41.8
Biomass-waste			4508	8607	11635	15742	28057	42344	46987		9.9	9.2	5.3
Hydro (pumping excluded)			78570	72795	72784	72904	73025	73025	73025		-0.8	0.0	0.0
Wind			457	936	5779	5779	5882	15386	30475		28.9	0.2	17.9
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	35785	34974	34351	39491	47200		1.0	-0.4	3.2
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	17980	17991	18036	21266	26887		1.3	0.0	4.1
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	2319	2319	2353	5645	11250		25.9	0.1	16.9
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8761	7536	6867	8776	10865		2.2	-2.4	4.7
of which cogeneration units			3791	4762	3419	2799	3640	3770	4246		-1.0	0.6	1.6
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	504	465	676	2385		1.3	-2.2	17.8
Oil fired			4271	4366	4135	3022	1586	1504	1417		-0.3	-9.1	-1.1
Biomass-waste fired			1389	1842	3368	3720	4584	6382	6930		9.3	3.1	4.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	51.8	53.2	54.3	49.1	43.0				
Efficiency of gross thermal power generation (%)			24.4	23.6	27.6	46.7	61.3	65.0	78.6				
% of gross electricity from CHP			5.9	7.5	6.0	8.2	12.8	13.0	14.5				
Carbon free gross electricity generation (%)			96.8	97.7	99.3	99.9	99.9	100.0	100.0				
- nuclear			39.4	45.7	45.2	43.6	36.5	25.9	18.3				
- renewable energy forms			57.4	52.0	54.0	56.3	63.4	74.1	81.7				
Transport sector													
Passenger transport activity (Gpkm)													
	120.6	123.8	134.0	142.2	154.4	162.0	171.7	182.2	191.7	1.1	1.4	1.1	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.5	10.0	10.4	10.8	1.7	-0.3	0.8	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	109.1	113.9	120.3	125.4	0.6	1.4	0.6	1.0
Rail	8.6	8.8	10.2	11.0	12.2	14.6	15.9	16.6	17.8	1.7	1.8	2.7	1.1
Aviation	8.1	10.8	13.8	15.6	18.8	21.6	24.4	27.3	29.9	5.4	3.1	2.7	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.2	7.4	7.6	7.7	-1.3	0.0	0.3	0.4
Freight transport activity (Gtkm)													
	53.9	58.9	62.0	67.3	74.6	79.1	84.6	90.4	95.6	1.4	1.9	1.3	1.2
Trucks	26.5	31.6	35.6	38.6	42.3	41.4	43.4	46.6	49.3	3.0	1.7	0.3	1.3
Rail	19.1	19.4	19.5	21.7	25.1	30.0	33.0	35.0	37.4	0.2	2.6	2.8	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.7	8.9	-1.8	0.6	1.3	0.7
Energy demand in transport (ktoe)													
	7263	7666	8128	8643	8893	8462	8087	8090	8361	1.1	0.9	-0.9	0.3
Public road transport	230	275	189	156	146	137	129	129	130	-2.0	-2.5	-1.3	0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4217	3922	3789	3929	0.2	0.8	-1.2	0.0
Trucks	1872	2066	2471	2695	2863	2527	2372	2385	2400	2.8	1.5	-1.9	0.1
Rail	252	273	299	332	368	391	369	359	362	1.7	2.1	0.0	-0.2
Aviation	760	849	928	846	936	1046	1150	1282	1395	2.0	0.1	2.1	1.9
Inland navigation	143	103	154	141	143	144	145	146	144	0.8	-0.8	0.1	0.0

Source: PRIMES

Sweden: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	35306	34066	31478	-1389	-3249	-6989	-3.8	-8.7	-18.2
Solids	216	231	302	70	47	5	-236	-223	-140	-77.2	-82.6	-96.4
Oil	3	0	0	0	0	0	0	0	0	377.8	-700.0	-100.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	18830	15869	8696	-646	-3608	-10783	-3.3	-18.5	-55.4
Renewable energy sources	11745	15065	15406	16407	18151	22777	-507	583	3934	-3.0	3.3	20.9
Hydro	6234	6757	6260	6270	6280	6280	17	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	9527	11232	13716	-676	412	1714	-6.6	3.8	14.3
Wind	1	39	80	497	506	2621	74	81	2115	17.5	19.0	418.2
Solar and others	3	5	6	113	133	159	78	89	104	220.4	202.4	186.0
Geothermal	0	0	0	0	0	0	0	0	0	38.8	66.3	61.6
Net Imports	17923	19172	19867	18336	17413	16256	-4606	-5833	-6630	-20.1	-25.1	-29.0
Solids	2329	2340	2462	3084	3029	2431	-1981	-2148	-2345	-39.1	-41.5	-49.1
Oil	15169	15654	17198	15311	14149	13627	-1885	-2565	-2988	-11.0	-15.3	-18.0
- Crude oil and Feedstocks	16989	20372	19825	18862	18076	17655	-1250	-1694	-2039	-6.2	-8.6	-10.4
- Oil products	-1820	-4718	-2626	-3551	-3927	-4028	-635	-871	-950	21.8	28.5	30.9
Natural gas	577	776	843	1403	1647	1556	-740	-1120	-1297	-34.5	-40.5	-45.5
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	51533	49297	45393	-5994	-9080	-13616	-10.4	-15.6	-23.1
Solids	2677	2442	2626	3154	3076	2436	-2217	-2372	-2485	-41.3	-43.5	-50.5
Oil	14555	14382	14646	13202	11966	11286	-1884	-2563	-2985	-12.5	-17.6	-20.9
Natural gas	577	776	843	1403	1647	1556	-740	-1120	-1297	-34.5	-40.5	-45.5
Nuclear	17764	14781	18670	18830	15869	8696	-646	-3608	-10783	-3.3	-18.5	-55.4
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	16407	18151	22777	-507	583	3934	-3.0	3.3	20.9
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.1	6.2	5.4	-3.2	-3.1	-3.0			
Oil	30.9	30.1	28.4	25.6	24.3	24.9	-0.6	-0.6	0.7			
Natural gas	1.2	1.6	1.6	2.7	3.3	3.4	-1.0	-1.4	-1.4			
Nuclear	37.7	30.9	36.2	36.5	32.2	19.2	2.7	-1.2	-13.9			
Renewable energy forms	24.9	31.5	29.9	31.8	36.8	50.2	2.4	6.7	18.2			
Gross Electricity Generation in GWh_e	145958	145524	158341	167730	168739	184225	-18191	-20008	-7361	-9.8	-10.6	-3.8
Self consumption and grid losses	13436	14818	15557	15614	15849	18572	-3122	-3116	-1240	-16.7	-16.4	-6.3
Fuel Inputs to Thermal Power Generation	1491	3239	4465	2945	3960	5144	-3346	-2235	-368	-53.2	-36.1	-6.7
Solids	558	467	494	0	0	0	-1000	-646	-166	-100.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	17	9	1	-35	-5	0	-67.4	-34.5	-27.0
Gas (including derived gases)	253	414	490	5	23	0	-395	-455	-596	-98.7	-95.3	-100.0
Biomass & Waste	427	2083	3166	2922	3928	5143	-1916	-1129	394	-39.6	-22.3	8.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	22675	21913	20926	-1744	-2409	-3298	-7.1	-9.9	-13.6
Refineries	18041	21618	20537	18851	18071	17654	-1250	-1694	-2039	-6.2	-8.6	-10.4
Biofuels and hydrogen production	0	0	210	713	897	1012	82	103	-42	13.0	12.9	-3.9
District heating	1123	1973	1722	1224	1079	593	-525	-684	-1070	-30.0	-38.8	-64.3
Derived gases, cokeries etc.	1415	1704	1835	1886	1867	1668	-52	-133	-147	-2.7	-6.7	-8.1
Energy Branch Consumption	1758	1532	1424	1489	1466	1454	-171	-214	-281	-10.3	-12.8	-16.2
Non-Energy Uses	1769	1771	2344	2550	2570	2602	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	33207	32891	33901	-3825	-5369	-6037	-10.3	-14.0	-15.1
by sector												
Industry	11857	12047	12042	14407	14921	16097	147	-10	243	1.0	-0.1	1.5
- energy intensive industries	8574	9161	9204	10959	11353	12288	270	210	492	2.5	1.9	4.2
- other industrial sectors	3283	2886	2838	3449	3568	3810	-123	-220	-250	-3.4	-5.8	-6.1
Residential	6840	7546	7882	6331	6137	5715	-1939	-2171	-2659	-23.4	-26.1	-31.8
Tertiary	4555	5581	4577	4006	3747	3728	-968	-1343	-1521	-19.5	-26.4	-29.0
Transport	7263	8128	8643	8462	8087	8361	-1065	-1845	-2099	-11.2	-18.6	-20.1
by fuel												
Solids	1231	1141	1345	2116	2050	1562	-730	-1126	-1605	-25.6	-35.5	-50.7
Oil	12004	12341	11087	9392	8695	8457	-1576	-2438	-2923	-14.4	-21.9	-25.7
Gas	587	673	746	1909	1916	1579	-339	-490	-524	-15.1	-20.4	-24.9
Electricity	10348	11068	11382	11357	11506	12730	-1283	-1407	-405	-10.2	-10.9	-3.1
Heat (from CHP and District Heating)	1706	3550	4174	2921	2561	1700	-1060	-1452	-2276	-26.6	-36.2	-57.2
Renewable energy forms	4639	4528	4410	5509	6158	7869	1162	1543	1698	26.7	33.4	27.5
Other	0	0	0	3	4	5	2	1	-1	107.2	21.8	-12.5
RES in Gross Final Energy Consumption ^(A)		14717	14682	15260	16669	21163	53	735	3657	0.3	4.6	20.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	63.5	59.6	54.7	-18.3	-23.1	-25.7	-22.4	-27.9	-32.0
CO₂ Emissions (energy related)	50.5	50.5	48.5	45.0	41.9	37.8	-16.1	-19.6	-21.8	-26.4	-31.9	-36.6
Power generation/District heating	6.3	5.1	5.5	0.8	0.3	0.0	-7.5	-6.4	-5.4	-90.4	-96.0	-100.0
Energy Branch	1.5	1.9	2.3	2.3	2.0	1.7	-0.3	-0.3	-0.3	-11.0	-12.5	-15.0
Industry	11.6	11.0	12.2	16.1	15.6	12.2	-3.6	-5.4	-7.0	-18.1	-25.7	-36.2
Residential	4.8	3.7	1.4	1.1	1.0	0.5	-0.6	-0.8	-1.6	-34.9	-44.1	-75.4
Tertiary	5.6	5.6	3.1	2.4	2.3	2.2	-0.8	-1.0	-1.1	-24.5	-29.3	-33.7
Transport	20.7	23.2	24.0	22.3	20.7	21.1	-3.4	-5.8	-6.4	-13.3	-21.8	-23.3
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.5	6.3	6.1	-0.5	-0.9	-1.2	-7.1	-12.2	-16.1
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.1	11.5	10.8	-1.7	-2.6	-2.7	-12.2	-18.4	-19.9
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	87.0	81.6	74.9	-25.1	-31.6	-35.2			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Sweden: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	136.1	117.0	90.3	-15.8	-21.6	-27.1	-10.4	-15.6	-23.1
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.87	0.85	0.83	-0.19	-0.20	-0.18	-17.8	-19.4	-17.6
Import Dependency %	37.5	39.0	37.2	34.2	33.8	34.1	-4.3	-4.6	-3.2			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.6	43.5	51.8	1.7	2.8	7.1	4.5	6.8	15.8
as % of GDP		9.5	10.7	10.5	10.3	10.3	0.5	0.7	1.4			
Total Compliance Costs ^(D) (in 000 M€05)				1.8	2.9	7.2						
as % of GDP				0.46	0.68	1.43						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	71.4	65.7	59.4	0.7	0.0	0.9	1.0	-0.1	1.5
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	61.3	54.0	42.9	-18.8	-19.1	-19.9	-23.4	-26.1	-31.8
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	50.2	42.1	34.7	-12.1	-15.1	-14.2	-19.5	-26.4	-29.0
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	34.4	31.3	29.3	-1.4	-3.5	-2.8	-4.0	-10.0	-8.8
Freight transport (toe/Mtkm)	38.8	44.2	44.6	36.5	32.1	28.6	-5.6	-8.6	-9.6	-13.3	-21.1	-25.1
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.00	0.00	0.00	-0.03	-0.03	-0.02	-88.9	-95.2	-100.0
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.26	1.20	1.06	-0.10	-0.17	-0.24	-7.1	-12.3	-18.5
Industry	0.97	0.91	1.01	1.12	1.04	0.76	-0.26	-0.36	-0.45	-19.0	-25.7	-37.2
Residential	0.70	0.49	0.18	0.18	0.16	0.09	-0.03	-0.05	-0.16	-15.0	-24.3	-64.0
Tertiary	1.23	1.00	0.68	0.60	0.62	0.60	-0.04	-0.03	-0.04	-6.2	-3.9	-6.6
Transport	2.85	2.85	2.77	2.63	2.56	2.52	-0.07	-0.11	-0.11	-2.4	-4.0	-4.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.1	48.6	59.6	4.8	8.7	17.6			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.7	10.5	12.0	1.7	3.2	2.4			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	167730	168739	184225	181191	-20008	-7361		-9.8	-10.6	-3.8
Nuclear energy	57306	72364	73058	61577	33721	33721	-2823	-14309	-42172	-3.7	-18.9	-55.6
Solids	1141	1241	0	0	0	0	-3605	-2381	-1157	-100.0	-100.0	-100.0
Oil (including refinery gas)	1828	1004	212	62	3	3	-284	-135	-1	-57.3	-68.5	-25.3
Gas (including derived gases)	1714	1394	29	128	1	1	-3715	-3905	-3866	-99.2	-96.8	-100.0
Biomass-waste	4508	8607	15742	28057	46987	46987	-8826	-227	15231	-35.9	-0.8	48.0
Hydro (pumping excluded)	78570	72795	72904	73025	73025	73025	200	11	11	0.3	0.0	0.0
Wind	457	936	5779	5882	30475	30475	863	938	24594	17.5	19.0	418.2
Solar	0	0	5	7	14	14	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	32460	33376	34974	34351	47200	47200	-1271	-2664	7048	-3.5	-7.2	17.6
<u>Nuclear energy</u>	9584	9630	9446	9449	9449	9449	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	17991	18036	26887	26887	447	473	9066	2.5	2.7	50.9
Hydro (pumping excluded)	15625	15651	15651	15651	15576	15576	0	0	0	0.0	0.0	0.0
Wind	231	493	2319	2353	11250	11250	447	473	9066	23.9	25.1	415.2
Solar	0	4	22	32	61	61	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	7536	6867	10865	10865	-1718	-3136	-2019	-18.6	-31.4	-15.7
of which cogeneration units	3791	4762	2799	3640	4246	4246	-2269	-1794	-1651	-44.8	-33.0	-28.0
Solids fired	847	868	290	232	133	133	-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	504	465	2385	2385	-793	-2531	-2878	-61.1	-84.5	-54.7
Oil fired	4271	4366	3022	1586	1417	1417	0	0	-501	0.0	0.0	-26.1
Biomass-waste fired	1389	1842	3720	4584	6930	6930	-490	-171	1490	-11.6	-3.6	27.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	53.2	54.3	43.0	43.0	-3.5	-2.0	-9.5			
Efficiency of gross thermal power generation (%)	24.4	23.6	46.7	61.3	78.6	78.6	2.4	12.9	21.2			
% of gross electricity from CHP	5.9	7.5	8.2	12.8	14.5	14.5	-5.2	-2.2	-2.5			
Carbon free gross electricity generation (%)	96.8	97.7	99.9	99.9	100.0	100.0	4.1	3.4	2.6			
- nuclear	39.4	45.7	43.6	36.5	18.3	18.3	2.7	-3.7	-21.3			
- renewable energy forms	57.4	52.0	56.3	63.4	81.7	81.7	1.3	7.1	23.9			
Transport sector												
Passenger transport activity (Gpkm)	120.6	134.0	142.2	162.0	171.7	191.7	-6.7	-9.4	-12.1	-4.0	-5.2	-6.0
Public road transport	8.0	9.5	9.0	9.5	10.0	10.8	0.2	0.3	0.4	1.8	2.9	3.6
Private cars and motorcycles	87.6	93.3	99.4	109.1	113.9	125.4	-6.8	-9.4	-11.8	-5.9	-7.6	-8.6
Rail	8.6	10.2	11.0	14.6	15.9	17.8	1.0	1.3	1.3	7.4	8.5	7.9
Aviation	8.1	13.8	15.6	21.6	24.4	29.9	-0.9	-1.3	-1.9	-3.9	-5.2	-5.8
Inland navigation	8.3	7.2	7.2	7.2	7.4	7.7	-0.2	-0.2	-0.2	-2.2	-2.2	-2.1
Freight transport activity (Gtkm)	53.9	62.0	67.3	79.1	84.6	95.6	-3.6	-4.9	-6.5	-4.3	-5.5	-6.3
Trucks	26.5	35.6	38.6	41.4	43.4	49.3	-5.8	-7.7	-9.7	-12.3	-15.1	-16.5
Rail	19.1	19.5	21.7	30.0	33.0	37.4	2.3	2.9	3.4	8.4	9.8	9.9
Inland navigation	8.3	6.9	7.0	7.8	8.3	8.9	-0.1	-0.1	-0.1	-1.2	-1.1	-0.9
Energy demand in transport (ktoe)	7263	8128	8643	8462	8087	8361	-1065	-1845	-2099	-11.2	-18.6	-20.1
Public road transport	230	189	156	137	129	130	-8	-20	-21	-5.6	-13.6	-13.9
Private cars and motorcycles	4004	4086	4472	4217	3922	3929	-416	-814	-770	-9.0	-17.2	-16.4
Trucks	1872	2471	2695	2527	2372	2400	-593	-900	-1134	-19.0	-27.5	-32.1
Rail	252	299	332	391	369	362	3	-21	-27	0.7	-5.4	-7.0
Aviation	760	928	846	1046	1150	1395	-46	-81	-134	-4.2	-6.6	-8.8
Inland navigation	143	154	141	144	145	144	-5	-8	-12	-3.2	-5.0	-7.8

Source: PRIMES

United Kingdom: EC proposal without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	205508	249865	268722	202300	171140	109888	77370	75539	75478	2.7	-4.4	-7.6	-0.2	
Solids	54125	30516	18577	12172	10500	5166	4008	2035	3655	-10.1	-5.5	-9.2	-0.9	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Renewable energy sources	1070	1996	2635	4048	8898	13804	16845	19818	21511	9.4	12.9	6.6	2.5	
Hydro	436	416	437	427	523	523	523	523	523	0.0	1.8	0.0	0.0	
Biomass & Waste	627	1539	2104	3340	5010	6263	7829	9256	9956	12.9	9.1	4.6	2.4	
Wind	1	34	81	250	2621	5240	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	742	1775	2348	2748	3052	8.1	52.0	12.2	2.7	
Geothermal	1	1	1	1	2	4	8	10	12	0.0	9.4	15.8	3.2	
Net Imports	5932	-36021	-39030	32641	48794	100502	127650	129266	132507			10.1	0.4	
Solids	9122	10493	14577	27467	22398	10480	7613	3731	5935	4.8	4.4	-10.2	-2.5	
Oil	-10396	-48554	-45515	-2171	14704	39973	56995	58051	60318			14.5	0.6	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	19936	45217	63391	66114	68401			12.3	0.8	
- Oil products	-5858	-12196	-6490	-7027	-5232	-5244	-6396	-8063	-8083					
Natural gas	6178	637	-9311	5973	8375	44848	53429	56403	54672			20.4	0.2	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	217894	208319	202926	202693	205870	0.9	-0.6	-0.7	0.1	
Solids	64305	45866	36816	38186	32898	15646	11621	5765	9591	-5.4	-1.1	-9.9	-1.9	
Oil	80903	82378	81357	82701	82664	82901	79901	75938	76202	0.1	0.2	-0.3	-0.5	
Natural gas	47203	65119	87399	84898	71375	74848	77429	74403	69672	6.4	-2.0	0.8	-1.1	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	11366	18080	25625	30198	32676	9.4	15.7	8.5	2.5	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	15.1	7.5	5.7	2.8	4.7					
Oil	38.3	37.8	35.2	35.6	37.9	39.8	39.4	37.5	37.0					
Natural gas	22.4	29.9	37.8	36.6	32.8	35.9	38.2	36.7	33.8					
Nuclear	7.9	9.7	9.5	9.1	8.6	7.6	3.7	7.7	8.4					
Renewable energy forms	0.5	0.9	1.1	2.0	5.2	8.7	12.6	14.9	15.9					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	374693	368811	388168	442919	506559	1.7	0.0	0.4	2.7	
Self consumption and grid losses	44516	46573	48246	50822	45221	41874	44406	51841	65707	0.8	-0.6	-0.2	4.0	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	48972	38779	43628	41882	46822	-0.1	-1.2	-1.1	0.7	
Solids	47267	33844	27232	30920	25808	9079	5728	1279	5483	-5.4	-0.5	-14.0	-0.4	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	174	134	-19.6				
Gas (including derived gases)	1668	12054	26033	26807	20336	25579	29173	28909	28476	31.6	-2.4	3.7	-0.2	
Biomass & Waste	212	620	1410	3455	2828	4121	8728	11520	12729	20.9	7.2	11.9	3.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	97018	99236	99030	96774	97137	0.1	-0.3	0.2	-0.2	
Refineries	89882	94255	89299	87320	88256	89500	88166	86154	86578	-0.1	-0.1	0.0	-0.2	
Biofuels and hydrogen production	0	0	0	80	2935	4602	6494	6901	7260			8.3	1.1	
District heating	0	0	3354	1976	1026	608	389	365	274		-11.2	-9.2	-3.5	
Derived gases, cokeries etc.	9263	8079	7682	5436	4802	4526	3980	3354	3025	-1.9	-4.6	-1.9	-2.7	
Energy Branch Consumption	12836	14401	15039	15383	13141	12852	12609	12148	12355	1.6	-1.3	-0.4	-0.2	
Non-Energy Uses	11173	12550	11152	11510	11819	12177	12590	13005	13359	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151580	149713	150058	148776	145548	145907	1.0	-0.1	-0.1	-0.2	
by sector														
Industry	34962	35132	35909	33889	33844	34222	34207	34560	35068	0.3	-0.6	0.1	0.2	
- energy intensive industries	19483	19965	19215	16289	16385	16431	16048	15872	15840	-0.1	-1.6	-0.2	-0.1	
- other industrial sectors	15479	15167	16694	17600	17459	17791	18159	18688	19228	0.8	0.4	0.4	0.6	
Residential	37939	39567	43072	43284	40680	39815	38322	37479	36292	1.3	-0.6	-0.6	-0.5	
Tertiary	18596	20863	20359	19170	17815	17163	17062	17067	17138	0.9	-1.3	-0.4	0.0	
Transport	45451	46867	52324	55236	57374	58857	59186	56441	57409	1.4	0.9	0.3	-0.3	
by fuel														
Solids	12266	8891	5683	4422	4817	4497	4069	2985	2764	-7.4	-1.6	-1.7	-3.8	
Oil	58770	60197	62437	65731	66863	66790	63616	59516	59560	0.6	0.7	-0.5	-0.7	
Gas	41893	47140	52180	49853	44249	42712	41706	39040	35168	2.2	-1.6	-0.6	-1.7	
Electricity	23597	25274	28325	29686	28352	28232	29668	33549	37526	1.8	0.0	0.5	2.4	
Heat (from CHP and District Heating)	0	0	2439	1317	1088	1281	1676	1948	1970		-7.8	4.4	1.6	
Renewable energy forms	421	926	600	572	4340	6538	8024	8493	8899	3.6	21.9	6.3	1.0	
Other	0	0	0	0	4	7	15	17	19			15.0	2.6	
RES in Gross Final Energy Consumption ^(A)			1537	2483	9299	16105	22917	27067	29321		19.7	9.4	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	630.3	564.3	542.0	477.6	448.6	-1.1	-0.9	-1.5	-1.9	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	505.0	444.9	424.6	381.6	367.0	-0.4	-0.8	-1.7	-1.4	
Power generation/District heating	214.2	173.6	181.2	193.8	152.6	97.7	92.2	74.3	71.1	-1.7	-1.7	-4.9	-2.6	
Energy Branch	27.9	31.9	33.1	34.6	28.7	28.7	28.1	26.0	24.6	1.7	-1.4	-0.2	-1.3	
Industry	81.8	78.8	70.5	65.5	66.0	66.0	63.0	58.8	58.2	-1.5	-0.7	-0.5	-0.8	
Residential	77.8	77.3	81.9	79.7	74.5	70.0	63.0	54.9	45.2	0.5	-0.9	-1.7	-3.3	
Tertiary	32.9	35.2	26.7	24.3	21.5	20.3	19.7	18.6	17.5	-2.1	-2.2	-0.9	-1.2	
Transport	132.4	136.5	152.7	161.8	161.6	162.3	158.7	149.0	150.5	1.4	0.6	-0.2	-0.5	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.2	26.7	26.4	26.2	26.2	-1.5	1.4	-0.3	-0.1	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	92.8	91.0	69.9	55.4	-3.9	-2.2	-0.8	-4.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	81.3	72.8	69.9	61.6	57.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: EC proposal without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	107.1	91.0	79.3	71.7	67.2	-1.5	-3.0	-3.0	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.32	2.14	2.09	1.88	1.78	-1.3	-0.2	-1.0	-1.6
Import Dependency %	2.8	-16.3	-16.7	13.9	22.2	47.8	62.3	63.1	63.7				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	150.5	172.8	194.9	211.2	222.6		0.8	2.6	1.3
as % of GDP			8.7	7.4	7.4	7.6	7.6	7.5	7.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.7	87.2	80.5	75.5	72.4	-0.6	-0.6	-1.5	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	72.8	63.7	55.0	48.9	43.8	-1.4	-3.1	-2.8	-2.2
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	63.1	53.2	46.6	41.8	38.3	-2.2	-4.5	-3.0	-1.9
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.6	42.1	40.5	36.1	35.7	0.3	-0.8	-0.7	-1.3
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.0	57.7	55.6	53.7	52.2	-0.5	1.2	-0.4	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.39	0.25	0.22	0.16	0.13	-4.0	-1.4	-5.4	-5.1
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.16	2.12	2.05	1.93	1.86	-0.8	-0.1	-0.6	-0.9
Industry	2.34	2.24	1.96	1.93	1.95	1.93	1.84	1.70	1.66	-1.7	-0.1	-0.6	-1.0
Residential	2.05	1.95	1.90	1.84	1.83	1.76	1.64	1.46	1.25	-0.7	-0.4	-1.1	-2.7
Tertiary	1.77	1.69	1.31	1.27	1.21	1.18	1.15	1.09	1.02	-3.0	-0.8	-0.4	-1.2
Transport	2.91	2.91	2.92	2.93	2.82	2.76	2.68	2.64	2.62	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	6.0	10.5	15.0	18.0	19.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	5.4	8.4	12.0	13.0	13.8				
Gross Electricity generation by source (in GWh)													
			374308	397522	374693	368811	388168	442919	506559		0.0	0.4	2.7
Nuclear energy			85048	81603	72657	61709	29140	66798	77209		-1.6	-8.7	10.2
Solids			118129	134618	113549	39973	25334	5789	36086		-0.4	-13.9	3.6
Oil (including refinery gas)			7147	7622	104	104	26	1660	923		-34.5	-12.9	42.9
Gas (including derived gases)			153298	152495	139784	177983	213464	221914	230781		-0.9	4.3	0.8
Biomass-waste			4653	13308	12022	19434	38386	50407	55667		10.0	12.3	3.8
Hydro (pumping excluded)			5085	4960	6076	6076	6076	6076	6076		1.8	0.0	0.0
Wind			947	2907	30477	60931	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	2552	4292	5466	6912				4.9
Net Generation Capacity in MW_e			84356	90824	101978	115918	106121	116693	129866		1.9	0.4	2.0
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	8621	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	11864	24387	29322	35028	38763		21.0	9.5	2.8
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10374	21522	25501	30505	33349		38.3	9.4	2.7
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	1324	2227	2836	3586				4.9
<u>Thermal power</u>			69560	75978	79391	82266	72388	73045	81902		1.3	-0.9	1.2
of which cogeneration units			6116	8041	7090	9531	13141	15078	15083		1.5	6.4	1.4
Solids fired			30684	30627	28669	23771	7478	4721	3798		-0.7	-12.6	-6.6
Gas fired			27319	33944	38246	41652	40637	43738	54522		3.4	0.6	3.0
Oil fired			10540	9879	9357	9164	7715	3367	1691		-1.2	-1.9	-14.1
Biomass-waste fired			1017	1528	3119	7678	16557	21220	21890		11.9	18.2	2.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	40.3	35.2	40.4	41.9	42.5				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.6	52.7	54.6	57.4	59.4				
% of gross electricity from CHP			9.0	8.5	11.4	16.9	22.7	22.9	20.2				
Carbon free gross electricity generation (%)			25.6	25.9	32.4	40.9	38.5	48.2	47.1				
- nuclear			22.7	20.5	19.4	16.7	7.5	15.1	15.2				
- renewable energy forms			2.9	5.3	13.0	24.1	31.0	33.1	31.9				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	971.1	1027.7	1081.2	1138.2	1186.6	1.3	1.5	1.1	0.9
Public road transport	46.2	44.3	47.0	48.8	50.7	52.2	54.2	55.5	56.5	0.2	0.8	0.7	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	727.1	762.1	792.5	827.3	857.3	0.9	1.2	0.9	0.8
Rail	39.9	37.1	46.7	51.8	57.0	61.6	67.0	73.9	80.2	1.6	2.0	1.6	1.8
Aviation	49.3	66.8	94.0	110.0	129.8	145.2	161.0	174.7	185.9	6.7	3.3	2.2	1.4
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.7	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	259.9	269.7	277.9	285.2	289.1	1.1	0.6	0.7	0.4
Trucks	145.7	161.5	165.6	167.5	173.2	181.5	187.8	193.8	196.9	1.3	0.4	0.8	0.5
Rail	16.0	13.3	18.1	22.1	24.5	25.9	27.3	28.4	29.1	1.2	3.1	1.1	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.3	62.8	63.0	63.1	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57374	58857	59186	56441	57409	1.4	0.9	0.3	-0.3
Public road transport	514	493	518	490	480	483	489	489	486	0.1	-0.8	0.2	-0.1
Private cars and motorcycles	25438	25836	27031	25783	25877	26213	26122	25760	26087	0.6	-0.4	0.1	0.0
Trucks	10387	10366	11277	13316	13392	13769	13752	13832	13898	0.8	1.7	0.3	0.1
Rail	1063	1233	1464	1532	1602	1440	1273	1093	847	3.2	0.9	-2.3	-4.0
Aviation	6779	7822	11115	12847	14744	15678	16296	14037	14881	5.1	2.9	1.0	-0.9
Inland navigation	1269	1117	920	1269	1280	1273	1254	1230	1211	-3.2	3.4	-0.2	-0.3

Source: PRIMES

United Kingdom: EC proposal without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	109888	77370	75478	1822	1931	4722	1.7	2.6	6.7
Solids	54125	18577	12172	5166	4008	3655	-3834	-3992	-2345	-42.6	-49.9	-39.1
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Renewable energy sources	1070	2635	4048	13804	16845	21511	5656	5923	6010	69.4	54.2	38.8
Hydro	436	437	427	523	523	523	87	70	0	19.9	15.6	0.0
Biomass & Waste	627	2104	3340	6263	7829	9956	289	477	270	4.8	6.5	2.8
Wind	1	81	250	5240	6138	7970	3880	3657	3611	285.4	147.4	82.8
Solar and others	5	11	30	1775	2348	3052	1397	1712	2119	370.2	269.4	227.2
Geothermal	1	1	1	4	8	12	2	7	9	175.5	364.1	361.0
Net Imports	5932	-39030	32641	100502	127650	132507	-25326	-25098	-27009	-20.1	-16.4	-16.9
Solids	9122	14577	27467	10480	7613	5935	-23366	-23724	-21598	-69.0	-75.7	-78.4
Oil	-10396	-45515	-2171	39973	56995	60318	-3781	-8242	-14524	-8.6	-12.6	-19.4
- Crude oil and Feedstocks	-4537	-39025	4856	45217	63391	68401	-3812	-7134	-11745	-7.8	-10.1	-14.7
- Oil products	-5858	-6490	-7027	-5244	-6396	-8083	31	-1108	-2779	-0.6	20.9	52.4
Natural gas	6178	-9311	5973	44848	53429	54672	-1281	-467	-149	-2.8	-0.9	-0.3
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	208319	202926	205870	-23496	-23147	-22261	-10.1	-10.2	-9.8
Solids	64305	36816	38186	15646	11621	9591	-27200	-27716	-23942	-63.5	-70.5	-71.4
Oil	80903	81357	82701	82901	79901	76202	-3772	-8222	-14498	-4.4	-9.3	-16.0
Natural gas	47203	87399	84898	74848	77429	69672	-1281	-467	-149	-1.7	-0.6	-0.2
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	18080	25625	32676	8758	13258	15271	93.9	107.2	87.7
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	7.5	5.7	4.7	-11.0	-11.7	-10.0			
Oil	38.3	35.2	35.6	39.8	39.4	37.0	2.4	0.4	-2.7			
Natural gas	22.4	37.8	36.6	35.9	38.2	33.8	3.1	3.7	3.2			
Nuclear	7.9	9.5	9.1	7.6	3.7	8.4	0.8	0.4	1.3			
Renewable energy forms	0.5	1.1	2.0	8.7	12.6	15.9	4.7	7.2	8.2			
Gross Electricity Generation in GWh_e	316937	374308	397522	368811	388168	506559	-62705	-63327	27335	-14.5	-14.0	5.7
Self consumption and grid losses	44516	48246	50822	41874	44406	65707	-8965	-11795	5154	-17.6	-21.0	8.5
Fuel Inputs to Thermal Power Generation	56319	55481	61996	38779	43628	46822	-26460	-21298	-7975	-40.6	-32.8	-14.6
Solids	47267	27232	30920	9079	5728	5483	-27043	-27148	-22851	-74.9	-82.6	-80.6
Oil (including refinery gas)	7172	806	815	0	0	134	0	-1	134		-100.0	53943.6
Gas (including derived gases)	1668	26033	26807	25579	29173	28476	-276	1078	7620	-1.1	3.8	36.5
Biomass & Waste	212	1410	3455	4121	8728	12729	860	4773	7122	26.4	120.7	127.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	99236	99030	97137	-1956	-4998	-10172	-1.9	-4.8	-9.5
Refineries	89882	89299	87320	89500	88166	86578	-3811	-7134	-11746	-4.1	-7.5	-11.9
Biofuels and hydrogen production	0	0	80	4602	6494	7260	2019	2653	2176	78.1	69.0	42.8
District heating	0	3354	1976	608	389	274	-288	-401	-362	-32.2	-50.8	-57.0
Derived gases, cokeries etc.	9263	7682	5436	4526	3980	3025	125	-115	-241	2.8	-2.8	-7.4
Energy Branch Consumption	12836	15039	15383	12852	12609	12355	-579	-991	-617	-4.3	-7.3	-4.8
Non-Energy Uses	11173	11152	11510	12177	12590	13359	-11	-9	-3	-0.1	-0.1	0.0
Final Energy Demand	136947	151665	151580	150058	148776	145907	-5576	-9659	-16251	-3.6	-6.1	-10.0
by sector												
Industry	34962	35909	33889	34222	34207	35068	-924	-1692	-1609	-2.6	-4.7	-4.4
- energy intensive industries	19483	19215	16289	16431	16048	15840	-408	-950	-832	-2.4	-5.6	-5.0
- other industrial sectors	15479	16694	17600	17791	18159	19228	-516	-742	-777	-2.8	-3.9	-3.9
Residential	37939	43072	43284	39815	38322	36292	-920	-1999	-3269	-2.3	-5.0	-8.3
Tertiary	18596	20359	19170	17163	17062	17138	-1828	-2170	-2365	-9.6	-11.3	-12.1
Transport	45451	52324	55236	58857	59186	57409	-1904	-3797	-9008	-3.1	-6.0	-13.6
by fuel												
Solids	12266	5683	4422	4497	4069	2764	-125	-611	-688	-2.7	-13.0	-19.9
Oil	58770	62437	65731	66790	63616	59560	-3700	-7945	-13918	-5.2	-11.1	-18.9
Gas	41893	52180	49853	42712	41706	35168	-516	-837	-7588	-1.2	-2.0	-17.7
Electricity	23597	28325	29686	28232	29668	37526	-4609	-4400	1964	-14.0	-12.9	5.5
Heat (from CHP and District Heating)	0	2439	1317	1281	1676	1970	127	367	405	11.0	28.1	25.8
Renewable energy forms	421	600	572	6538	8024	8899	3246	3765	3578	98.6	88.4	67.2
Other	0	0	0	7	15	19	0	1	-4	6.0	8.0	-16.5
RES in Gross Final Energy Consumption ^(A)		1537	2483	16105	22917	29321	9074	12790	14238	129.1	126.3	94.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	564.3	542.0	448.6	-126.2	-142.3	-163.8	-18.3	-20.8	-26.7
CO₂ Emissions (energy related)	566.9	546.0	559.7	444.9	424.6	367.0	-121.4	-135.3	-156.9	-21.4	-24.2	-29.9
Power generation/District heating	214.2	181.2	193.8	97.7	92.2	71.1	-108.1	-105.7	-92.1	-52.5	-53.4	-56.4
Energy Branch	27.9	33.1	34.6	28.7	28.1	24.6	-0.7	-1.1	-2.4	-2.3	-3.9	-9.0
Industry	81.8	70.5	65.5	66.0	63.0	58.2	-0.6	-4.2	-6.6	-0.9	-6.3	-10.2
Residential	77.8	81.9	79.7	70.0	63.0	45.2	-0.5	-5.2	-19.7	-0.8	-7.7	-30.3
Tertiary	32.9	26.7	24.3	20.3	19.7	17.5	-1.3	-1.6	-3.4	-6.1	-7.4	-16.3
Transport	132.4	152.7	161.8	162.3	158.7	150.5	-10.2	-17.5	-32.7	-5.9	-9.9	-17.9
CO ₂ Emissions (non energy related)	27.5	23.7	26.8	26.7	26.4	26.2	-0.6	-1.3	-2.0	-2.2	-4.7	-7.2
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	92.8	91.0	55.4	-4.2	-5.7	-4.9	-4.3	-5.9	-8.1
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	72.8	69.9	57.8	-16.3	-18.4	-21.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: EC proposal without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	91.0	79.3	67.2	-10.3	-9.0	-7.3	-10.1	-10.2	-9.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.14	2.09	1.78	-0.31	-0.38	-0.51	-12.6	-15.5	-22.4
Import Dependency %	2.8	-16.7	13.9	47.8	62.3	63.7	-6.0	-4.7	-5.6			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	172.8	194.9	222.6	8.9	13.8	16.3	5.5	7.6	7.9
as % of GDP		8.7	7.4	7.6	7.6	7.3	0.4	0.5	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				9.0	13.9	16.5						
as % of GDP				0.39	0.54	0.54						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	87.2	80.5	72.4	-2.4	-4.0	-3.3	-2.6	-4.7	-4.4
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	63.7	55.0	43.8	-1.5	-2.9	-3.9	-2.3	-5.0	-8.3
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	53.2	46.6	38.3	-5.7	-5.9	-5.3	-9.6	-11.3	-12.1
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.1	40.5	35.7	-0.8	-1.6	-5.6	-1.9	-3.8	-13.5
Freight transport (toe/Mtkm)	54.4	51.5	59.8	57.7	55.6	52.2	-0.7	-1.9	-1.8	-1.3	-3.4	-3.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.25	0.22	0.13	-0.21	-0.20	-0.19	-45.0	-46.7	-59.1
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.12	2.05	1.86	-0.01	-0.06	-0.20	-0.3	-2.6	-9.6
Industry	2.34	1.96	1.93	1.93	1.84	1.66	0.03	-0.03	-0.11	1.8	-1.7	-6.1
Residential	2.05	1.90	1.84	1.76	1.64	1.25	0.03	-0.05	-0.39	1.5	-2.8	-24.0
Tertiary	1.77	1.31	1.27	1.18	1.15	1.02	0.04	0.05	-0.05	3.9	4.4	-4.7
Transport	2.91	2.92	2.93	2.76	2.68	2.62	-0.08	-0.12	-0.14	-2.9	-4.1	-5.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	10.5	15.0	19.3	6.1	8.8	10.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	8.4	12.0	13.8	3.8	5.2	4.7			
Gross Electricity generation by source (in GWh_e)												
	374308	397522	368811	388168	506559	62705	-63327	27335	-14.5	-14.0	5.7	
Nuclear energy	85048	81603	61709	29140	77209	0	0	4674	0.0	0.0	6.4	
Solids	118129	134618	39973	25334	36086	-119047	-147667	-125287	-74.9	-85.4	-77.6	
Oil (including refinery gas)	7147	7622	104	26	923	0	-81	834	0.0	-75.6	933.1	
Gas (including derived gases)	153298	152495	177983	213464	230781	2850	19189	71912	1.6	9.9	45.3	
Biomass-waste	4653	13308	19434	38386	55667	4811	18841	29679	32.9	96.4	114.2	
Hydro (pumping excluded)	5085	4960	6076	6076	6076	1007	818	0	19.9	15.6	0.0	
Wind	947	2907	60931	71371	92670	45121	42524	41988	285.4	147.4	82.8	
Solar	1	8	50	79	236	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	2552	4292	6912	2552	3049	3535		245.4	104.7	
Net Generation Capacity in MW_e												
	84356	90824	115918	106121	129866	21119	9947	21069	22.3	10.3	19.4	
<u>Nuclear energy</u>	13038	11837	9265	4412	9202	0	0	540	0.0	0.0	6.2	
<u>Renewable energy</u>	1758	3009	24387	29322	38763	17258	16827	17119	242.1	134.7	79.1	
Hydro (pumping excluded)	1350	1437	1475	1489	1514	0	0	0	0.0	0.0	0.0	
Wind	406	1562	21522	25501	33349	16011	15245	15285	290.5	148.6	84.6	
Solar	2	11	66	105	313	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	1324	2227	3586	1247	1582	1834	1619.5	245.4	104.7	
<u>Thermal power</u>	69560	75978	82266	72388	81902	3861	-6880	3410	4.9	-8.7	4.3	
of which cogeneration units	6116	8041	9531	13141	15083	1127	3468	2147	13.4	35.9	16.6	
Solids fired	30684	30627	23771	7478	3798	0	-13286	-17006	0.0	-64.0	-81.7	
Gas fired	27319	33944	41652	40637	54522	-1028	-5551	5799	-2.4	-12.0	11.9	
Oil fired	10540	9879	9164	7715	1691	0	0	-2467	0.0	0.0	-59.3	
Biomass-waste fired	1017	1528	7678	16557	21890	4889	11956	17084	175.3	259.9	355.4	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	48.4	47.7	35.2	40.4	42.5	-15.0	-10.9	-5.5				
Efficiency of gross thermal power generation (%)	43.9	42.7	52.7	54.6	59.4	6.7	3.4	5.1				
% of gross electricity from CHP	9.0	8.5	16.9	22.7	20.2	4.4	8.6	4.5				
Carbon free gross electricity generation (%)	25.6	25.9	40.9	38.5	47.1	18.3	19.8	14.0				
- nuclear	22.7	20.5	16.7	7.5	15.2	2.4	1.1	0.1				
- renewable energy forms	2.9	5.3	24.1	31.0	31.9	15.9	18.8	13.9				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	734.6	839.2	901.9	1027.7	1081.2	1186.6	-14.9	-26.9	-35.0	-1.4	-2.4	-2.9
Private cars and motorcycles	46.2	47.0	48.8	52.2	54.2	56.5	0.6	1.0	1.3	1.1	2.0	2.3
Rail	591.1	644.9	684.7	762.1	792.5	857.3	-8.0	-17.2	-27.0	-1.0	-2.1	-3.1
Aviation	39.9	46.7	51.8	61.6	67.0	80.2	-0.4	-0.6	3.0	-0.7	-0.8	3.9
Inland navigation	49.3	94.0	110.0	145.2	161.0	185.9	-7.0	-10.1	-12.3	-4.6	-5.9	-6.2
Freight transport activity (Gtkm)	8.1	6.6	6.5	6.6	6.7	6.8	0.0	0.0	0.0	-0.6	-0.3	-0.3
Freight transport activity (Gtkm)												
Trucks	217.5	243.7	250.8	269.7	277.9	289.1	-4.1	-6.8	-8.3	-1.5	-2.4	-2.8
Rail	145.7	165.6	167.5	181.5	187.8	196.9	-4.2	-7.1	-9.0	-2.3	-3.7	-4.4
Inland navigation	16.0	18.1	22.1	25.9	27.3	29.1	0.2	0.3	0.7	0.9	1.2	2.5
Energy demand in transport (ktoe)	55.8	60.0	61.2	62.3	62.8	63.1	-0.1	0.0	0.0	-0.2	0.0	0.0
Energy demand in transport (ktoe)												
Public road transport	45451	52324	55236	58857	59186	57409	-1904	-3797	-9008	-3.1	-6.0	-13.6
Private cars and motorcycles	514	518	490	483	489	486	1	1	-12	0.2	0.2	-2.5
Trucks	25438	27031	25783	26213	26122	26087	-415	-814	-1557	-1.6	-3.0	-5.6
Rail	10387	11277	13316	13769	13752	13898	-491	-977	-1014	-3.4	-6.6	-6.8
Aviation	1063	1464	1532	1440	1273	847	10	4	43	0.7	0.3	5.4
Inland navigation	6779	11115	12847	15678	16296	14881	-1002	-2001	-6451	-6.0	-10.9	-30.2
Inland navigation	1269	920	1269	1273	1254	1211	-8	-10	-16	-0.7	-0.8	-1.3

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ **Model-based Analysis of the 2008
EU Policy Package on Climate
Change and Renewables**

- ▶ **Appendix 3:
EC Proposal with JI/CDM & without RES
trading**

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

- ▶ *Primes Model – E3MLab/NTUA*
Results of end January 2008

EU27: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	933011	946298	937567	896393	840946	792328	764425	751465	755332	0.0	-1.1	-0.9	-0.1	
Solids	365918	277924	213693	196451	160708	138788	124815	118026	112465	-5.2	-2.8	-2.5	-1.0	
Oil	128809	170055	171665	132993	104429	76699	52878	44294	40804	2.9	-4.8	-6.6	-2.6	
Natural gas	162447	188965	207559	188021	166238	126275	111646	95705	83694	2.5	-2.2	-3.9	-2.8	
Nuclear	202589	223028	243761	257360	244976	243105	216950	198161	194900	1.9	0.0	-1.2	-1.1	
Renewable energy sources	73248	86325	100890	121568	164594	207461	258136	295279	323469	3.3	5.0	4.6	2.3	
Hydro	25101	28054	30374	26394	29763	29641	29981	30146	30363	1.9	-0.2	0.1	0.1	
Biomass & Waste	44737	54203	64774	82903	108801	134427	169153	193436	208288	3.8	5.3	4.5	2.1	
Wind	67	350	1913	6060	15185	23321	31526	41113	50294	39.8	23.0	7.6	4.8	
Solar and others	153	273	418	816	4237	13042	20105	23103	27068	10.6	26.1	16.8	3.0	
Geothermal	3190	3444	3412	5395	6608	7030	7371	7481	7456	0.7	6.8	1.1	0.1	
Net Imports	748677	730704	818875	975298	1010809	1098753	1139340	1168804	1172171	0.9	2.1	1.2	0.3	
Solids	79289	79183	79183	126702	134149	140659	142915	147556	147023	2.2	3.1	0.6	0.3	
Oil	530805	504448	525661	589611	597005	628479	638589	642217	640454	-0.1	1.3	0.7	0.0	
- Crude oil and Feedstocks	503539	488479	507317	574313	598035	632947	651942	660631	663570	0.1	1.7	0.9	0.2	
- Oil products	27265	15969	18344	15298	-1030	-4468	-13353	-18414	-23116	-3.9				
Natural gas	135121	145288	192531	256828	270306	312491	321654	335685	337940	3.6	3.5	1.8	0.5	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1798106	1835086	1845603	1860161	1865974	0.4	0.5	0.3	0.1	
Solids	450105	364252	321390	320065	294857	279447	267730	265582	259487	-3.3	-0.9	-1.0	-0.3	
Oil	625464	642003	650399	665514	647786	649184	633304	626403	619731	0.4	0.0	-0.2	-0.2	
Natural gas	294905	333268	393417	444804	436544	438767	433300	431390	421633	2.9	1.0	-0.1	-0.3	
Nuclear	202589	223028	243761	257360	244976	243105	216950	198161	194900	1.9	0.0	-1.2	-1.1	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	172447	223118	293278	337699	369300	3.2	5.5	5.5	2.3	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	16.4	15.2	14.5	14.3	13.9					
Oil	37.9	38.9	38.0	36.7	36.0	35.4	34.3	33.7	33.2					
Natural gas	17.9	20.2	23.0	24.6	24.3	23.9	23.5	23.2	22.6					
Nuclear	12.3	13.5	14.2	14.2	13.6	13.2	11.8	10.7	10.4					
Renewable energy forms	4.5	5.2	5.9	6.8	9.6	12.2	15.9	18.2	19.8					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3305273	3494893	3707536	4087445	4443968	1.6	1.0	1.2	1.8	
Self consumption and grid losses	335093	353101	383382	407678	376575	389073	412608	475248	533849	1.4	-0.2	0.9	2.6	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	357825	355037	379171	417416	430932	0.1	-0.7	0.6	1.3	
Solids	259913	233747	223114	229144	207278	192859	183530	184911	184121	-1.5	-0.7	-1.2	0.0	
Oil (including refinery gas)	54361	51375	39172	29499	8827	6482	5219	4063	4184	-3.2	-13.8	-5.1	-2.2	
Gas (including derived gases)	56680	67840	102572	133257	112492	114266	116060	125348	128047	6.1	0.9	0.3	1.0	
Biomass & Waste	5861	9809	14969	26638	23765	35764	68579	97240	108679	9.8	4.7	11.2	4.7	
Geothermal heat	2774	2992	2939	4645	5463	5665	5782	5853	5900	0.6	6.4	0.6	0.2	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	840669	858092	861749	859692	856189	-0.2	0.3	0.2	-0.1	
Refineries	673810	699352	727451	749312	736343	744286	739087	738490	737025	0.8	0.1	0.0	0.0	
Biofuels and hydrogen production	2	202	624	3206	24085	37553	51917	56017	59151	80.0	44.1	8.0	1.3	
District heating	33413	23351	19302	16177	19881	18166	16988	15110	13419	-5.3	0.3	-1.6	-2.3	
Derived gases, cokeries etc.	127920	86079	71473	65511	60360	58087	53757	50076	46594	-5.7	-1.7	-1.2	-1.4	
Energy Branch Consumption	81962	88206	87583	93941	88532	86654	86243	87537	88904	0.7	0.1	-0.3	0.3	
Non-Energy Uses	96068	105319	109135	111706	115835	120775	125218	128469	130872	1.3	0.6	0.8	0.4	
Final Energy Demand	1070684	1066881	1112182	1166880	1213847	1259804	1278697	1291810	1303171	0.4	0.9	0.5	0.2	
by sector														
Industry	367505	325769	324835	324493	339257	352827	359210	365645	373749	-1.2	0.4	0.6	0.4	
- energy intensive industries	236724	213853	212264	209326	217498	225020	226498	228087	231082	-1.1	0.2	0.4	0.2	
- other industrial sectors	130780	111916	112571	115167	121759	127807	132711	137559	142666	-1.5	0.8	0.9	0.7	
Residential	264548	279716	287255	307013	313338	320763	322798	321151	318290	0.8	0.9	0.3	-0.1	
Tertiary	159192	161639	160963	173669	175958	181331	182675	183599	183010	0.1	0.9	0.4	0.0	
Transport	279440	299758	339129	361705	385293	404884	414015	421415	428122	2.0	1.3	0.7	0.3	
by fuel														
Solids	130725	85607	61781	53475	55101	55425	55407	53609	50050	-7.2	-1.1	0.1	-1.0	
Oil	442561	455056	477166	492540	496214	498497	484161	479014	472746	0.8	0.4	-0.2	-0.2	
Gas	227872	245996	267506	287197	293546	294746	285873	274414	260919	1.6	0.9	-0.3	-0.9	
Electricity	184059	194149	217155	237501	243241	259838	276072	303503	329143	1.7	1.1	1.3	1.8	
Heat (from CHP and District Heating)	48744	45026	40988	41333	40143	40610	43528	44079	44311	-1.7	-0.2	0.8	0.2	
Renewable energy forms	36724	41048	47586	54833	85572	110630	133544	137049	145848	2.6	6.0	4.6	0.9	
Other	0	0	0	0	28	57	113	141	153			14.8	3.1	
RES in Gross Final Energy Consumption (A)			91114	104237	154942	202583	264541	303075	333003		5.5	5.5	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	4994.9	4883.4	4753.4	4635.7	4464.6	-0.9	-0.2	-0.5	-0.6	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3762.8	3699.1	3582.7	3542.9	3423.3	-0.6	-0.2	-0.5	-0.5	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1173.2	1106.5	1066.0	1085.5	1037.0	-1.1	-1.2	-1.0	-0.3	
Energy Branch	154.2	172.4	173.1	184.3	167.6	160.7	151.7	143.9	139.3	1.2	-0.3	-1.0	-0.9	
Industry	801.7	684.2	632.4	599.4	624.1	634.6	614.8	603.7	580.1	-2.3	-0.1	-0.1	-0.6	
Residential	507.7	482.4	466.1	483.1	472.9	455.7	429.2	393.4	356.1	-0.9	0.1	-1.0	-1.8	
Tertiary	304.7	274.8	242.0	254.6	252.7	243.7	232.3	218.7	205.3	-2.3	0.4	-0.8	-1.2	
Transport	810.0	870.4	987.6	1050.6	1072.4	1097.9	1088.7	1097.8	1105.6	2.0	0.8	0.2	0.2	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	332.0	347.3	356.1	363.1	368.1	-0.8	0.8	0.7	0.3	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	837.0	814.7	729.8	673.2	-2.1	-0.8	-1.0	-1.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	89.6	87.6	85.2	83.1	80.0					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										EU27: EC proposal with JI/CDM & without RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0	
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8	
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	144.7	130.5	117.7	107.7	99.9	-1.8	-1.6	-2.0	-1.6	
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.09	2.02	1.94	1.90	1.83	-0.9	-0.6	-0.7	-0.6	
Import Dependency %	44.4	43.3	46.7	52.4	54.6	58.1	59.8	60.9	60.8					
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1252.0	1416.1	1599.2	1737.6	1844.3		2.5	2.5	1.4	
as % of GDP			9.7	9.9	10.1	10.1	10.2	10.1	9.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.7	80.8	73.8	68.4	65.0	-2.7	-1.3	-1.7	-1.3	
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	88.0	80.4	73.0	66.2	60.8	-1.3	-1.3	-1.9	-1.8	
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	86.6	78.6	70.8	64.5	59.2	-2.3	-1.4	-2.0	-1.8	
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.5	34.1	32.4	31.4	0.1	-0.7	-0.7	-0.8	
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.3	48.7	46.5	45.0	43.6	0.3	0.0	-0.8	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.30	0.27	0.25	0.23	0.21	-2.0	-2.0	-2.0	-1.8	
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.00	1.93	1.85	1.79	1.72	-0.8	-0.5	-0.8	-0.7	
Industry	2.18	2.10	1.95	1.85	1.84	1.80	1.71	1.65	1.55	-1.1	-0.6	-0.7	-1.0	
Residential	1.92	1.72	1.62	1.57	1.51	1.42	1.33	1.22	1.12	-1.7	-0.7	-1.3	-1.7	
Tertiary	1.91	1.70	1.50	1.47	1.44	1.34	1.27	1.19	1.12	-2.4	-0.5	-1.2	-1.2	
Transport	2.90	2.90	2.91	2.90	2.78	2.71	2.63	2.60	2.58	0.0	-0.5	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	12.4	15.6	20.1	22.7	24.7					
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	6.1	9.2	12.7	13.6	14.3					
Gross Electricity generation by source (in GWh)														
			2992030	3275359	3305273	3494893	3707536	4087445	4443968		1.0	1.2	1.8	
Nuclear energy			944823	997519	950177	945821	847671	788107	828704		0.1	-1.1	-0.2	
Solids			900381	918139	907127	891058	873829	945032	1022568		0.1	-0.4	1.6	
Oil (including refinery gas)			176516	150480	49537	40541	36004	32134	32802		-11.9	-3.1	-0.9	
Gas (including derived gases)			535039	721024	754472	791341	829556	912515	933882		3.5	1.0	1.2	
Biomass-waste			54964	101813	108256	191012	373176	536421	621542		7.0	13.2	5.2	
Hydro (pumping excluded)			353182	306902	346077	344661	348613	350538	353056		-0.2	0.1	0.1	
Wind			22246	70469	176571	271177	366584	478054	584818		23.0	7.6	4.8	
Solar			117	1489	3731	6430	14811	24761	45026		41.4	14.8	11.8	
Geothermal and other renewables			4762	7525	9325	12850	17292	19884	21571		7.0	6.4	2.2	
Net Generation Capacity in MW_e			680864	739517	833362	868828	905669	980232	1093213		2.0	0.8	1.9	
<u>Nuclear energy</u>			135806	134187	125500	123359	112613	99029	103502		-0.8	-1.1	-0.8	
<u>Renewable energy</u>			120596	151902	199159	239867	288085	343639	408064		5.1	3.8	3.5	
Hydro (pumping excluded)			107638	109284	111702	113389	114670	115154	115652		0.4	0.3	0.1	
Wind			12786	40822	83392	118214	156791	203139	251223		20.6	6.5	4.8	
Solar			172	1797	3782	6275	12417	19837	34633		36.2	12.6	10.8	
Other renewables (tidal etc.)			0	0	282	1989	4207	5509	6557			31.0	4.5	
<u>Thermal power</u>			424462	453429	508704	505603	504970	537564	581647		1.8	-0.1	1.4	
of which cogeneration units			123462	133684	115135	125588	150915	163560	172872		-0.7	2.7	1.4	
Solids fired			191258	188695	184633	180316	158131	154076	155020		-0.4	-1.5	-0.2	
Gas fired			149738	181031	232490	233045	229565	243531	279886		4.5	-0.1	2.0	
Oil fired			71858	67498	65313	46408	35111	24241	17125		-1.0	-6.0	-6.9	
Biomass-waste fired			10810	15216	25218	44736	81025	114568	128359		8.8	12.4	4.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			798	988	1050	1097	1138	1149	1256		2.8	0.8	1.0	
Avg. Load factor of net power capacity (%)			47.4	47.8	43.1	43.9	44.7	45.4	44.1					
Efficiency of gross thermal power generation (%)			37.6	38.6	43.9	46.6	48.1	50.2	52.3					
% of gross electricity from CHP			12.7	12.8	16.1	17.9	21.1	22.2	21.9					
Carbon free gross electricity generation (%)			46.1	45.4	48.2	50.7	53.1	53.8	55.2					
- nuclear			31.6	30.5	28.7	27.1	22.9	19.3	18.6					
- renewable energy forms			14.5	14.9	19.5	23.6	30.2	34.5	36.6					
Transport sector														
Passenger transport activity (Gpkm)														
Public road transport	4784.5	5221.8	5819.7	6245.4	6739.7	7259.4	7725.6	8205.5	8627.0	2.0	1.5	1.4	1.1	
Private cars and motorcycles	555.6	498.3	514.0	529.0	546.4	564.4	592.2	614.5	632.9	-0.8	0.6	0.8	0.7	
Rail	3459.2	3930.1	4375.8	4714.4	5069.7	5406.3	5675.2	5959.8	6201.6	2.4	1.5	1.1	0.9	
Aviation	464.8	412.0	438.5	446.8	473.7	517.9	568.6	627.5	688.1	-0.6	0.8	1.8	1.9	
Inland navigation	247.9	325.9	442.0	506.3	600.7	721.0	838.5	951.2	1050.7	6.0	3.1	3.4	2.3	
Freight transport activity (Gtkm)	57.0	55.4	49.4	48.9	49.1	49.8	51.2	52.6	53.6	-1.4	-0.1	0.4	0.5	
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2743.9	3017.3	3243.5	3451.4	3609.4	1.5	2.4	1.7	1.1	
Trucks	1096.9	1279.3	1507.5	1790.0	2013.4	2223.1	2389.9	2551.7	2672.0	3.2	2.9	1.7	1.1	
Rail	524.8	385.0	396.1	393.9	434.8	479.8	518.9	551.4	577.5	-2.8	0.9	1.8	1.1	
Inland navigation	257.2	264.7	271.3	280.1	295.6	314.5	334.7	348.4	359.8	0.5	0.9	1.2	0.7	
Energy demand in transport (ktoe)														
Public road transport	279440	299758	339129	361705	385293	404884	414015	421415	428122	2.0	1.3	0.7	0.3	
Private cars and motorcycles	5216	4538	4464	4316	4284	4255	4288	4193	4095	-1.5	-0.4	0.0	-0.5	
Trucks	148125	159084	174735	175721	181276	184780	184849	185560	186168	1.7	0.4	0.2	0.1	
Rail	80641	85832	99349	116963	127016	135372	139135	143959	147612	2.1	2.5	0.9	0.6	
Aviation	9605	9409	9710	9605	9966	10071	9834	9301	7946	0.1	0.3	-0.1	-2.1	
Inland navigation	28947	34014	45368	49744	57178	64625	69936	72368	76252	4.6	2.3	2.0	0.9	
	6905	6881	5503	5356	5574	5781	5972	6034	6048	-2.2	0.1	0.7	0.1	

Source: PRIMES

EU27: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	933011	937567	896393	792328	764425	755332	22106	39667	64641	2.9	5.5	9.4
Solids	365918	213693	196451	138788	124815	112465	-13577	-16950	-13343	-8.9	-12.0	-10.6
Oil	128809	171665	132993	76699	52878	40804	-467	-233	-16	-0.6	-0.4	0.0
Natural gas	162447	207559	188021	126275	111646	83694	-2723	-3288	-1068	-2.1	-2.9	-1.3
Nuclear	202589	243761	257360	243105	216950	194900	-610	-4522	-11503	-0.3	-2.0	-5.6
Renewable energy sources	73248	100890	121568	207461	258136	323469	39484	64659	90570	23.5	33.4	38.9
Hydro	25101	30374	26394	29641	29981	30363	1307	1051	180	4.6	3.6	0.6
Biomass & Waste	44737	64774	82903	134427	169153	208288	21947	39924	50248	19.5	30.9	31.8
Wind	67	1913	6060	23321	31526	50294	5950	8206	20857	34.2	35.2	70.9
Solar and others	153	418	816	13042	20105	27068	8874	13863	18397	212.9	222.1	212.2
Geothermal	3190	3412	5395	7030	7371	7456	1407	1615	889	25.0	28.1	13.5
Net Imports	748677	818875	975298	1098753	1139340	1172171	-114715	-161786	-203611	-9.5	-12.4	-14.8
Solids	79289	98575	126702	140659	142915	147023	-41125	-57172	-62811	-22.6	-28.6	-29.9
Oil	530805	525661	589611	628479	638589	640454	-41207	-68215	-88733	-6.2	-9.7	-12.2
- Crude oil and Feedstocks	503539	507317	574313	632947	651942	663570	-26202	-44332	-57389	-4.0	-6.4	-8.0
- Oil products	27265	18344	15298	-4468	-13353	-23116	-15005	-23883	-31344	-142.4	-226.8	-380.9
Natural gas	135121	192531	256828	312491	321654	337940	-45555	-68309	-93509	-12.7	-17.5	-21.7
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1835086	1845603	1865974	-92552	-121966	-138739	-4.8	-6.2	-6.9
Solids	450105	321390	320065	279447	267730	259487	-54703	-74122	-76155	-16.4	-21.7	-22.7
Oil	625464	650399	665514	649184	633304	619731	-41617	-68295	-88516	-6.0	-9.7	-12.5
Natural gas	294905	393417	444804	438767	433300	421633	-48279	-71597	-94577	-9.9	-14.2	-18.3
Nuclear	202589	243761	257360	243105	216950	194900	-610	-4522	-11503	-0.3	-2.0	-5.6
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	223118	293278	369300	52657	96570	132012	30.9	49.1	55.6
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	15.2	14.5	13.9	-2.1	-2.9	-2.8			
Oil	37.9	38.0	36.7	35.4	34.3	33.2	-0.5	-1.3	-2.1			
Natural gas	17.9	23.0	24.6	23.9	23.5	22.6	-1.4	-2.2	-3.2			
Nuclear	12.3	14.2	14.2	13.2	11.8	10.4	0.6	0.5	0.1			
Renewable energy forms	4.5	5.9	6.8	12.2	15.9	19.8	3.3	5.9	8.0			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3494893	3707536	4443968	-344515	-370702	35934	-9.0	-9.1	0.8
Self consumption and grid losses	335093	383382	407678	389073	412608	533849	-48545	-53876	13437	-11.1	-11.5	2.6
Fuel Inputs to Thermal Power Generation	379588	382767	423183	355037	379171	430932	-84966	-86949	-42767	-19.3	-18.7	-9.0
Solids	259913	223114	229144	192859	183530	184121	-55381	-73945	-72584	-22.3	-28.7	-28.3
Oil (including refinery gas)	54361	39172	29499	6482	5219	4184	-8463	-8146	-6338	-56.6	-60.9	-60.2
Gas (including derived gases)	56680	102572	133257	114266	116060	128047	-30474	-37754	-20483	-21.1	-24.5	-13.8
Biomass & Waste	5861	14969	26638	35764	68579	108679	8572	32145	56638	31.5	88.2	108.8
Geothermal heat	2774	2939	4645	5665	5782	5900	781	750	0	16.0	14.9	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	858092	861749	856189	-10581	-24022	-44340	-1.2	-2.7	-4.9
Refineries	673810	727451	749312	744286	739087	737025	-26734	-44653	-57498	-3.5	-5.7	-7.2
Biofuels and hydrogen production	2	624	3206	37553	51917	59151	13677	19649	16723	57.3	60.9	39.4
District heating	33413	19302	16177	18166	16988	13419	-1052	-1462	-5483	-5.5	-7.9	-29.0
Derived gases, cokeries etc.	127920	71473	65511	58087	53757	46594	3529	2445	1917	6.5	4.8	4.3
Energy Branch Consumption	81962	87583	93941	86654	86243	88904	-3820	-5297	-4389	-4.2	-5.8	-4.7
Non-Energy Uses	96068	109135	111706	120775	125218	130872	-220	-302	-343	-0.2	-0.2	-0.3
Final Energy Demand	1070684	1112182	1166880	1259804	1278697	1303171	-42232	-69110	-102510	-3.2	-5.1	-7.3
by sector												
Industry	367505	324835	324493	352827	359210	373749	-2522	-8482	-12630	-0.7	-2.3	-3.3
- energy intensive industries	236724	212264	209326	225020	226498	231082	103	-3838	-5766	0.0	-1.7	-2.4
- other industrial sectors	130780	112571	115167	127807	132711	142666	-2625	-4644	-6865	-2.0	-3.4	-4.6
Residential	264548	287255	307013	320763	322798	318290	-8949	-13207	-25055	-2.7	-3.9	-7.3
Tertiary	159192	160963	173669	181331	182675	183010	-17340	-22794	-29868	-8.7	-11.1	-14.0
Transport	279440	339129	361705	404884	414015	428122	-13420	-24627	-34957	-3.2	-5.6	-7.5
by fuel												
Solids	130725	61781	53475	55425	55407	50050	123	-33	-1278	0.2	-0.1	-2.5
Oil	442561	477166	492540	498497	484161	472746	-30265	-55619	-77013	-5.7	-10.3	-14.0
Gas	227872	267506	287197	294746	285873	260919	-14090	-28343	-65457	-4.6	-9.0	-20.1
Electricity	184059	217155	237501	259838	276072	329143	-25414	-27057	2338	-8.9	-8.9	0.7
Heat (from CHP and District Heating)	48744	40988	41333	40610	43528	44311	-2784	-2626	-4074	-6.4	-5.7	-8.4
Renewable energy forms	36724	47586	54833	110630	133544	145848	30195	44565	42997	37.5	50.1	41.8
Other	0	0	0	57	113	153	4	4	-21	8.4	3.5	-12.3
RES in Gross Final Energy Consumption ^(A)		91114	104237	202583	264541	333003	50838	88474	119756	33.5	50.3	56.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4883.4	4753.4	4464.6	-505.8	-743.0	-915.1	-9.4	-13.5	-17.0
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3699.1	3582.7	3423.3	-457.7	-669.9	-840.4	-11.0	-15.8	-19.7
Power generation/District heating	1468.7	1319.6	1374.9	1106.5	1066.0	1037.0	-324.4	-416.8	-425.6	-22.7	-28.1	-29.1
Energy Branch	154.2	173.1	184.3	160.7	151.7	139.3	-11.5	-19.8	-25.4	-6.7	-11.5	-15.4
Industry	801.7	632.4	599.4	634.6	614.8	580.1	4.2	-22.4	-53.2	0.7	-3.5	-8.4
Residential	507.7	466.1	483.1	455.7	429.2	356.1	-31.3	-55.8	-127.2	-6.4	-11.5	-26.3
Tertiary	304.7	242.0	254.6	243.7	232.3	205.3	-21.3	-31.2	-54.8	-8.1	-11.8	-21.1
Transport	810.0	987.6	1050.6	1097.9	1088.7	1105.6	-73.3	-123.9	-154.2	-6.3	-10.2	-12.2
CO₂ Emissions (non energy related)	332.1	307.3	320.4	347.3	356.1	368.1	3.7	-1.9	-6.7	1.1	-0.5	-1.8
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	837.0	814.7	673.2	-51.8	-71.3	-67.9	-5.8	-8.0	-9.2
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	87.6	85.2	80.0	-9.1	-13.3	-16.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							EU27: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	130.5	117.7	99.9	-6.6	-7.8	-7.4	-4.8	-6.2	-6.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	2.02	1.94	1.83	-0.14	-0.22	-0.29	-6.5	-10.2	-13.7
Import Dependency %	44.4	46.7	52.4	58.1	59.8	60.8	-3.1	-4.4	-5.8			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1416.1	1599.2	1844.3	47.0	83.5	134.8	3.4	5.5	7.9
as % of GDP		9.7	9.9	10.1	10.2	9.9	0.3	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				47.6	84.6	136.1						
as % of GDP				0.34	0.54	0.73						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	80.8	73.8	65.0	-0.6	-1.7	-2.2	-0.7	-2.3	-3.3
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	80.4	73.0	60.8	-2.2	-3.0	-4.8	-2.7	-3.9	-7.3
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	78.6	70.8	59.2	-7.5	-8.8	-9.7	-8.7	-11.1	-14.0
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.5	34.1	31.4	-0.5	-0.8	-1.2	-1.4	-2.3	-3.6
Freight transport (toe/Mtkm)	49.2	50.5	51.7	48.7	46.5	43.6	-1.4	-2.7	-3.4	-2.9	-5.4	-7.2
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.27	0.25	0.21	-0.05	-0.07	-0.08	-15.5	-21.4	-28.9
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.93	1.85	1.72	-0.03	-0.08	-0.15	-1.6	-4.1	-8.1
Industry	2.18	1.95	1.85	1.80	1.71	1.55	0.02	-0.02	-0.09	1.4	-1.2	-5.3
Residential	1.92	1.62	1.57	1.42	1.33	1.12	-0.06	-0.11	-0.29	-3.8	-7.9	-20.5
Tertiary	1.91	1.50	1.47	1.34	1.27	1.12	0.01	-0.01	-0.10	0.7	-0.8	-8.2
Transport	2.90	2.91	2.90	2.71	2.63	2.58	-0.09	-0.13	-0.14	-3.1	-4.9	-5.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.6	20.1	24.7	4.3	7.4	10.0			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	9.2	12.7	14.3	3.5	5.3	4.8			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3494893	3707536	4443968		-344515	-370702	35934	-9.0	-9.1	0.8
Nuclear energy	944823	997519	945821	847671	828704		-2888	-17905	-43558	-0.3	-2.1	-5.0
Solids	900381	918139	891058	873829	1022568		-245789	-367617	-351627	-21.6	-29.6	-25.6
Oil (including refinery gas)	176516	150480	40541	36004	32802		-47605	-44048	-39885	-54.0	-55.0	-54.9
Gas (including derived gases)	535039	721024	791341	829556	933882		-183050	-237713	-149790	-18.8	-22.3	-13.8
Biomass-waste	54964	101813	191012	373176	621542		45782	176776	339688	31.5	90.0	120.5
Hydro (pumping excluded)	353182	306902	344661	348613	353056		15197	12222	2097	4.6	3.6	0.6
Wind	22246	70469	271177	366584	584818		69182	95414	242524	34.2	35.2	70.9
Solar	117	1489	6430	14811	45026		210	5342	28481	3.4	56.4	172.1
Geothermal and other renewables	4762	7525	12850	17292	21571		4446	6827	8005	52.9	65.2	59.0
Net Generation Capacity in MW_e												
	680864	739517	868828	905669	1093213		7204	4441	127094	0.8	0.5	13.2
<u>Nuclear energy</u>	135806	134187	123359	112613	103502		-295	-75	1058	-0.2	-0.1	1.0
<u>Renewable energy</u>	120596	151902	239867	288085	408064		28131	43241	128807	13.3	17.7	46.1
Hydro (pumping excluded)	107638	109284	113389	114670	115652		350	368	192	0.3	0.3	0.1
Wind	12786	40822	118214	156791	251223		25976	36417	105282	28.2	30.3	72.1
Solar	172	1797	6275	12417	34633		133	3438	19239	2.2	38.3	125.0
Other renewables (tidal etc.)	0	0	1989	4207	6557		1672	3018	4154	527.6	253.9	172.8
<u>Thermal power</u>	424462	453429	505603	504970	581647		-20633	-38725	-2770	-3.9	-7.1	-0.5
of which cogeneration units	123462	133684	125588	150915	172872		-12920	-7405	2824	-9.3	-4.7	1.7
Solids fired	191258	188695	180316	158131	155020		-8127	-28142	-33325	-4.3	-15.1	-17.7
Gas fired	149738	181031	233045	229565	279886		-28054	-52271	-33508	-10.7	-18.5	-10.7
Oil fired	71858	67498	46408	35111	17125		-3781	-3212	-13593	-7.5	-8.4	-44.2
Biomass-waste fired	10810	15216	44736	81025	128359		19234	44791	77659	75.4	123.6	153.2
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	798	988	1097	1138	1256		97	109	-4	9.7	10.6	-0.3
Avg. Load factor of net power capacity (%)	47.4	47.8	43.9	44.7	44.1		-4.6	-4.6	-5.4			
Efficiency of gross thermal power generation (%)	37.6	38.6	46.6	48.1	52.3		0.6	0.3	1.1			
% of gross electricity from CHP	12.7	12.8	17.9	21.1	21.9		0.0	0.8	0.8			
Carbon free gross electricity generation (%)	46.1	45.4	50.7	53.1	55.2		8.0	11.7	12.6			
- nuclear	31.6	30.5	27.1	22.9	18.6		2.4	1.6	-1.1			
- renewable energy forms	14.5	14.9	23.6	30.2	36.6		5.6	10.0	13.8			
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7259.4	7725.6	8627.0	-90.6	-171.5	-233.8	-1.2	-2.2	-2.6
Public road transport	555.6	514.0	529.0	564.4	592.2	632.9	6.8	12.0	15.5	1.2	2.1	2.5
Private cars and motorcycles	3459.2	4375.8	4714.4	5406.3	5675.2	6201.6	-92.3	-174.1	-239.8	-1.7	-3.0	-3.7
Rail	464.8	438.5	446.8	517.9	568.6	688.1	8.6	12.4	20.5	1.7	2.2	3.1
Aviation	247.9	442.0	506.3	721.0	838.5	1050.7	-13.4	-21.5	-29.9	-1.8	-2.5	-2.8
Inland navigation	57.0	49.4	48.9	49.8	51.2	53.6	-0.3	-0.2	-0.2	-0.6	-0.4	-0.3
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	3017.3	3243.5	3609.4	-44.0	-78.0	-107.8	-1.4	-2.3	-2.9
Trucks	1096.9	1507.5	1790.0	2223.1	2389.9	2672.0	-55.8	-95.7	-131.0	-2.4	-3.8	-4.7
Rail	524.8	396.1	393.9	479.8	518.9	577.5	10.3	14.4	18.6	2.2	2.8	3.3
Inland navigation	257.2	271.3	280.1	314.5	334.7	359.8	1.5	3.4	4.5	0.5	1.0	1.3
Energy demand in transport (ktoe)												
	279440	339129	361705	404884	414015	428122	-13420	-24627	-34957	-3.2	-5.6	-7.5
Public road transport	5216	4464	4316	4255	4288	4095	-20	-47	-185	-0.5	-1.1	-4.3
Private cars and motorcycles	148125	174735	175721	184780	184849	186168	-4989	-8494	-7680	-2.6	-4.4	-4.0
Trucks	80641	99349	116963	135372	139135	147612	-6668	-12706	-17689	-4.7	-8.4	-10.7
Rail	9605	9710	9605	10071	9834	7946	66	146	260	0.7	1.5	3.4
Aviation	28947	45368	49744	64625	69936	76252	-1785	-3495	-9652	-2.7	-4.8	-11.2
Inland navigation	6905	5503	5356	5781	5972	6048	-25	-31	-13	-0.4	-0.5	-0.2

Source: PRIMES

Austria: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10539	11285	11688	12476	12914	1.6	1.0	1.0	1.0	
Solids	644	305	293	0	0	0	0	0	0	-7.6				
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1331	1270	400	435	429	3.4	-1.4	-11.3	0.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8358	9395	11008	11812	12296	2.6	2.3	2.8	1.1	
Hydro	2709	3187	3598	3085	3269	3107	3297	3297	3297	2.9	-1.0	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4619	5517	6624	7317	7745	2.0	4.5	3.7	1.6	
Wind	0	0	6	114	267	398	427	461	471		46.8	4.8	1.0	
Solar and others	15	36	64	92	196	361	646	721	769	15.7	11.9	12.7	1.8	
Geothermal	4	3	14	35	7	12	13	14	14	14.2	-5.9	6.0	0.4	
Net Imports	17086	17769	18853	24392	23587	23899	23672	22640	22588	1.0	2.3	0.0	-0.5	
Solids	3112	2543	3064	3958	3961	4199	4411	3386	4148	-0.2	2.6	1.1	-0.6	
Oil	9521	10012	10703	13028	12942	12947	12316	11768	11070	1.2	1.9	-0.5	-1.1	
- Crude oil and Feedstocks	7878	8068	7704	7964	8166	8323	8336	8179	7956	-0.2	0.6	0.2	-0.5	
- Oil products	1643	1944	3000	5064	4776	4624	3980	3589	3114	6.2	4.8	-1.8	-2.4	
Natural gas	4443	5404	5253	7288	6507	6706	6995	7601	7495	1.7	2.2	0.7	0.7	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	34126	35184	35360	35116	35503	1.3	1.8	0.4	0.0	
Solids	4042	3336	3637	4050	3961	4199	4411	3386	4148	-1.1	0.9	1.1	-0.6	
Oil	10596	11196	11882	14125	13792	13567	12596	11998	11260	1.2	1.5	-0.9	-1.1	
Natural gas	5184	6374	6519	8263	7838	7976	7395	8035	7924	2.3	1.9	-0.6	0.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8233	9246	10829	11614	12087	2.4	2.2	2.8	1.1	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.6	11.9	12.5	9.6	11.7					
Oil	42.4	41.9	41.7	41.6	40.4	38.6	35.6	34.2	31.7					
Natural gas	20.7	23.9	22.9	24.3	23.0	22.7	20.9	22.9	22.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	24.1	26.3	30.6	33.1	34.0					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62501	68707	75136	83992	92665	2.0	0.4	1.9	2.1	
Self consumption and grid losses	4886	4995	5404	7536	6244	6651	7579	8777	10273	1.0	1.5	2.0	3.1	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3373	4625	5179	6245	7402	-0.2	-1.5	4.4	3.6	
Solids	1510	1055	1236	1510	1325	1657	1990	1023	1838	-2.0	0.7	4.2	-0.8	
Oil (including refinery gas)	488	489	287	270	281	366	176	197	122	-5.2	-0.2	-4.6	-3.6	
Gas (including derived gases)	1776	2276	1974	2901	1679	1577	871	2163	2255	1.1	-1.6	-6.4	10.0	
Biomass & Waste	237	455	428	786	85	1019	2134	2854	3177	6.1	-14.9	38.0	4.1	
Geothermal heat	0	0	0	2	3	6	8	9	10			11.3	3.0	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12752	12331	11948	11305	11106	-0.2	1.3	-0.6	-0.7	
Refineries	9123	9170	8765	9080	9018	8944	8617	8409	8146	-0.4	0.3	-0.5	-0.6	
Biofuels and hydrogen production	2	5	9	42	336	556	888	979	1106	17.5	44.0	10.2	2.2	
District heating	347	438	566	612	1279	799	519	64	25	5.0	8.5	-8.6	-26.3	
Derived gases, cokeries etc.	1971	1790	1910	2009	2120	2031	1924	1853	1829	-0.3	1.0	-1.0	-0.5	
Energy Branch Consumption	1639	1703	1750	2134	1895	1847	1754	1710	1674	0.7	0.8	-0.8	-0.5	
Non-Energy Uses	1401	1145	1386	1381	1409	1463	1512	1552	1584	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	28662	29379	29562	29340	29134	1.9	2.3	0.3	-0.1	
by sector														
Industry	6153	6474	7528	8825	9344	9551	9507	9550	9595	2.0	2.2	0.2	0.1	
- energy intensive industries	4048	4038	4982	5533	5778	5839	5724	5685	5634	2.1	1.5	-0.1	-0.2	
- other industrial sectors	2105	2436	2546	3293	3566	3712	3783	3865	3961	1.9	3.4	0.6	0.5	
Residential	5755	6222	6042	6548	6726	6981	7139	7106	7034	0.5	1.1	0.6	-0.1	
Tertiary	2544	3062	3304	3942	4138	4238	4268	4182	4067	2.6	2.3	0.3	-0.5	
Transport	4603	5161	6038	7994	8453	8608	8648	8501	8438	2.7	3.4	0.2	-0.2	
by fuel														
Solids	1718	1535	1415	1458	1457	1412	1326	1277	1110	-1.9	0.3	-0.9	-1.8	
Oil	7896	8728	9402	11774	11608	11381	10764	10225	9766	1.8	2.1	-0.8	-1.0	
Gas	2968	3607	4254	4936	5379	5728	5636	5332	5131	3.7	2.4	0.5	-0.9	
Electricity	3669	3953	4474	4884	5026	5421	5829	6446	7067	2.0	1.2	1.5	1.9	
Heat (from CHP and District Heating)	614	848	1052	1260	1331	1285	1288	1282	1179	5.5	2.4	-0.3	-0.9	
Renewable energy forms	2192	2248	2316	2996	3861	4151	4716	4775	4878	0.6	5.2	2.0	0.3	
Other	0	0	0	0	1	1	2	3	3			14.3	1.9	
RES in Gross Final Energy Consumption ^(A)			6285	6788	7913	8811	10342	11021	11422	2.3	2.7	1.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	95.1	94.1	90.2	84.7	84.3	0.5	1.2	-0.5	-0.7	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	71.1	71.6	68.0	63.6	63.9	1.0	1.6	-0.4	-0.6	
Power generation/District heating	12.8	12.1	11.6	15.0	12.2	12.8	12.1	10.4	13.5	-1.0	0.5	0.0	1.1	
Energy Branch	3.8	4.0	4.2	4.6	4.2	4.2	3.8	3.7	3.5	1.0	0.1	-1.0	-0.9	
Industry	12.7	13.6	15.5	17.5	17.9	18.6	18.2	17.7	17.1	2.0	1.5	0.1	-0.6	
Residential	9.8	9.7	8.8	9.0	8.4	8.1	7.4	6.8	6.0	-1.1	-0.4	-1.3	-2.0	
Tertiary	3.4	4.0	3.7	4.5	4.6	4.3	3.6	2.8	2.2	0.8	2.2	-2.4	-4.6	
Transport	12.7	14.6	17.2	23.1	23.7	23.6	22.9	22.2	21.6	3.1	3.3	-0.4	-0.6	
CO₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.7	9.5	9.5	9.4	0.2	1.6	-0.2	-0.1	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.8	12.7	11.6	11.1	-1.1	-0.7	-1.2	-1.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	118.3	117.1	112.2	105.4	104.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: EC proposal with JI/CDM & without RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	123.1	114.9	105.5	96.7	91.9	-1.2	-0.2	-1.5	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.08	2.03	1.92	1.81	1.80	-0.3	-0.3	-0.8	-0.7
Import Dependency %	68.4	66.5	66.1	71.8	69.1	67.9	66.9	64.5	63.6				
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.7	30.0	33.5	36.1	37.6		3.4	2.3	1.2
as % of GDP			8.4	9.5	9.6	9.8	10.0	9.9	9.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.8	91.8	83.2	77.0	72.5	-0.6	0.0	-1.8	-1.4
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.2	88.0	82.4	76.0	70.9	-1.6	-0.7	-1.2	-1.5
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.7	95.0	87.1	78.6	71.8	0.1	0.3	-1.6	-1.9
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	37.5	35.9	33.0	31.1	0.1	2.3	-0.8	-1.4
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	55.2	52.2	50.0	48.3	-0.8	2.4	-1.0	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.15	0.15	0.13	0.10	0.13	-3.4	-0.3	-1.4	-0.5
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.91	1.86	1.76	1.69	1.61	-0.3	-0.3	-0.8	-0.9
Industry	2.06	2.10	2.06	1.98	1.92	1.95	1.91	1.85	1.78	0.0	-0.7	0.0	-0.7
Residential	1.71	1.55	1.46	1.37	1.26	1.16	1.03	0.95	0.85	-1.6	-1.5	-1.9	-1.9
Tertiary	1.34	1.32	1.12	1.15	1.11	1.00	0.84	0.68	0.55	-1.8	-0.1	-2.7	-4.2
Transport	2.75	2.82	2.85	2.89	2.81	2.74	2.65	2.61	2.55	0.3	-0.1	-0.6	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	27.0	29.3	34.1	36.5	38.0				
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.0	9.7	11.1	12.9				
Gross Electricity generation by source (in GWh)													
			60150	62969	62501	68707	75136	83992	92665		0.4	1.9	2.1
Nuclear energy			0	0	0	0	0	0	0				
Solids			4642	5863	6114	7640	9340	4904	11107		2.8	4.3	1.7
Oil (including refinery gas)			1220	1452	2740	3087	2157	2117	1765		8.4	-2.4	-2.0
Gas (including derived gases)			10541	14513	10085	10493	7537	16974	17794		-0.4	-2.9	9.0
Biomass-waste			1845	3929	2402	6635	12625	16038	17831		2.7	18.0	3.5
Hydro (pumping excluded)			41832	35868	38009	36129	38342	38342	38342		-1.0	0.1	0.0
Wind			67	1328	3109	4632	4969	5363	5474		46.8	4.8	1.0
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1
Geothermal and other renewables			0	3	4	8	10	11	13			9.0	2.7
Net Generation Capacity in MW_e			16771	17685	20230	22045	23273	24689	25769		1.9	1.4	1.0
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			10792	11287	12000	13510	14398	15104	15915		1.1	1.8	1.0
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3
Wind			77	817	1350	2202	2447	2826	3341		33.2	6.1	3.2
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5978	6397	8230	8535	8875	9586	9854		3.2	0.8	1.1
of which cogeneration units			3067	3657	3604	4218	5094	5587	5597		1.6	3.5	0.9
Solids fired			1600	1587	1460	1460	1460	590	1294		-0.9	0.0	-1.2
Gas fired			2916	3267	4769	4665	4444	5615	5076		5.0	-0.7	1.3
Oil fired			1167	1158	1514	1267	641	491	380		2.6	-8.2	-5.1
Biomass-waste fired			295	384	487	1141	2328	2887	3102		5.1	16.9	2.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	1	1	2	2	3	3			6.7	2.3
Avg. Load factor of net power capacity (%)			39.8	38.3	33.7	34.2	35.4	37.4	39.4				
Efficiency of gross thermal power generation (%)			40.0	40.5	54.4	51.8	52.6	55.1	56.4				
% of gross electricity from CHP			12.3	20.6	24.8	26.1	30.6	35.5	32.6				
Carbon free gross electricity generation (%)			72.7	65.3	69.7	69.1	74.7	71.4	66.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			72.7	65.3	69.7	69.1	74.7	71.4	66.9				
Transport sector													
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	137.6	144.2	150.8	155.8	1.9	1.3	1.0	0.8
Public road transport	14.2	14.8	14.8	15.1	16.0	16.6	17.3	17.8	18.1	0.4	0.7	0.8	0.5
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	95.8	98.7	101.6	103.3	2.2	1.2	0.7	0.5
Rail	11.5	12.7	11.8	12.3	13.4	14.5	15.6	16.4	17.2	0.3	1.3	1.5	1.0
Aviation	4.1	5.4	6.6	7.3	8.8	10.6	12.6	14.9	17.1	5.0	2.9	3.7	3.1
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.6	0.7
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	62.6	66.5	70.6	74.2	4.7	0.8	1.3	1.1
Trucks	20.3	26.5	35.1	37.0	38.3	40.5	42.4	45.0	47.0	5.6	0.9	1.0	1.0
Rail	12.2	13.2	16.6	17.1	18.5	20.2	22.0	23.5	24.9	3.2	1.1	1.7	1.3
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.2	3.9	-3.1	1.5	0.8
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8608	8648	8501	8438	2.7	3.4	0.2	-0.2
Public road transport	80	83	80	107	111	109	107	100	94	-0.1	3.4	-0.3	-1.3
Private cars and motorcycles	2499	2643	2865	3890	4126	4092	4028	3724	3520	1.4	3.7	-0.2	-1.3
Trucks	1350	1675	2167	3004	3087	3142	3155	3227	3311	4.8	3.6	0.2	0.5
Rail	357	292	333	310	322	331	327	318	293	-0.7	-0.3	0.1	-1.1
Aviation	310	461	586	675	798	924	1019	1122	1210	6.6	3.1	2.5	1.7
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.1	0.5

Source: PRIMES

Austria: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	11285	11688	12914	1012	2114	2640	9.8	22.1	25.7
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1270	400	429	0	0	43	0.0	0.0	11.1
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	5168	6654	7422	9395	11008	12296	1030	2132	2615	12.3	24.0	27.0
Hydro	2709	3598	3085	3107	3297	3297	110	0	0	3.7	0.0	0.0
Biomass & Waste	2440	2973	4097	5517	6624	7745	700	1712	2085	14.5	34.8	36.8
Wind	0	6	114	398	427	471	74	39	76	22.8	10.0	19.3
Solar and others	15	64	92	361	646	769	144	381	457	66.2	143.6	146.5
Geothermal	4	14	35	12	13	14	2	1	-3	26.0	7.6	-15.8
Net Imports	17086	18853	24392	23899	23672	22588	-2782	-4631	-5795	-10.4	-16.4	-20.4
Solids	3112	3064	3958	4199	4411	4148	-98	-369	-1444	-2.3	-7.7	-25.8
Oil	9521	10703	13028	12947	12316	11070	-972	-1637	-2558	-7.0	-11.7	-18.8
- Crude oil and Feedstocks	7878	7704	7964	8323	8336	7956	-421	-648	-982	-4.8	-7.2	-11.0
- Oil products	1643	3000	5064	4624	3980	3114	-551	-989	-1576	-10.6	-19.9	-33.6
Natural gas	4443	5253	7288	6706	6995	7495	-1693	-2578	-1737	-20.2	-26.9	-18.8
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	35184	35360	35503	-1770	-2517	-3156	-4.8	-6.6	-8.2
Solids	4042	3637	4050	4199	4411	4148	-116	-387	-1462	-2.7	-8.1	-26.1
Oil	10596	11882	14125	13567	12596	11260	-972	-1637	-2558	-6.7	-11.5	-18.5
Natural gas	5184	6519	8263	7976	7395	7924	-1693	-2578	-1694	-17.5	-25.8	-17.6
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	9246	10829	12087	1011	2086	2559	12.3	23.9	26.9
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	11.9	12.5	11.7	0.3	-0.2	-2.8			
Oil	42.4	41.7	41.6	38.6	35.6	31.7	-0.8	-2.0	-4.0			
Natural gas	20.7	22.9	24.3	22.7	20.9	22.3	-3.5	-5.4	-2.6			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	26.3	30.6	34.0	4.0	7.5	9.4			
Gross Electricity Generation in GWh_e	49287	60150	62969	68707	75136	92665	-3785	-3209	6794	-5.2	-4.1	7.9
Self consumption and grid losses	4886	5404	7536	6651	7579	10273	-218	98	1335	-3.2	1.3	14.9
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4625	5179	7402	-1016	-667	892	-18.0	-11.4	13.7
Solids	1510	1236	1510	1657	1990	1838	17	-182	-1096	1.0	-8.4	-37.4
Oil (including refinery gas)	488	287	270	366	176	122	-181	-139	-204	-33.0	-44.0	-62.5
Gas (including derived gases)	1776	1974	2901	1577	871	2255	-1489	-1969	-153	-48.6	-69.3	-6.3
Biomass & Waste	237	428	786	1019	2134	3177	635	1621	2344	165.4	316.1	281.4
Geothermal heat	0	0	2	6	8	10	2	1	0	48.9	21.7	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	12331	11948	11106	-337	-633	-1288	-2.7	-5.0	-10.4
Refineries	9123	8765	9080	8944	8617	8146	-421	-648	-982	-4.5	-7.0	-10.8
Biofuels and hydrogen production	2	9	42	556	888	1106	64	184	63	13.1	26.2	6.0
District heating	347	566	612	799	519	25	-25	-194	-408	-3.0	-27.2	-94.3
Derived gases, cokeries etc.	1971	1910	2009	2031	1924	1829	44	25	40	2.2	1.3	2.2
Energy Branch Consumption	1639	1750	2134	1847	1754	1674	-99	-159	-182	-5.1	-8.3	-9.8
Non-Energy Uses	1401	1386	1381	1463	1512	1584	-2	-4	-6	-0.1	-0.3	-0.4
Final Energy Demand	19057	22913	27309	29379	29562	29134	-1327	-2084	-3376	-4.3	-6.6	-10.4
by sector												
Industry	6153	7528	8825	9551	9507	9595	-103	-289	-360	-1.1	-2.9	-3.6
- energy intensive industries	4048	4982	5533	5839	5724	5634	-13	-136	-157	-0.2	-2.3	-2.7
- other industrial sectors	2105	2546	3293	3712	3783	3961	-89	-153	-203	-2.4	-3.9	-4.9
Residential	5755	6042	6548	6981	7139	7034	-281	-381	-727	-3.9	-5.1	-9.4
Tertiary	2544	3304	3942	4238	4268	4067	-529	-706	-1049	-11.1	-14.2	-20.5
Transport	4603	6038	7994	8608	8648	8438	-415	-709	-1241	-4.6	-7.6	-12.8
by fuel												
Solids	1718	1415	1458	1412	1326	1110	-27	-54	-147	-1.8	-3.9	-11.7
Oil	7896	9402	11774	11381	10764	9766	-842	-1459	-2344	-6.9	-11.9	-19.4
Gas	2968	4254	4936	5728	5636	5131	-149	-586	-1187	-2.5	-9.4	-18.8
Electricity	3669	4474	4884	5421	5829	7067	-302	-277	483	-5.3	-4.5	7.3
Heat (from CHP and District Heating)	614	1052	1260	1285	1288	1179	-209	-276	-362	-14.0	-17.6	-23.5
Renewable energy forms	2192	2316	2996	4151	4716	4878	202	568	181	5.1	13.7	3.9
Other	0	0	0	1	2	3	0	0	0	6.9	5.4	-1.6
RES in Gross Final Energy Consumption ^(A)		6285	6788	8811	10342	11422	1059	1900	2249	13.7	22.5	24.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	94.1	90.2	84.3	-8.4	-14.2	-19.3	-8.2	-13.6	-18.6
CO₂ Emissions (energy related)	55.2	61.0	73.7	71.6	68.0	63.9	-7.4	-12.5	-17.5	-9.3	-15.5	-21.5
Power generation/District heating	12.8	11.6	15.0	12.8	12.1	13.5	-4.2	-6.1	-6.6	-24.5	-33.4	-32.7
Energy Branch	3.8	4.2	4.6	4.2	3.8	3.5	-0.2	-0.4	-0.5	-4.8	-10.3	-12.5
Industry	12.7	15.5	17.5	18.6	18.2	17.1	0.3	-0.2	-0.7	1.7	-1.3	-4.2
Residential	9.8	8.8	9.0	8.1	7.4	6.0	-0.9	-1.7	-3.1	-10.4	-18.4	-34.1
Tertiary	3.4	3.7	4.5	4.3	3.6	2.2	-0.9	-1.4	-2.5	-17.7	-28.4	-52.5
Transport	12.7	17.2	23.1	23.6	22.9	21.6	-1.4	-2.7	-4.1	-5.7	-10.4	-16.0
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.7	9.5	9.4	0.1	-0.1	-0.3	0.9	-1.4	-3.3
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.8	12.7	11.1	-1.1	-1.5	-1.5	-7.8	-10.7	-11.6
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	117.1	112.2	104.9	-10.4	-17.6	-24.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	114.9	105.5	91.9	-5.8	-7.5	-8.2	-4.8	-6.6	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	2.03	1.92	1.80	-0.10	-0.20	-0.31	-4.8	-9.5	-14.5
Import Dependency %	68.4	66.1	71.8	67.9	66.9	63.6	-4.3	-7.8	-9.8			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	30.0	33.5	37.6	0.8	1.5	2.3	2.6	4.6	6.6
as % of GDP		8.4	9.5	9.8	10.0	9.7	0.2	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.5	2.3						
as % of GDP				0.25	0.45	0.61						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	91.8	83.2	72.5	-1.0	-2.5	-2.7	-1.1	-2.9	-3.6
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	88.0	82.4	70.9	-3.5	-4.4	-7.3	-3.9	-5.1	-9.4
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	95.0	87.1	71.8	-11.8	-14.4	-18.5	-11.1	-14.2	-20.5
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	37.5	35.9	31.1	-0.8	-1.1	-2.9	-2.0	-3.1	-8.6
Freight transport (toe/Mtkm)	49.4	45.7	59.0	55.2	52.2	48.3	-2.9	-5.0	-6.7	-5.0	-8.7	-12.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.15	0.13	0.13	-0.04	-0.05	-0.07	-18.9	-28.5	-34.2
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.86	1.76	1.61	-0.02	-0.07	-0.15	-0.9	-4.0	-8.7
Industry	2.06	2.06	1.98	1.95	1.91	1.78	0.05	0.03	-0.01	2.8	1.7	-0.6
Residential	1.71	1.46	1.37	1.16	1.03	0.85	-0.08	-0.17	-0.32	-6.8	-14.0	-27.2
Tertiary	1.34	1.12	1.15	1.00	0.84	0.55	-0.08	-0.17	-0.37	-7.4	-16.6	-40.3
Transport	2.75	2.85	2.89	2.74	2.65	2.55	-0.03	-0.08	-0.10	-1.2	-3.1	-3.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	26.8	24.2	29.3	34.1	38.0	38.0	4.6	8.1	10.5			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.0	9.7	12.9	1.0	2.7	2.6			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	60150	62969	68707	75136	92665	92665	-3785	-3209	6794	-5.2	-4.1	7.9
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7640	9340	11107	11107	0	-935	-4644	0.0	-9.1	-29.5
Oil (including refinery gas)	1220	1452	3087	2157	1765	1765	-1078	-774	-1093	-25.9	-26.4	-38.2
Gas (including derived gases)	10541	14513	10493	7537	17794	17794	-7549	-9694	588	-41.8	-56.3	3.4
Biomass-waste	1845	3929	6635	12625	17831	17831	2707	7740	11057	68.9	158.5	163.2
Hydro (pumping excluded)	41832	35868	36129	38342	38342	38342	1273	0	0	3.7	0.0	0.0
Wind	67	1328	4632	4969	5474	5474	860	452	887	22.8	10.0	19.3
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	8	10	13	13	2	2	0	38.7	18.6	0.0
Net Generation Capacity in MW_e	16771	17685	22045	23273	25769	25769	-361	-280	614	-1.6	-1.2	2.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13510	14398	15915	15915	525	276	632	4.0	2.0	4.1
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2202	2447	3341	3341	525	276	632	31.3	12.7	23.3
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8535	8875	9854	9854	-887	-556	-19	-9.4	-5.9	-0.2
of which cogeneration units	3067	3657	4218	5094	5597	5597	-444	-74	-17	-9.5	-1.4	-0.3
Solids fired	1600	1587	1460	1460	1294	1294	0	-88	-580	0.0	-5.7	-31.0
Gas fired	2916	3267	4665	4444	5076	5076	-1425	-1539	-1090	-23.4	-25.7	-17.7
Oil fired	1167	1158	1267	641	380	380	-161	-273	-204	-11.2	-29.9	-35.0
Biomass-waste fired	295	384	1141	2328	3102	3102	699	1344	1856	157.8	136.5	149.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	2	3	3	0	0	0	28.4	14.9	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	34.2	35.4	39.4	39.4	-1.4	-1.3	1.9			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.8	52.6	56.4	56.4	0.3	0.6	0.1			
% of gross electricity from CHP	12.3	20.6	26.1	30.6	32.6	32.6	-5.9	-2.0	-3.6			
Carbon free gross electricity generation (%)	72.7	65.3	69.1	74.7	66.9	66.9	10.3	13.5	8.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	69.1	74.7	66.9	66.9	10.3	13.5	8.6			
Transport sector												
Passenger transport activity (Gpkm)	95.0	114.6	120.6	137.6	144.2	155.8	-1.7	-3.0	-4.2	-1.3	-2.1	-2.7
Public road transport	14.2	14.8	15.1	16.6	17.3	18.1	0.2	0.3	0.4	1.2	1.8	2.3
Private cars and motorcycles	65.2	81.3	85.8	95.8	98.7	103.3	-1.9	-3.2	-4.4	-2.0	-3.2	-4.1
Rail	11.5	11.8	12.3	14.5	15.6	17.2	0.2	0.3	0.4	1.7	2.0	2.1
Aviation	4.1	6.6	7.3	10.6	12.6	17.1	-0.2	-0.4	-0.6	-2.3	-3.2	-3.4
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	-0.4	-0.2
Freight transport activity (Gtkm)	34.1	54.2	55.9	62.6	66.5	74.2	-1.1	-1.8	-2.6	-1.7	-2.6	-3.3
Trucks	20.3	35.1	37.0	40.5	42.4	47.0	-1.6	-2.5	-3.4	-3.9	-5.6	-6.8
Rail	12.2	16.6	17.1	20.2	22.0	24.9	0.6	0.7	0.9	2.9	3.4	3.5
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.2	0.0	0.0	0.0	0.1	0.6	1.1
Energy demand in transport (ktoe)	4603	6038	7994	8608	8648	8438	-415	-709	-1241	-4.6	-7.6	-12.8
Public road transport	80	80	107	109	107	94	-2	-4	-6	-1.4	-3.2	-6.4
Private cars and motorcycles	2499	2865	3890	4092	4028	3520	-143	-222	-519	-3.4	-5.2	-12.8
Trucks	1350	2167	3004	3142	3155	3311	-243	-430	-625	-7.2	-12.0	-15.9
Rail	357	333	310	331	327	293	-1	-5	-13	-0.4	-1.4	-4.4
Aviation	310	586	675	924	1019	1210	-26	-49	-77	-2.8	-4.5	-6.0
Inland navigation	7	6	9	10	10	11	0	0	0	-0.6	-0.7	-1.3

Source: PRIMES

Belgium: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Primary Production	12529	11336	13366	14064	15054	15039	13871	7925	5646	0.6	1.2	-0.8	-8.6
Solids	1085	269	191	57	11	9	9	15	13	-16.0	-25.0	-1.8	3.6
Oil	0	0	0	6	0	0	0	0	0				
Natural gas	10	0	2	0	0	0	0	0	0	-14.3			
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Renewable energy sources	728	726	751	1723	2119	3327	4793	5270	5633	0.3	10.9	8.5	1.6
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.3	0.1	-0.2
Biomass & Waste	702	694	706	1675	1846	2578	3532	3879	4143	0.0	10.1	6.7	1.6
Wind	1	1	1	20	197	399	713	820	835	7.9	65.3	13.8	1.6
Solar and others	1	1	1	3	44	316	513	537	620	2.1	45.4	28.0	1.9
Geothermal	1	1	4	1	2	3	4	4	4	14.0	-6.5	6.9	1.1
Net Imports	38857	43775	48651	48968	48298	47826	48643	52653	54375	2.3	-0.1	0.1	1.1
Solids	9492	9343	7566	5511	4730	4717	5151	8891	10456	-2.2	-4.6	0.9	7.3
Oil	21468	23579	27331	28425	28764	27983	27291	26923	26700	2.4	0.5	-0.5	-0.2
- Crude oil and Feedstocks	26116	25674	32658	30565	31878	31604	31316	31228	31138	2.3	-0.2	-0.2	-0.1
- Oil products	-4648	-2096	-5328	-2141	-3114	-3620	-4025	-4304	-4437				
Natural gas	8217	10418	13278	14191	13864	14063	15059	15667	16041	4.9	0.4	0.8	0.6
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Gross Inland Consumption	47258	50459	57168	54952	55571	54789	54027	51677	50746	1.9	-0.3	-0.3	-0.6
Solids	10244	8551	8200	5450	4741	4726	5160	8906	10469	-2.2	-5.3	0.8	7.3
Oil	17730	19794	21949	20547	20983	19908	18805	18022	17426	2.2	-0.4	-1.1	-0.8
Natural gas	8169	10611	13369	14113	13864	14063	15059	15667	16041	5.0	0.4	0.8	0.6
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Renewable energy forms	728	812	856	2022	2448	3787	5424	5963	6373	1.6	11.1	8.3	1.6
as % in Gross Inland Consumption													
Solids	21.7	16.9	14.3	9.9	8.5	8.6	9.6	17.2	20.6				
Oil	37.5	39.2	38.4	37.4	37.8	36.3	34.8	34.9	34.3				
Natural gas	17.3	21.0	23.4	25.7	24.9	25.7	27.9	30.3	31.6				
Nuclear	22.7	20.5	21.7	22.3	23.3	21.4	16.8	5.1	0.0				
Renewable energy forms	1.5	1.6	1.5	3.7	4.4	6.9	10.0	11.5	12.6				
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88017	94122	103681	119047	130033	1.6	0.6	1.7	2.3
Self consumption and grid losses	7382	7778	7813	8244	7513	7967	8839	11926	13356	0.6	-0.4	1.6	4.2
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6097	6968	9535	15289	18423	1.3	-2.0	4.6	6.8
Solids	3875	3764	3025	1889	1584	1658	2313	6152	7824	-2.4	-6.3	3.9	13.0
Oil (including refinery gas)	318	232	172	411	0	0	23	4	139	-6.0			19.9
Gas (including derived gases)	1983	2721	3790	4612	3320	3661	4910	6493	7473	6.7	-1.3	4.0	4.3
Biomass & Waste	368	465	466	1388	1193	1649	2289	2640	2987	2.4	9.9	6.7	2.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	35155	32956	40739	38991	38294	37851	37484	37104	36891	1.5	-0.6	-0.2	-0.2
Refineries	29036	28632	37085	35792	34900	34250	33710	33322	33129	2.5	-0.6	-0.3	-0.2
Biofuels and hydrogen production	0	0	0	0	235	572	1002	1095	1167				15.6
District heating	10	5	41	27	69	51	40	39	32	15.2	5.4	-5.3	-2.2
Derived gases, cokeries etc.	6109	4320	3612	3173	3090	2977	2732	2647	2563	-5.1	-1.5	-1.2	-0.6
Energy Branch Consumption	2310	2273	2370	2127	1908	1853	1816	1910	1919	0.3	-2.1	-0.5	0.6
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3988	3950	7.8	-3.1	-0.6	-0.2
Final Energy Demand	31296	34489	36931	36403	37146	37306	37098	36491	35977	1.7	0.1	0.0	-0.3
by sector													
Industry	11886	12110	13636	11605	11788	11772	11622	11484	11488	1.4	-1.4	-0.1	-0.1
- energy intensive industries	9285	9192	10043	8751	8867	8869	8681	8547	8453	0.8	-1.2	-0.2	-0.3
- other industrial sectors	2600	2918	3593	2854	2921	2903	2940	2938	3035	3.3	-2.0	0.1	0.3
Residential	8337	9295	9465	9914	9788	9779	9634	9181	8780	1.3	0.3	-0.2	-0.9
Tertiary	3370	4604	4158	5005	5079	5050	5048	5031	4964	2.1	2.0	-0.1	-0.2
Transport	7704	8480	9672	9880	10491	10705	10794	10795	10744	2.3	0.8	0.3	0.0
by fuel													
Solids	3787	3306	3378	2080	1843	1828	1709	1687	1600	-1.1	-5.9	-0.8	-0.7
Oil	14734	16248	16047	16443	16326	15415	14424	13868	13242	0.9	0.2	-1.2	-0.9
Gas	7249	8517	10010	10009	10439	10352	9963	8810	8156	3.3	0.4	-0.5	-2.0
Electricity	4986	5885	6667	6894	7238	7720	8386	9427	10215	2.9	0.8	1.5	2.0
Heat (from CHP and District Heating)	213	220	490	427	352	424	449	471	500	8.7	-3.3	2.5	1.1
Renewable energy forms	326	312	338	549	946	1563	2164	2225	2260	0.3	10.9	8.6	0.4
Other	0	0	0	0	1	1	3	3	4			14.8	2.2
RES in Gross Final Energy Consumption ^(A)			495	909	2062	3488	4983	5465	5820		15.3	9.2	1.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	138.6	133.2	132.3	146.6	152.0	0.4	-0.7	-0.5	1.4
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	101.4	99.3	100.1	114.2	119.5	0.8	-1.3	-0.1	1.8
Power generation/District heating	21.8	23.1	22.5	20.6	15.1	16.1	21.7	40.4	49.7	0.3	-3.9	3.7	8.7
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.7	3.6	3.4	3.3	0.3	-3.8	-0.4	-0.9
Industry	30.2	28.7	30.5	22.8	22.5	21.7	20.5	20.2	19.8	0.1	-3.0	-0.9	-0.3
Residential	18.7	20.1	20.0	20.3	19.2	17.6	15.4	11.8	9.0	0.7	-0.4	-2.2	-5.3
Tertiary	7.5	10.4	8.2	10.5	10.3	9.7	9.4	9.1	9.0	0.8	2.3	-0.9	-0.5
Transport	22.6	24.9	28.6	29.4	30.6	30.4	29.5	29.2	28.8	2.4	0.7	-0.4	-0.3
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.1	10.3	10.3	10.2	10.0	0.9	-0.1	0.2	-0.3
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	23.6	21.9	22.2	22.5	-1.4	1.6	-2.1	0.2
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	97.5	93.7	93.0	103.1	106.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.5	146.7	132.0	116.2	106.2	-0.4	-2.2	-2.2	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.83	1.81	1.85	2.21	2.36	-1.1	-1.0	0.2	2.4
Import Dependency %	75.7	80.5	77.8	78.3	76.2	76.1	77.8	86.9	90.6				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.6	40.7	45.2	47.8	49.8		1.9	2.1	1.0
as % of GDP			10.9	10.6	10.9	10.9	11.1	10.7	10.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.0	71.4	65.5	60.3	56.3	-0.2	-2.4	-1.7	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	79.9	72.6	64.2	57.5	-0.9	-1.3	-1.9	-2.3
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.4	87.5	79.4	72.5	66.7	0.2	-0.2	-2.1	-1.7
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.7	41.8	39.0	36.5	0.1	-0.4	-0.8	-1.3
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.9	44.4	44.3	43.9	-0.7	0.0	-0.7	-0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.16	0.16	0.20	0.32	0.36	-1.7	-4.4	2.0	6.3
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.13	2.02	1.93	1.85	-0.7	-0.6	-1.0	-0.9
Industry	2.54	2.37	2.24	1.97	1.91	1.84	1.77	1.76	1.73	-1.3	-1.6	-0.8	-0.2
Residential	2.24	2.16	2.11	2.05	1.96	1.80	1.60	1.29	1.02	-0.6	-0.7	-2.0	-4.4
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.86	1.82	1.80	-1.3	0.3	-0.8	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.71	2.68	0.1	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.4	9.2	13.1	14.5	15.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.4	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			82639	85694	88017	94122	103681	119047	130033		0.6	1.7	2.3
Nuclear energy			48148	47586	50094	45361	35148	10232	0	0.4	-3.5		
Solids			12953	8552	6969	7506	10792	36371	46400	-6.0	4.5	15.7	
Oil (including refinery gas)			865	1871	17	719	766	146	777	-32.6	46.5	0.1	
Gas (including derived gases)			18968	23608	22918	26942	36456	48792	57496	1.9	4.8	4.7	
Biomass-waste			1231	3561	5353	8554	11787	13507	15130	15.8	8.2	2.5	
Hydro (pumping excluded)			459	288	362	364	367	361	361	-2.3	0.1	-0.2	
Wind			15	227	2287	4636	8294	9529	9709	65.3	13.8	1.6	
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17978	19087	20863	24184	25502		2.2	1.5	2.0
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0	0.1	-3.5		
<u>Renewable energy</u>			319	467	1230	2176	3659	4380	4519	14.5	11.5	2.1	
Hydro (pumping excluded)			306	298	300	303	304	304	304	-0.2	0.1	0.0	
Wind			13	167	906	1822	3263	3935	4007	52.9	13.7	2.1	
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10874	11638	13108	18612	20983	2.7	1.9	4.8	
of which cogeneration units			1863	2324	3066	4179	4851	4805	4802	5.1	4.7	-0.1	
Solids fired			1680	1392	1258	1182	1346	4561	5466	-2.8	0.7	15.0	
Gas fired			5522	6360	7628	7874	8713	11215	12889	3.3	1.3	4.0	
Oil fired			615	641	588	546	523	169	260	-0.5	-1.2	-6.8	
Biomass-waste fired			515	551	1400	2036	2525	2667	2368	10.5	6.1	-0.6	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	53.9	54.4	55.0	53.8	55.7				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.7	54.0	53.9	55.6	55.9				
% of gross electricity from CHP			7.3	7.2	17.2	24.7	24.9	22.8	21.7				
Carbon free gross electricity generation (%)			60.3	60.3	66.0	62.6	53.7	28.3	19.5				
- nuclear			58.3	55.5	56.9	48.2	33.9	8.6	0.0				
- renewable energy forms			2.1	4.8	9.1	14.4	19.8	19.7	19.5				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	165.1	174.0	180.8	187.9	194.0	2.0	1.7	0.9	0.7
Public road transport	10.9	13.1	13.3	17.6	18.8	19.2	19.7	20.1	20.3	2.0	3.5	0.5	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	120.9	125.3	127.7	131.1	133.5	1.8	1.2	0.5	0.4
Rail	7.3	7.6	8.6	10.1	11.8	13.1	14.3	15.2	16.5	1.7	3.2	2.0	1.4
Aviation	4.6	6.4	9.3	10.8	13.3	16.2	18.7	21.2	23.4	7.2	3.6	3.5	2.3
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.4	0.3
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.3	67.7	73.0	78.5	83.5	3.2	-0.4	1.4	1.4
Trucks	34.2	45.6	51.0	43.8	45.4	49.0	53.5	58.6	63.3	4.1	-1.2	1.7	1.7
Rail	8.4	7.3	7.7	8.1	8.8	9.4	9.9	10.1	10.3	-0.9	1.4	1.1	0.4
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10491	10705	10794	10795	10744	2.3	0.8	0.3	0.0
Public road transport	165	164	170	173	182	176	172	163	153	0.3	0.7	-0.6	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5692	5609	5464	5173	4909	1.6	1.7	-0.4	-1.1
Trucks	2205	2420	2858	2581	2657	2757	2889	3136	3353	2.6	-0.7	0.8	1.5
Rail	177	202	183	185	196	197	194	181	156	0.4	0.7	-0.1	-2.1
Aviation	952	945	1530	1281	1536	1736	1843	1907	1940	4.9	0.0	1.8	0.5
Inland navigation	129	247	136	217	227	230	234	235	234	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	15039	13871	5646	648	1552	1642	4.5	12.6	41.0
Solids	1085	191	57	9	9	13	-11	-9	0	-56.0	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	-163.5	-326.9	-2.9
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3327	4793	5633	660	1561	1642	24.7	48.3	41.1
Hydro	23	39	25	31	32	31	1	0	1	2.1	0.2	4.4
Biomass & Waste	702	706	1675	2578	3532	4143	350	912	889	15.7	34.8	27.3
Wind	1	1	20	399	713	835	64	255	305	19.3	55.5	57.5
Solar and others	1	1	3	316	513	620	244	392	444	334.8	322.5	252.9
Geothermal	1	4	1	3	4	4	1	2	3	100.1	167.6	205.0
Net Imports	38857	48651	48968	47826	48643	54375	-3206	-4919	-4972	-6.3	-9.2	-8.4
Solids	9492	7566	5511	4717	5151	10456	-632	-1351	-365	-11.8	-20.8	-3.4
Oil	21468	27331	28425	27983	27291	26700	-1167	-1957	-2946	-4.0	-6.7	-9.9
- Crude oil and Feedstocks	26116	32658	30565	31604	31316	31138	-649	-1098	-1687	-2.0	-3.4	-5.1
- Oil products	-4648	-5328	-2141	-3620	-4025	-4437	-518	-858	-1259	16.7	27.1	39.6
Natural gas	8217	13278	14191	14063	15059	16041	-1469	-1774	-1819	-9.5	-10.5	-10.2
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	54789	54027	50746	-2554	-3355	-3308	-4.5	-5.8	-6.1
Solids	10244	8200	5450	4726	5160	10469	-644	-1360	-365	-12.0	-20.9	-3.4
Oil	17730	21949	20547	19908	18805	17426	-1163	-1945	-2924	-5.5	-9.4	-14.4
Natural gas	8169	13369	14113	14063	15059	16041	-1469	-1774	-1819	-9.5	-10.5	-10.2
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3787	5424	6373	722	1724	1801	23.6	46.6	39.4
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	8.6	9.6	20.6	-0.7	-1.8	0.6			
Oil	37.5	38.4	37.4	36.3	34.8	34.3	-0.4	-1.4	-3.3			
Natural gas	17.3	23.4	25.7	25.7	27.9	31.6	-1.4	-1.5	-1.4			
Nuclear	22.7	21.7	22.3	21.4	16.8	0.0	1.0	1.0	0.0			
Renewable energy forms	1.5	1.5	3.7	6.9	10.0	12.6	1.6	3.6	4.1			
Gross Electricity Generation in GWh_e	70202	82639	85694	94122	103681	130033	-6961	-5258	12285	-6.9	-4.8	10.4
Self consumption and grid losses	7382	7813	8244	7967	8839	13356	-667	-603	1679	-7.7	-6.4	14.4
Fuel Inputs to Thermal Power Generation	6544	7453	8299	6968	9535	18423	-1515	-1472	1286	-17.9	-13.4	7.5
Solids	3875	3025	1889	1658	2313	7824	-681	-1309	-339	-29.1	-36.2	-4.2
Oil (including refinery gas)	318	172	411	0	23	139	-89	-58	41	-99.8	-72.0	41.6
Gas (including derived gases)	1983	3790	4612	3661	4910	7473	-1074	-956	573	-22.7	-16.3	8.3
Biomass & Waste	368	466	1388	1649	2289	2987	329	851	1012	24.9	59.2	51.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37851	37484	36891	-482	-873	-1510	-1.3	-2.3	-3.9
Refineries	29036	37085	35792	34250	33710	33129	-652	-1102	-1693	-1.9	-3.2	-4.9
Biofuels and hydrogen production	0	0	0	572	1002	1167	70	215	112	13.9	27.3	10.7
District heating	10	41	27	51	40	32	3	-1	-11	5.9	-2.4	-25.1
Derived gases, cokeries etc.	6109	3612	3173	2977	2732	2563	97	15	82	3.4	0.6	3.3
Energy Branch Consumption	2310	2370	2127	1853	1816	1919	-62	-107	-91	-3.2	-5.6	-4.5
Non-Energy Uses	2739	5814	4583	4051	4024	3950	-3	-5	-9	-0.1	-0.1	-0.2
Final Energy Demand	31296	36931	36403	37306	37098	35977	-1633	-2515	-3894	-4.2	-6.3	-9.8
by sector												
Industry	11886	13636	11605	11772	11622	11488	-124	-286	-395	-1.0	-2.4	-3.3
- energy intensive industries	9285	10043	8751	8869	8681	8453	-32	-164	-219	-0.4	-1.9	-2.5
- other industrial sectors	2600	3593	2854	2903	2940	3035	-91	-122	-177	-3.1	-4.0	-5.5
Residential	8337	9465	9914	9779	9634	8780	-569	-829	-1542	-5.5	-7.9	-14.9
Tertiary	3370	4158	5005	5050	5048	4964	-529	-663	-782	-9.5	-11.6	-13.6
Transport	7704	9672	9880	10705	10794	10744	-411	-738	-1175	-3.7	-6.4	-9.9
by fuel												
Solids	3787	3378	2080	1828	1709	1600	2	-75	-80	0.1	-4.2	-4.8
Oil	14734	16047	16443	15415	14424	13242	-1005	-1797	-2794	-6.1	-11.1	-17.4
Gas	7249	10010	10009	10352	9963	8156	-398	-812	-2383	-3.7	-7.5	-22.6
Electricity	4986	6667	6894	7720	8386	10215	-535	-389	933	-6.5	-4.4	10.1
Heat (from CHP and District Heating)	213	490	427	424	449	500	-13	-22	-33	-3.0	-4.7	-6.2
Renewable energy forms	326	338	549	1563	2164	2260	316	579	465	25.3	36.5	25.9
Other	0	0	0	1	3	4	0	0	-2	5.6	7.9	-29.9
RES in Gross Final Energy Consumption ^(A)		495	909	3488	4983	5820	1015	1809	1796	41.0	57.0	44.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	133.2	132.3	152.0	-13.0	-20.2	-20.0	-8.9	-13.2	-11.6
CO₂ Emissions (energy related)	106.2	115.4	107.8	99.3	100.1	119.5	-9.5	-15.5	-14.6	-8.8	-13.4	-10.9
Power generation/District heating	21.8	22.5	20.6	16.1	21.7	49.7	-5.5	-7.6	0.1	-25.3	-25.9	0.2
Energy Branch	5.4	5.5	4.3	3.7	3.6	3.3	-0.1	-0.2	-0.4	-3.2	-5.5	-10.0
Industry	30.2	30.5	22.8	21.7	20.5	19.8	0.3	0.0	0.2	1.6	-0.1	0.9
Residential	18.7	20.0	20.3	17.6	15.4	9.0	-1.8	-3.6	-9.0	-9.5	-18.8	-50.2
Tertiary	7.5	8.2	10.5	9.7	9.4	9.0	-1.0	-1.2	-1.4	-9.3	-11.6	-13.4
Transport	22.6	28.6	29.4	30.4	29.5	28.8	-1.4	-2.9	-4.1	-4.5	-8.8	-12.5
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.3	10.3	10.0	0.0	-0.1	-0.1	0.4	-0.6	-1.5
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	23.6	21.9	22.5	-3.5	-4.7	-5.3	-12.9	-17.6	-19.0
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	93.7	93.0	106.9	-9.1	-14.2	-14.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	146.7	132.0	106.2	-6.8	-8.2	-6.9	-4.5	-5.8	-6.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.81	1.85	2.36	-0.09	-0.16	-0.13	-4.5	-8.0	-5.1
Import Dependency %	75.7	77.8	78.3	76.1	77.8	90.6	-1.9	-3.5	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	40.7	45.2	49.8	1.5	2.3	3.3	3.7	5.5	7.1
as % of GDP		10.9	10.6	10.9	11.1	10.4	0.4	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.5	2.4	3.4						
as % of GDP				0.40	0.59	0.71						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	71.4	65.5	56.3	-0.7	-1.6	-1.9	-1.0	-2.4	-3.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	79.9	72.6	57.5	-4.6	-6.2	-10.1	-5.5	-7.9	-14.9
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	87.5	79.4	66.7	-9.2	-10.4	-10.5	-9.5	-11.6	-13.6
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.7	41.8	36.5	-0.9	-1.4	-2.2	-2.0	-3.2	-5.8
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.9	44.4	43.9	-1.9	-3.6	-5.1	-4.1	-7.5	-10.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.16	0.20	0.36	-0.04	-0.06	-0.03	-20.0	-22.2	-8.5
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.13	2.02	1.85	-0.01	-0.07	-0.18	-0.6	-3.2	-8.8
Industry	2.54	2.24	1.97	1.84	1.77	1.73	0.05	0.04	0.07	2.7	2.4	4.4
Residential	2.24	2.11	2.05	1.80	1.60	1.02	-0.08	-0.21	-0.72	-4.2	-11.8	-41.4
Tertiary	2.23	1.96	2.09	1.93	1.86	1.80	0.00	0.00	0.00	0.2	0.0	0.2
Transport	2.94	2.96	2.97	2.84	2.73	2.68	-0.03	-0.07	-0.08	-0.9	-2.6	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.2	13.1	15.7	2.9	5.3	5.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.4	11.2	0.8	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	94122	103681	130033	130033	-6961	-5258	12285	-6.9	-4.8	10.4
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	0.0
Solids	12953	8552	7506	10792	46400	46400	-2888	-6708	-828	-27.8	-38.3	-1.8
Oil (including refinery gas)	865	1871	719	766	777	777	-418	-265	-90	-36.7	-25.7	-10.4
Gas (including derived gases)	18968	23608	26942	36456	57496	57496	-6181	-5335	5231	-18.7	-12.8	10.0
Biomass-waste	1231	3561	8554	11787	15130	15130	1769	4089	4412	26.1	53.1	41.2
Hydro (pumping excluded)	459	288	364	367	361	361	8	1	15	2.1	0.2	4.4
Wind	15	227	4636	8294	9709	9709	749	2960	3545	19.3	55.5	57.5
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	14452	15254	19087	20863	25502	25502	200	265	3394	1.1	1.3	15.3
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	319	467	2176	3659	4519	4519	250	1034	1437	13.0	39.4	46.6
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1822	3263	4007	4007	250	1034	1437	15.9	46.4	55.9
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11638	13108	20983	20983	-49	-770	1957	-0.4	-5.5	10.3
of which cogeneration units	1863	2324	4179	4851	4802	4802	-356	-358	-550	-7.8	-6.9	-10.3
Solids fired	1680	1392	1182	1346	5466	5466	-292	-822	-190	-19.8	-37.9	-3.4
Gas fired	5522	6360	7874	8713	12889	12889	-502	-945	1220	-6.0	-9.8	10.5
Oil fired	615	641	546	523	260	260	-4	0	8	-0.7	0.0	3.3
Biomass-waste fired	515	551	2036	2525	2368	2368	749	997	918	58.2	65.3	63.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	54.4	55.0	55.7	55.7	-4.7	-3.4	-2.3			
Efficiency of gross thermal power generation (%)	39.3	39.0	54.0	53.9	55.9	55.9	1.8	0.8	0.2			
% of gross electricity from CHP	7.3	7.2	24.7	24.9	21.7	21.7	1.2	-0.2	-5.2			
Carbon free gross electricity generation (%)	60.3	60.3	62.6	53.7	19.5	6.8	6.8	9.1	4.7			
- nuclear	58.3	55.5	48.2	33.9	0.0	3.3	3.3	1.6	0.0			
- renewable energy forms	2.1	4.8	14.4	19.8	19.5	3.5	3.5	7.4	4.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	113.7	139.3	153.2	174.0	180.8	194.0	-1.9	-3.4	-4.7	-1.1	-1.8	-2.4
Private cars and motorcycles	10.9	13.3	17.6	19.2	19.7	20.3	0.3	0.5	0.6	1.6	2.4	2.9
Rail	90.1	107.7	114.4	125.3	127.7	133.5	-2.1	-3.6	-4.8	-1.6	-2.8	-3.5
Aviation	7.3	8.6	10.1	13.1	14.3	16.5	0.2	0.4	0.3	1.9	2.6	1.8
Inland navigation	4.6	9.3	10.8	16.2	18.7	23.4	-0.3	-0.5	-0.7	-2.0	-2.8	-3.0
Freight transport activity (Gtkm)	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.6	-0.4	-0.2
Trucks	48.0	65.9	60.5	67.7	73.0	83.5	-0.9	-1.8	-2.8	-1.4	-2.3	-3.2
Rail	34.2	51.0	43.8	49.0	53.5	63.3	-1.4	-2.4	-3.5	-2.8	-4.4	-5.3
Inland navigation	8.4	7.7	8.1	9.4	9.9	10.3	0.4	0.5	0.6	4.3	5.7	5.9
Energy demand in transport (ktoe)	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.1	0.2	1.0	1.6	2.0
Public road transport	7704	9672	9880	10705	10794	10744	-411	-738	-1175	-3.7	-6.4	-9.9
Private cars and motorcycles	165	170	173	176	172	153	-2	-5	-9	-1.0	-2.6	-5.7
Trucks	4075	4794	5442	5609	5464	4909	-178	-282	-356	-3.1	-4.9	-6.8
Rail	2205	2858	2581	2757	2889	3353	-180	-349	-564	-6.1	-10.8	-14.4
Aviation	177	183	185	197	194	156	1	1	-5	0.6	0.6	-2.9
Inland navigation	952	1530	1281	1736	1843	1940	-53	-103	-246	-2.9	-5.3	-11.3
Inland navigation	129	136	217	230	234	234	0	0	5	0.1	0.0	2.2

Source: PRIMES

Bulgaria: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	9136	10192	9845	10611	9226	8363	10573	12045	12373	0.8	-0.6	1.4	1.6	
Solids	5121	5287	4310	4178	3812	2762	2599	1564	1164	-1.7	-1.2	-3.8	-7.7	
Oil	60	43	42	30	34	37	40	41	41	-3.5	-2.2	1.6	0.3	
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Renewable energy sources	161	370	792	1207	1623	1826	2292	2945	3695	17.2	7.4	3.5	4.9	
Hydro	161	151	230	373	273	299	307	323	341	3.6	1.7	1.2	1.1	
Biomass & Waste	0	219	562	801	1174	1297	1641	2246	2927		7.7	3.4	6.0	
Wind	0	0	0	0	33	49	88	104	144			10.2	5.1	
Solar and others	0	0	0	0	5	26	77	106	132			31.4	5.5	
Geothermal	0	0	0	33	137	155	179	167	151			2.7	-1.7	
Net Imports	17823	13475	8681	9416	9929	10765	11035	11659	12444	-6.9	1.4	1.1	1.2	
Solids	3527	2424	2258	2550	2761	2950	2924	3007	2978	-4.4	2.0	0.6	0.2	
Oil	8540	6511	4081	5086	5394	5920	6373	6778	6950	-7.1	2.8	1.7	0.9	
- Crude oil and Feedstocks	8247	8003	5346	6328	7216	7892	8476	8999	9225	-4.2	3.0	1.6	0.9	
- Oil products	292	-1492	-1265	-1242	-1821	-1972	-2104	-2220	-2275					
Natural gas	5430	4563	2742	2458	2019	2190	2444	2656	3376	-6.6	-3.0	1.9	3.3	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Gross Inland Consumption	27964	23305	18610	19885	19020	18974	21440	23526	24632	-4.0	0.2	1.2	1.4	
Solids	8706	7673	6417	6892	6573	5711	5523	4571	4142	-3.0	0.2	-1.7	-2.8	
Oil	9593	6245	4181	4847	5294	5804	6244	6641	6807	-8.0	2.4	1.7	0.9	
Natural gas	5395	4584	2932	2804	2255	2389	2613	2800	3498	-5.9	-2.6	1.5	3.0	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Renewable energy forms	161	363	788	1181	1585	1784	2240	2874	3602	17.2	7.2	3.5	4.9	
as % in Gross Inland Consumption														
Solids	31.1	32.9	34.5	34.7	34.6	30.1	25.8	19.4	16.8					
Oil	34.3	26.8	22.5	24.4	27.8	30.6	29.1	28.2	27.6					
Natural gas	19.3	19.7	15.8	14.1	11.9	12.6	12.2	11.9	14.2					
Nuclear	13.5	19.1	25.2	24.2	18.5	18.6	25.5	31.2	29.8					
Renewable energy forms	0.6	1.6	4.2	5.9	8.3	9.4	10.4	12.2	14.6					
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	33646	36902	45363	49765	52847	-0.4	-1.9	3.0	1.5	
Self consumption and grid losses	8456	8102	7245	7081	5004	5046	5417	5480	5552	-1.5	-3.6	0.8	0.2	
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	4975	4127	4152	3526	4171	-4.6	-2.3	-1.8	0.0	
Solids	6800	6734	5245	5675	4810	4033	3909	2926	2534	-2.6	-0.9	-2.1	-4.2	
Oil (including refinery gas)	951	613	160	149	16	15	15	15	10	-16.3	-20.3	-0.8	-4.0	
Gas (including derived gases)	2352	1835	884	697	149	131	98	79	573	-9.3	-16.3	-4.1	19.3	
Biomass & Waste	0	0	3	2	0	-53	130	505	1054				23.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	13079	11635	7612	8839	9035	9677	10205	10755	10945	-5.3	1.7	1.2	0.7	
Refineries	8341	8023	5406	6586	7444	8120	8703	9213	9417	-4.2	3.3	1.6	0.8	
Biofuels and hydrogen production	0	0	0	0	34	76	123	223	361			13.8	11.4	
District heating	2779	1544	324	370	599	624	646	651	558	-19.3	6.3	0.8	-1.5	
Derived gases, cokeries etc.	1960	2069	1882	1883	959	857	732	668	609	-0.4	-6.5	-2.7	-1.8	
Energy Branch Consumption	1359	1458	1146	1279	1382	1410	1488	1551	1596	-1.7	1.9	0.7	0.7	
Non-Energy Uses	1427	1236	1261	1059	987	1049	1181	1289	1357	-1.2	-2.4	1.8	1.4	
Final Energy Demand	16138	11575	8861	9682	10620	11677	12930	14192	15163	-5.8	1.8	2.0	1.6	
by sector														
Industry	8966	6032	3637	3673	3641	3858	4256	4713	5191	-8.6	0.0	1.6	2.0	
- energy intensive industries	5579	4837	2814	2809	2812	2950	3190	3476	3758	-6.6	0.0	1.3	1.7	
- other industrial sectors	3387	1195	823	864	829	908	1065	1236	1433	-13.2	0.1	2.5	3.0	
Residential	2264	2378	2363	2268	2424	2580	2845	3065	3259	0.4	0.3	1.6	1.4	
Tertiary	2389	1189	1044	1181	1422	1571	1676	1787	1835	-7.9	3.1	1.7	0.9	
Transport	2518	1976	1817	2560	3133	3668	4153	4627	4877	-3.2	5.6	2.9	1.6	
by fuel														
Solids	1477	1280	860	936	1187	1193	1247	1300	1285	-5.3	3.3	0.5	0.3	
Oil	4967	2893	2981	3599	4304	4812	5270	5664	5855	-5.0	3.7	2.0	1.1	
Gas	2066	1787	1231	1025	991	1093	1262	1422	1648	-5.0	-2.1	2.4	2.7	
Electricity	3085	2639	2358	2383	2121	2348	2619	2909	3110	-2.7	-1.1	2.1	1.7	
Heat (from CHP and District Heating)	4543	2798	877	939	807	886	1106	1296	1562	-15.2	-0.8	3.2	3.5	
Renewable energy forms	0	178	555	800	1210	1345	1426	1600	1703		8.1	1.7	1.8	
Other	0	0	0	0	0	1	1	2	2			16.2	3.8	
RES in Gross Final Energy Consumption ^(A)			786	1182	1570	1760	2163	2719	3345		7.2	3.3	4.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	61.9	58.7	59.0	52.9	50.6	-5.4	-0.2	-0.5	-1.5	
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	43.7	41.9	42.8	40.4	40.8	-5.3	0.4	-0.2	-0.5	
Power generation/District heating	44.8	38.2	24.9	26.2	21.7	18.5	17.9	13.7	13.0	-5.7	-1.4	-1.9	-3.1	
Energy Branch	1.6	1.4	1.3	1.6	1.8	1.6	1.1	1.0	1.1	-2.1	3.6	-5.0	0.0	
Industry	11.2	9.3	8.3	7.6	8.3	8.3	8.6	8.9	9.4	-2.9	-0.1	0.3	0.9	
Residential	3.0	2.2	1.2	1.2	1.4	1.3	1.3	1.5	1.5	-8.9	1.5	-0.9	1.5	
Tertiary	4.7	1.4	1.2	1.1	1.5	1.8	2.2	2.5	2.5	-13.0	2.1	4.4	1.2	
Transport	7.1	5.6	5.2	7.4	9.0	10.5	11.8	13.0	13.4	-3.0	5.7	2.7	1.2	
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.4	4.8	5.4	6.2	6.9	-4.2	0.1	2.1	2.6	
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	56.6	53.6	53.9	48.3	46.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: EC proposal with JI/CDM & without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0	
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6	
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	681.3	515.9	435.0	361.0	290.1	-2.3	-4.7	-4.4	-4.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.30	2.21	2.00	1.72	1.66	-1.3	0.1	-1.4	-1.9	
Import Dependency %	63.6	57.2	46.5	47.1	51.8	56.3	51.1	49.2	50.1					
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	7.9	9.6	11.6	14.0	16.6		3.0	3.9	3.7	
as % of GDP			34.7	28.7	28.2	26.0	23.5	21.5	19.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.7	44.3	35.1	28.5	23.4	-3.0	-5.4	-4.8	-4.0	
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	60.5	49.5	41.2	34.0	28.0	1.5	-4.9	-3.8	-3.8	
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	83.9	70.4	56.6	46.2	36.8	-4.0	-1.7	-3.9	-4.2	
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.6	30.5	29.7	27.8	2.5	1.9	-0.5	-0.9	
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.5	61.7	60.0	60.0	59.9	2.1	-1.4	-0.7	0.0	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.44	0.34	0.28	0.19	0.17	0.2	-0.3	-4.6	-4.9	
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.90	1.88	1.85	1.81	1.76	1.1	0.6	-0.3	-0.5	
Industry	1.25	1.55	2.29	2.06	2.28	2.16	2.01	1.89	1.80	6.2	-0.1	-1.2	-1.1	
Residential	1.33	0.92	0.50	0.53	0.57	0.50	0.44	0.43	0.45	-9.3	1.2	-2.5	0.1	
Tertiary	1.98	1.16	1.13	0.91	1.02	1.13	1.34	1.38	1.37	-5.5	-1.0	2.7	0.2	
Transport	2.81	2.84	2.87	2.91	2.89	2.87	2.85	2.80	2.74	0.2	0.1	-0.1	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	14.0	14.4	16.0	18.4	21.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.2	3.2	5.2	8.1					
Gross Electricity generation by source (in GWh)														
			40639	43965	33646	36902	45363	49765	52847		-1.9	3.0	1.5	
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3	
Solids			16824	18120	14862	17529	15649	9905	8387		-1.2	0.5	-6.0	
Oil (including refinery gas)			590	825	76	69	69	69	39		-18.6	-0.9	-5.4	
Gas (including derived gases)			2368	1963	1264	1214	1043	953	3777		-6.1	-1.9	13.7	
Biomass-waste			10	70	232	327	1760	3151	4264		37.4	22.4	9.3	
Hydro (pumping excluded)			2673	4336	3173	3476	3568	3757	3968		1.7	1.2	1.1	
Wind			0	2	387	564	1023	1211	1679			10.2	5.1	
Solar			0	0	2	5	9	19	33			17.5	13.5	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			10900	10201	9934	10784	10628	11802	12151		-0.9	0.7	1.3	
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9	
<u>Renewable energy</u>			1921	2005	2456	2610	3114	3315	3822		2.5	2.4	2.1	
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8	
Wind			0	1	277	403	890	1045	1393			12.4	4.6	
Solar			0	0	2	4	8	15	27			17.5	13.5	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5505	5517	5593	6264	4644	4670	4512		0.2	-1.8	-0.3	
of which cogeneration units			2163	2183	595	1298	1238	1552	2242		-12.1	7.6	6.1	
Solids fired			4536	4527	4398	5225	3755	3740	2775		-0.3	-1.6	-3.0	
Gas fired			603	625	783	640	313	238	661		2.6	-8.8	7.8	
Oil fired			355	355	373	347	275	56	25		0.5	-3.0	-21.3	
Biomass-waste fired			11	11	39	53	301	636	1050		13.8	22.6	13.3	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			38.3	44.6	35.6	36.3	45.7	45.5	47.1					
Efficiency of gross thermal power generation (%)			27.0	27.7	28.4	39.9	38.4	34.3	34.0					
% of gross electricity from CHP			12.0	14.3	7.0	18.4	16.5	17.3	21.6					
Carbon free gross electricity generation (%)			51.3	52.4	51.8	49.0	63.1	78.0	76.9					
- nuclear			44.7	42.4	40.6	37.2	49.0	61.7	58.1					
- renewable energy forms			6.6	10.0	11.3	11.8	14.0	16.4	18.8					
Transport sector														
Passenger transport activity (Gpkm)														
	40.3	21.4	33.8	38.7	44.9	52.2	60.2	68.2	75.0		-1.7	2.9	3.0	2.2
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8		-6.1	-2.8	-0.7	0.1
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	48.8	53.9		11.2	6.6	3.7	2.4
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0		-7.8	-3.3	3.4	3.8
Aviation	0.8	0.9	0.9	1.6	2.5	3.5	4.5	5.5	6.2		0.6	10.6	6.2	3.2
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-23.0	-2.4	-0.7	0.4
Freight transport activity (Gtkm)														
	27.8	18.9	12.3	20.3	26.2	32.7	38.6	43.4	46.6		-7.9	7.9	4.0	1.9
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.5	33.1	35.6		-6.1	11.9	4.1	1.9
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4		-8.9	-0.1	3.5	2.0
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7		-15.1	12.0	3.9	1.5
Energy demand in transport (ktoe)														
	2518	1976	1817	2560	3133	3668	4153	4627	4877		-3.2	5.6	2.9	1.6
Public road transport	318	152	158	97	82	72	67	66	62		-6.8	-6.4	-1.9	-0.8
Private cars and motorcycles	231	175	639	928	1096	1241	1362	1487	1490		10.7	5.5	2.2	0.9
Trucks	1459	1223	842	1274	1629	1950	2244	2524	2725		-5.4	6.8	3.3	2.0
Rail	216	144	77	60	61	72	75	77	69		-9.8	-2.3	2.1	-0.8
Aviation	276	276	101	200	263	331	402	471	528		-9.6	10.1	4.3	2.8
Inland navigation	18	6	1	2	2	3	3	3	3		-25.5	8.4	3.4	1.3

Source: PRIMES

Bulgaria: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8363	10573	12373	-1716	-1398	-650	-17.0	-11.7	-5.0
Solids	5121	4310	4178	2762	2599	1164	-2217	-2268	-2404	-44.5	-46.6	-67.4
Oil	60	42	30	37	40	41	1	0	0	4.1	0.2	0.0
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	1826	2292	3695	498	870	1753	37.5	61.2	90.3
Hydro	161	230	373	299	307	341	14	11	0	4.9	3.9	0.0
Biomass & Waste	0	562	801	1297	1641	2927	346	622	1483	36.4	61.1	102.7
Wind	0	0	0	49	88	144	12	46	66	33.6	107.7	84.3
Solar and others	0	0	0	26	77	132	12	52	82	90.9	199.8	166.4
Geothermal	0	0	33	155	179	151	113	139	122	268.1	355.9	414.2
Net Imports	17823	8681	9416	10765	11035	12444	525	-124	-311	5.1	-1.1	-2.4
Solids	3527	2258	2550	2950	2924	2978	236	140	137	8.7	5.0	4.8
Oil	8540	4081	5086	5920	6373	6950	245	21	-84	4.3	0.3	-1.2
- Crude oil and Feedstocks	8247	5346	6328	7892	8476	9225	308	26	-106	4.1	0.3	-1.1
- Oil products	292	-1265	-1242	-1972	-2104	-2275	-63	-5	22	3.3	0.2	-1.0
Natural gas	5430	2742	2458	2190	2444	3376	55	-266	-316	2.6	-9.8	-8.6
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18974	21440	24632	-1191	-1522	-960	-5.9	-6.6	-3.8
Solids	8706	6417	6892	5711	5523	4142	-1981	-2128	-2267	-25.8	-27.8	-35.4
Oil	9593	4181	4847	5804	6244	6807	246	22	-83	4.4	0.4	-1.2
Natural gas	5395	2932	2804	2389	2613	3498	57	-266	-316	2.4	-9.3	-8.3
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	1784	2240	3602	487	850	1706	37.5	61.2	90.0
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	30.1	25.8	16.8	-8.0	-7.6	-8.2			
Oil	34.3	22.5	24.4	30.6	29.1	27.6	3.0	2.0	0.7			
Natural gas	19.3	15.8	14.1	12.6	12.2	14.2	1.0	-0.4	-0.7			
Nuclear	13.5	25.2	24.2	18.6	25.5	29.8	1.1	1.7	1.1			
Renewable energy forms	0.6	4.2	5.9	9.4	10.4	14.6	3.0	4.4	7.2			
Gross Electricity Generation in GWh_e	42133	40639	43965	36902	45363	52847	-9220	-11411	-13861	-20.0	-20.1	-20.8
Self consumption and grid losses	8456	7245	7081	5046	5417	5552	-1875	-2166	-2704	-27.1	-28.6	-32.8
Fuel Inputs to Thermal Power Generation	10103	6292	6523	4127	4152	4171	-2130	-2448	-1896	-34.0	-37.1	-31.3
Solids	6800	5245	5675	4033	3909	2534	-2042	-2323	-2506	-33.6	-37.3	-49.7
Oil (including refinery gas)	951	160	149	15	15	10	15	15	-2			-13.4
Gas (including derived gases)	2352	884	697	131	98	573	-51	-265	-242	-28.1	-73.0	-29.6
Biomass & Waste	0	3	2	-53	130	1054	-53	125	853		2399.9	423.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	9677	10205	10945	483	211	50	5.3	2.1	0.5
Refineries	8341	5406	6586	8120	8703	9417	306	23	-108	3.9	0.3	-1.1
Biofuels and hydrogen production	0	0	0	76	123	361	11	32	70	17.3	35.6	24.1
District heating	2779	324	370	624	646	558	119	122	49	23.6	23.4	9.6
Derived gases, cokeries etc.	1960	1882	1883	857	732	609	47	33	39	5.8	4.7	6.9
Energy Branch Consumption	1359	1146	1279	1410	1488	1596	-51	-94	-131	-3.5	-5.9	-7.6
Non-Energy Uses	1427	1261	1059	1049	1181	1357	-13	-14	-14	-1.3	-1.1	-1.0
Final Energy Demand	16138	8861	9682	11677	12930	15163	144	78	63	1.3	0.6	0.4
by sector												
Industry	8966	3637	3673	3858	4256	5191	-10	-79	-90	-0.3	-1.8	-1.7
- energy intensive industries	5579	2814	2809	2950	3190	3758	-3	-63	-50	-0.1	-2.0	-1.3
- other industrial sectors	3387	823	864	908	1065	1433	-7	-15	-41	-0.7	-1.4	-2.8
Residential	2264	2363	2268	2580	2845	3259	90	118	159	3.6	4.3	5.1
Tertiary	2389	1044	1181	1571	1676	1835	74	66	51	4.9	4.1	2.9
Transport	2518	1817	2560	3668	4153	4877	-10	-28	-57	-0.3	-0.7	-1.2
by fuel												
Solids	1477	860	936	1193	1247	1285	89	184	227	8.1	17.3	21.5
Oil	4967	2981	3599	4812	5270	5855	189	10	-77	4.1	0.2	-1.3
Gas	2066	1231	1025	1093	1262	1648	62	122	152	6.0	10.7	10.2
Electricity	3085	2358	2383	2348	2619	3110	-637	-800	-965	-21.3	-23.4	-23.7
Heat (from CHP and District Heating)	4543	877	939	886	1106	1562	27	127	201	3.2	13.0	14.7
Renewable energy forms	0	555	800	1345	1426	1703	415	436	524	44.6	44.0	44.5
Other	0	0	0	1	1	2	0	0	0	0.7	1.1	2.1
RES in Gross Final Energy Consumption ^(A)		786	1182	1760	2163	3345	480	797	1535	37.5	58.3	84.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	58.7	59.0	50.6	-7.4	-9.4	-10.5	-11.1	-13.8	-17.1
CO₂ Emissions (energy related)	72.4	42.1	45.1	41.9	42.8	40.8	-7.4	-9.4	-10.4	-15.0	-18.0	-20.4
Power generation/District heating	44.8	24.9	26.2	18.5	17.9	13.0	-8.3	-9.9	-10.8	-30.9	-35.7	-45.5
Energy Branch	1.6	1.3	1.6	1.6	1.1	1.1	-0.2	-0.5	-0.6	-12.5	-32.9	-35.6
Industry	11.2	8.3	7.6	8.3	8.6	9.4	0.6	0.2	0.0	7.3	2.0	-0.3
Residential	3.0	1.2	1.2	1.3	1.3	1.5	0.2	0.2	0.4	17.2	22.4	37.1
Tertiary	4.7	1.2	1.1	1.8	2.2	2.5	0.4	0.8	1.0	26.8	56.4	65.6
Transport	7.1	5.2	7.4	10.5	11.8	13.4	-0.1	-0.2	-0.3	-0.5	-1.4	-2.5
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.8	5.4	6.9	0.0	0.0	0.0	1.0	-0.1	-0.2
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	11.9	10.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	53.6	53.9	46.3	-6.7	-8.6	-9.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	515.9	435.0	290.1	-32.4	-30.9	-11.3	-5.9	-6.6	-3.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.21	2.00	1.66	-0.24	-0.28	-0.35	-9.7	-12.2	-17.3
Import Dependency %	63.6	46.5	47.1	56.3	51.1	50.1	5.9	2.8	0.7			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	9.6	11.6	16.6	-0.1	0.0	0.7	-1.1	0.3	4.2
as % of GDP		34.7	28.7	26.0	23.5	19.6	-0.3	0.1	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				-0.1	0.0	0.7						
as % of GDP				-0.29	0.07	0.79						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	44.3	35.1	23.4	-0.1	-0.7	-0.4	-0.3	-1.8	-1.7
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	49.5	41.2	28.0	1.7	1.7	1.4	3.6	4.3	5.1
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	70.4	56.6	36.8	3.3	2.2	1.0	4.9	4.1	2.9
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.6	30.5	27.8	-0.1	-0.2	-0.2	-0.3	-0.6	-0.8
Freight transport (toe/Mtkm)	60.4	74.4	65.7	61.7	60.0	59.9	0.0	-0.2	-0.1	0.0	-0.3	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.34	0.28	0.17	-0.08	-0.10	-0.10	-19.4	-25.8	-37.3
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.88	1.85	1.76	0.07	0.07	0.06	3.9	3.9	3.5
Industry	1.25	2.29	2.06	2.16	2.01	1.80	0.15	0.08	0.03	7.6	3.9	1.5
Residential	1.33	0.50	0.53	0.50	0.44	0.45	0.06	0.07	0.10	13.1	17.3	30.4
Tertiary	1.98	1.13	0.91	1.13	1.34	1.37	0.20	0.45	0.52	20.8	50.2	61.0
Transport	2.81	2.87	2.91	2.87	2.85	2.74	-0.01	-0.02	-0.04	-0.3	-0.8	-1.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	14.4	16.0	21.3	3.9	6.0	9.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.2	3.2	8.1	0.3	0.9	1.7			
Gross Electricity generation by source (in GWh_e)												
Gross electricity generation	40639	43965	36902	45363	52847	52847	-9220	-11411	-13861	-20.0	-20.1	-20.8
Nuclear energy	18175	18650	13718	22242	30700	30700	0	0	0	0.0	0.0	0.0
Solids	16824	18120	17529	15649	8387	8387	-8856	-10678	-15582	-33.6	-40.6	-65.0
Oil (including refinery gas)	590	825	69	69	39	39	69	69	11			37.0
Gas (including derived gases)	2368	1963	1214	1043	3777	3777	-880	-2980	-2473	-42.0	-74.1	-39.6
Biomass-waste	10	70	327	1760	4264	4264	142	1515	3416	76.7	617.9	403.0
Hydro (pumping excluded)	2673	4336	3476	3568	3968	3968	163	132	0	4.9	3.9	0.0
Wind	0	2	564	1023	1679	1679	142	530	768	33.6	107.7	84.3
Solar	0	0	5	9	33	33	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	10900	10201	10784	10628	12151	12151	-291	123	-408	-2.6	1.2	-3.3
<u>Nuclear energy</u>	3473	2678	1910	2870	3817	3817	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	2610	3114	3822	3822	95	532	736	3.8	20.6	23.9
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	403	890	1393	1393	95	532	736	30.9	148.4	112.1
Solar	0	0	4	8	27	27	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6264	4644	4512	4512	-386	-409	-1145	-5.8	-8.1	-20.2
of which cogeneration units	2163	2183	1298	1238	2242	2242	-267	-399	-288	-17.0	-24.4	-11.4
Solids fired	4536	4527	5225	3755	2775	2775	-317	-317	-1090	-5.7	-7.8	-28.2
Gas fired	603	625	640	313	661	661	-104	-365	-753	-14.0	-53.8	-53.3
Oil fired	355	355	347	275	25	25	14	14	-166	4.1	5.2	-86.9
Biomass-waste fired	11	11	53	301	1050	1050	22	260	865	71.6	645.7	466.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	36.3	45.7	47.1	47.1	-7.5	-11.7	-9.7			
Efficiency of gross thermal power generation (%)	27.0	27.7	39.9	38.4	34.0	34.0	0.5	-1.5	-10.1			
% of gross electricity from CHP	12.0	14.3	18.4	16.5	21.6	21.6	0.1	-1.8	-0.5			
Carbon free gross electricity generation (%)	51.3	52.4	49.0	63.1	76.9	76.9	10.8	16.5	22.3			
- nuclear	44.7	42.4	37.2	49.0	58.1	58.1	7.4	9.9	12.1			
- renewable energy forms	6.6	10.0	11.8	14.0	18.8	18.8	3.3	6.7	10.2			
Transport sector												
Passenger transport activity (Gpkm)	40.3	33.8	38.7	52.2	60.2	75.0	-0.1	-0.2	-0.5	-0.2	-0.4	-0.7
Public road transport	26.0	13.9	11.5	9.9	9.7	9.8	0.0	0.0	0.0	0.0	0.1	0.3
Private cars and motorcycles	5.4	15.5	23.1	36.0	42.5	53.9	0.0	-0.1	-0.3	-0.1	-0.2	-0.6
Rail	7.8	3.5	2.4	2.8	3.5	5.0	0.0	0.0	0.0	0.0	0.0	0.3
Aviation	0.8	0.9	1.6	3.5	4.5	6.2	-0.1	-0.2	-0.2	-2.2	-3.4	-3.6
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Freight transport activity (Gtkm)	27.8	12.3	20.3	32.7	38.6	46.6	0.0	-0.1	-0.3	-0.1	-0.2	-0.6
Trucks	12.0	6.4	14.3	24.9	29.5	35.6	0.0	-0.1	-0.3	-0.1	-0.3	-1.0
Rail	14.1	5.5	5.2	6.6	7.7	9.4	0.0	0.0	0.0	0.0	0.0	0.4
Inland navigation	1.6	0.3	0.8	1.2	1.4	1.7	0.0	0.0	0.0	0.1	0.2	0.5
Energy demand in transport (ktoe)	2518	1817	2560	3668	4153	4877	-10	-28	-57	-0.3	-0.7	-1.2
Public road transport	318	158	97	72	67	62	0	0	0	0.0	0.1	0.3
Private cars and motorcycles	231	639	928	1241	1362	1490	-1	-2	-7	-0.1	-0.1	-0.5
Trucks	1459	842	1274	1950	2244	2725	-2	-6	-24	-0.1	-0.2	-0.9
Rail	216	77	60	72	75	69	0	-5	0	0.3	-6.4	0.1
Aviation	276	101	200	331	402	528	-7	-15	-25	-2.2	-3.7	-4.5
Inland navigation	18	1	2	3	3	3	0	0	0	0.1	0.2	0.5

Source: PRIMES

Cyprus: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	128	162	207	236	266	23.0	11.2	4.9	2.6	
Solids	0	0	0	0	1	1	2	1	0			10.3	-13.0	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	127	161	205	235	266	23.0	11.1	4.9	2.6	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	21	23	23	4.7	5.0	3.7	1.0	
Wind	0	0	0	0	9	12	45	61	88			17.3	7.0	
Solar and others	0	31	35	41	104	131	139	151	154		11.3	3.0	1.0	
Geothermal	0	0	0	0	0	0	0	0	0			11.3	-0.3	
Net Imports	1554	2017	2537	2808	2886	2767	2833	2818	2801	5.0	1.3	-0.2	-0.1	
Solids	68	17	36	44	34	34	33	33	34	-6.3	-0.6	-0.1	0.2	
Oil	1486	2000	2502	2764	2697	2183	2219	2086	2046	5.3	0.8	-1.9	-0.8	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-0.9	-0.4	
- Oil products	761	1207	1353	2764	2694	2181	2216	2084	2044	5.9	7.1	-1.9	-0.8	
Natural gas	0	0	0	0	103	481	501	612	632			17.1	2.3	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2680	2591	2701	2714	2724	4.7	1.2	0.1	0.1	
Solids	60	13	35	36	34	35	35	35	34	-5.3	-0.2	0.2	-0.1	
Oil	1434	1914	2302	2374	2362	1846	1880	1745	1703	4.8	0.3	-2.3	-1.0	
Natural gas	0	0	0	0	103	481	501	612	632			17.1	2.3	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	180	230	285	322	354	23.0	15.0	4.7	2.2	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.3	1.4	1.3	1.3	1.3					
Oil	95.6	97.2	96.7	96.5	88.2	71.2	69.6	64.3	62.5					
Natural gas	0.0	0.0	0.0	0.0	3.9	18.6	18.6	22.6	23.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	6.7	8.9	10.5	11.9	13.0					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4049	4556	5312	6153	6679	5.5	1.9	2.8	2.3	
Self consumption and grid losses	207	236	353	410	395	328	376	412	436	5.5	1.1	-0.5	1.5	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	951	785	858	882	887	5.7	0.7	-1.0	0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	847	304	356	265	249	5.7	-0.4	-8.3	-3.5	
Gas (including derived gases)	0	0	0	0	103	481	501	612	632			17.1	2.3	
Biomass & Waste	0	0	0	0	0	0	0	6	6					
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	60	77	87	89	90	4.9	-25.6	3.7	0.4	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-0.9	-0.4	
Biofuels and hydrogen production	0	0	0	0	58	74	85	87	88			3.9	0.4	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	22	13	14	14	13	4.3	-8.8	-4.0	-0.7	
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6	
Final Energy Demand	1013	1306	1527	1691	1833	1950	1998	2020	2034	4.2	1.8	0.9	0.2	
by sector														
Industry	281	201	229	201	201	204	217	225	232	-2.0	-1.3	0.8	0.7	
- energy intensive industries	246	125	117	78	74	73	71	69	69	-7.2	-4.5	-0.4	-0.2	
- other industrial sectors	35	76	113	122	127	130	146	156	163	12.3	1.2	1.4	1.1	
Residential	102	172	215	234	263	276	280	266	266	7.8	2.0	0.6	-0.5	
Tertiary	151	186	233	289	308	359	384	407	416	4.4	2.8	2.2	0.8	
Transport	479	747	850	967	1062	1111	1118	1122	1120	5.9	2.3	0.5	0.0	
by fuel														
Solids	76	13	35	36	34	35	35	35	34	-7.5	-0.2	0.2	-0.1	
Oil	781	1068	1190	1263	1329	1352	1323	1273	1241	4.3	1.1	0.0	-0.6	
Gas	0	0	0	0	0	0	0	0	0			7.5	4.6	
Electricity	151	191	258	340	314	363	424	493	536	5.5	2.0	3.1	2.4	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	157	200	216	219	222	23.0	13.5	3.3	0.3	
Other	0	0	0	0	0	0	0	0	0			15.0	1.9	
RES in Gross Final Energy Consumption ^(A)			44	51	166	211	264	297	330		14.1	4.8	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.2	7.3	7.4	7.1	6.9	3.1	0.4	-0.9	-0.7	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.1	6.3	6.4	6.2	6.1	4.3	0.6	-1.0	-0.5	
Power generation/District heating	1.6	2.1	2.8	3.5	3.0	2.1	2.3	2.3	2.3	5.7	0.4	-2.4	-0.2	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.1	0.3	0.2	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.6	-4.8	-13.3	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	4.3	1.8	-1.3	-5.3	
Transport	1.4	2.2	2.5	2.9	3.0	3.1	3.1	3.1	3.1	6.0	1.8	0.3	-0.1	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-0.8	-2.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	141.8	126.7	129.0	123.7	120.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	163.9	132.5	115.6	101.2	90.9	0.2	-2.2	-3.4	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.63	2.42	2.37	2.29	2.25	-0.4	-0.6	-1.0	-0.5
Import Dependency %	100.1	99.1	98.8	100.7	95.8	94.5	93.2	92.3	91.3				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.4	2.6	2.8		5.4	2.5	1.6
as % of GDP			9.3	11.4	11.3	10.4	10.1	9.8	9.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.5	60.1	54.4	50.6	-3.1	-2.8	-2.2	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	84.7	74.1	62.6	52.1	47.2	1.6	-1.7	-3.0	-2.8
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	93.2	90.1	80.2	73.7	67.2	-1.4	-0.7	-1.5	-1.8
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	43.0	40.9	39.2	37.6	2.1	0.2	-0.8	-0.8
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	258.7	248.9	242.6	240.4	3.5	-0.7	-0.5	-0.3
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.44	0.37	0.34	0.2	-1.4	-5.0	-2.4
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.23	2.14	2.05	1.95	1.89	-0.8	-0.8	-0.9	-0.8
Industry	3.07	2.67	2.72	2.48	2.52	2.47	2.41	2.33	2.28	-1.2	-0.8	-0.4	-0.5
Residential	1.51	1.15	1.05	0.82	0.73	0.59	0.42	0.23	0.11	-3.6	-3.5	-5.4	-12.9
Tertiary	1.37	1.55	1.35	1.18	1.22	1.05	0.86	0.59	0.46	-0.1	-1.0	-3.4	-6.1
Transport	2.97	2.98	2.98	2.97	2.85	2.82	2.79	2.77	2.76	0.0	-0.5	-0.2	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	8.9	10.7	13.0	14.5	15.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	6.1	7.6	8.8	9.2	9.5				
Gross Electricity generation by source (in GWh)													
			3369	4377	4049	4556	5312	6153	6679		1.9	2.8	2.3
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3540	1426	1629	1271	1203		0.5	-7.5	-3.0
Gas (including derived gases)			0	0	402	2995	3126	3968	4223			22.8	3.1
Biomass-waste			0	0	0	0	0	29	32				
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	134	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	0	127	128				79.7
Net Generation Capacity in MW_e			930	1155	1402	1390	1508	1788	1983		4.2	0.7	2.8
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	62	226	370	495		52.2	14.9	8.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	61	203	272	386			13.8	6.7
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	0	66	66				79.7
<u>Thermal power</u>			929	1154	1346	1328	1282	1418	1488		3.8	-0.5	1.5
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	436	676	860				7.0
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	0	0	9	10				
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	31.0	36.2	39.0	38.3	37.6				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.7	48.4	47.7	51.3	52.9				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.6	3.0	10.5	14.8	18.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.6	3.0	10.5	14.8	18.8				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.7	17.8	18.7	19.3	3.5	3.4	1.5	0.8
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.5	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.7	4.9	5.0	2.5	3.9	0.9	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.7	11.5	12.1	12.5	4.0	3.3	1.7	0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1062	1111	1118	1122	1120	5.9	2.3	0.5	0.0
Public road transport	8	14	16	16	18	18	19	18	18	6.4	1.2	0.8	-0.8
Private cars and motorcycles	117	145	177	288	323	332	328	323	312	4.2	6.2	0.2	-0.5
Trucks	201	321	368	364	378	393	389	389	395	6.2	0.3	0.3	0.2
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	368	383	392	396	6.6	1.7	1.1	0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	162	207	266	54	54	66	49.5	35.3	33.1
Solids	0	0	0	1	2	0	0	0	-4	71.3	0.0	-90.7
Oil	0	0	0	0	0	0	0	0	0	38.2	-389.5	
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6	44	51	161	205	266	53	54	70	49.4	35.7	35.8
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	6	9	10	18	21	23	0	-2	-12	0.0	-7.8	-34.7
Wind	0	0	0	12	45	88	2	4	24	26.3	10.4	38.2
Solar and others	0	35	41	131	139	154	51	51	58	63.2	58.5	59.9
Geothermal	0	0	0	0	0	0	0	0	0	151.9	335.0	408.7
Net Imports	1554	2537	2808	2767	2833	2801	-301	-321	-413	-9.8	-10.2	-12.9
Solids	68	36	44	34	33	34	0	-1	-1	-0.9	-2.4	-2.3
Oil	1486	2502	2764	2183	2219	2046	-323	-274	-225	-12.9	-11.0	-9.9
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.1	-1.3	-0.7
- Oil products	761	1353	2764	2181	2216	2044	-323	-274	-225	-12.9	-11.0	-9.9
Natural gas	0	0	0	481	501	632	-37	-101	-173	-7.1	-16.7	-21.4
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-50.0
Gross Inland Consumption	1500	2381	2461	2591	2701	2724	-247	-265	-345	-8.7	-8.9	-11.2
Solids	60	35	36	35	35	34	0	-1	-5	0.1	-2.3	-11.7
Oil	1434	2302	2374	1846	1880	1703	-322	-272	-223	-14.9	-12.6	-11.6
Natural gas	0	0	0	481	501	632	-37	-101	-173	-7.1	-16.7	-21.4
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-50.0
Renewable energy forms	6	44	51	230	285	354	112	108	55	95.6	61.4	18.5
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.4	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	71.2	69.6	62.5	-5.2	-3.0	-0.2			
Natural gas	0.0	0.0	0.0	18.6	18.6	23.2	0.3	-1.7	-3.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	8.9	10.5	13.0	4.7	4.6	3.3			
Gross Electricity Generation in GWh_e	1974	3369	4377	4556	5312	6679	-1160	-1200	-1044	-20.3	-18.4	-13.5
Self consumption and grid losses	207	353	410	328	376	436	-108	-93	-91	-24.7	-19.8	-17.2
Fuel Inputs to Thermal Power Generation	509	884	1077	785	858	887	-281	-240	-238	-26.4	-21.9	-21.2
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	304	356	249	-240	-125	15	-44.1	-25.9	6.2
Gas (including derived gases)	0	0	0	481	501	632	-37	-101	-173	-7.1	-16.7	-21.4
Biomass & Waste	0	0	0	0	0	6	-4	-14	-80	-100.0	-100.0	-92.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	77	87	90	63	66	52	474.6	303.9	133.2
Refineries	725	1167	0	2	2	2	0	0	0	-3.1	-1.3	-0.7
Biofuels and hydrogen production	0	0	0	74	85	88	63	66	52	573.7	340.0	141.2
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	14	13	-5	-3	-4	-27.9	-19.6	-21.2
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1950	1998	2034	-74	-144	-242	-3.7	-6.7	-10.6
by sector												
Industry	281	229	201	204	217	232	-4	-8	-12	-2.0	-3.5	-4.8
- energy intensive industries	246	117	78	73	71	69	0	-1	0	-0.6	-1.2	-0.6
- other industrial sectors	35	113	122	130	146	163	-4	-7	-11	-2.7	-4.5	-6.4
Residential	102	215	234	276	280	266	1	-5	-28	0.5	-1.8	-9.5
Tertiary	151	233	289	359	384	416	-43	-75	-115	-10.7	-16.3	-21.6
Transport	479	850	967	1111	1118	1120	-29	-57	-88	-2.5	-4.8	-7.3
by fuel												
Solids	76	35	36	35	35	34	0	-1	-5	0.1	-2.3	-11.7
Oil	781	1190	1263	1352	1323	1241	-82	-147	-237	-5.7	-10.0	-16.0
Gas	0	0	0	0	0	0	0	0	0	12.8	9.2	19.0
Electricity	151	258	340	363	424	536	-90	-95	-82	-20.0	-18.3	-13.3
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	-54.5	250.7	5650.5
Renewable energy forms	6	44	51	200	216	222	98	99	81	96.5	84.3	57.9
Other	0	0	0	0	0	0	0	0	0	9.0	6.5	-2.7
RES in Gross Final Energy Consumption ^(A)		44	51	211	264	330	99	100	89	87.5	60.9	37.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.3	7.4	6.9	-1.2	-1.2	-1.2	-13.7	-13.6	-14.3
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.3	6.4	6.1	-1.1	-1.1	-1.1	-14.9	-14.4	-15.1
Power generation/District heating	1.6	2.8	3.5	2.1	2.3	2.3	-0.9	-0.6	-0.4	-29.0	-21.5	-13.6
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-1.4	-5.7	-13.2
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	2.5	-13.2	-68.0
Tertiary	0.2	0.3	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-3.4	-18.0	-49.4
Transport	1.4	2.5	2.9	3.1	3.1	3.1	-0.2	-0.3	-0.4	-6.8	-9.4	-11.5
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-5.5	-7.7	-8.3
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	126.7	129.0	120.8	-20.2	-20.3	-20.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Cyprus: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	132.5	115.6	90.9	-12.6	-11.4	-11.5	-8.7	-8.9	-11.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.42	2.37	2.25	-0.18	-0.15	-0.10	-6.8	-6.0	-4.3
Import Dependency %	100.1	98.8	100.7	94.5	93.2	91.3	-2.1	-2.2	-2.8			
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.4	2.8	0.0	0.1	0.1	1.7	2.5	2.5
as % of GDP		9.3	11.4	10.4	10.1	9.3	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.1	0.1						
as % of GDP				0.18	0.25	0.23						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.5	60.1	50.6	-1.3	-2.1	-2.5	-2.0	-3.5	-4.8
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	74.1	62.6	47.2	0.4	-1.2	-5.0	0.5	-1.8	-9.5
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	90.1	80.2	67.2	-10.8	-15.7	-18.5	-10.7	-16.3	-21.6
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	43.0	40.9	37.6	-0.3	-0.7	-1.3	-0.7	-1.7	-3.4
Freight transport (toe/Mtkm)	199.1	280.6	261.2	258.7	248.9	240.4	-5.8	-12.6	-19.6	-2.2	-4.8	-7.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.44	0.34	-0.06	-0.02	0.00	-10.9	-3.8	0.0
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.14	2.05	1.89	-0.04	-0.07	-0.12	-1.9	-3.3	-5.9
Industry	3.07	2.72	2.48	2.47	2.41	2.28	0.01	-0.06	-0.22	0.6	-2.3	-8.8
Residential	1.51	1.05	0.82	0.59	0.42	0.11	0.01	-0.05	-0.19	2.0	-11.5	-64.6
Tertiary	1.37	1.35	1.18	1.05	0.86	0.46	0.08	-0.02	-0.25	8.2	-2.0	-35.5
Transport	2.97	2.98	2.97	2.82	2.79	2.76	-0.13	-0.14	-0.13	-4.4	-4.8	-4.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	10.7	13.0	15.9	5.2	5.5	5.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.6	8.8	9.5	6.4	6.8	5.8			
Gross Electricity generation by source (in GWh_e)												
	3369	4377	4556	5312	6679	6679	-1160	-1200	-1044	-20.3	-18.4	-13.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3369	4376	1426	1629	1203	1203	-935	-486	70	-39.6	-23.0	6.2
Gas (including derived gases)	0	0	2995	3126	4223	4223	-230	-723	-1184	-7.1	-18.8	-21.9
Biomass-waste	0	0	0	0	32	32	-23	-76	-407	-100.0	-100.0	-92.8
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	134	522	1029	1029	28	49	284	26.3	10.4	38.2
Solar	0	1	1	35	65	65	0	34	64	0.0	3301.2	6192.9
Geothermal and other renewables	0	0	0	0	128	128	0	0	127			56900.3
Net Generation Capacity in MW_e												
	930	1155	1390	1508	1983	1983	9	-172	-82	0.7	-10.2	-4.0
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1	1	62	226	495	495	12	13	181	23.6	6.3	57.5
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	61	203	386	386	12	-9	73	24.0	-4.4	23.2
Solar	1	1	1	23	43	43	0	22	42	0.0	2641.3	4955.0
Other renewables (tidal etc.)	0	0	0	0	66	66	0	0	66			56900.3
<u>Thermal power</u>	929	1154	1328	1282	1488	1488	-3	-185	-263	-0.2	-12.6	-15.0
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	429	436	860	860	0	-169	-203	0.0	-28.0	-19.1
Oil fired	929	1154	899	846	618	618	0	0	0	0.0	0.0	0.0
Biomass-waste fired	0	0	0	0	10	10	-3	-16	-60	-100.0	-100.0	-85.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	39.3	40.8	36.2	39.0	37.6	37.6	-9.3	-3.9	-4.0			
Efficiency of gross thermal power generation (%)	32.8	35.0	48.4	47.7	52.9	52.9	3.2	0.4	-0.4			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.0	10.5	18.8	18.8	0.7	2.1	3.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.0	10.5	18.8	18.8	0.7	2.1	3.4			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	7.9	11.1	13.5	16.7	17.8	19.3	-0.2	-0.3	-0.4	-1.0	-1.7	-2.1
Private cars and motorcycles	0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.0	0.1	1.8	2.6	3.1
Rail	2.3	3.0	3.9	4.6	4.7	5.0	0.0	-0.1	-0.1	-0.8	-1.9	-2.9
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	4.7	7.0	8.4	10.7	11.5	12.5	-0.2	-0.3	-0.3	-1.5	-2.1	-2.5
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-1.7	-2.8	-3.3
Rail	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-1.7	-2.8	-3.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	479	850	967	1111	1118	1120	-29	-57	-88	-2.5	-4.8	-7.3
Private cars and motorcycles	8	16	16	18	19	18	0	0	-1	-0.2	-1.3	-5.9
Trucks	117	177	288	332	328	312	-6	-13	-22	-1.9	-3.7	-6.5
Rail	201	368	364	393	389	395	-16	-31	-47	-3.9	-7.5	-10.6
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	152	290	299	368	383	396	-6	-12	-19	-1.7	-3.1	-4.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Czech Republic: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	38484	31733	29788	32779	28148	25707	24944	25933	23515	-2.5	-0.6	-1.2	-0.6
Solids	34715	27481	25002	23520	17097	14039	12029	11001	10086	-3.2	-3.7	-3.5	-1.7
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0
Natural gas	201	198	169	154	173	178	181	185	188	-1.7	0.2	0.5	0.4
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2
Renewable energy sources	100	627	727	2142	3198	3697	4695	5561	6103	22.0	16.0	3.9	2.7
Hydro	100	172	151	205	213	213	219	221	230	4.2	3.5	0.3	0.5
Biomass & Waste	0	455	576	1933	2900	3340	4246	5057	5541		17.5	3.9	2.7
Wind	0	0	0	2	51	64	105	123	142			7.4	3.1
Solar and others	0	0	0	2	35	81	126	160	190			13.8	4.2
Geothermal	0	0	0	0	0	0	0	0	0			1.7	1.5
Net Imports	7630	8417	9297	12271	18388	20226	23172	24838	27518	2.0	7.1	2.3	1.7
Solids	-5685	-5784	-4751	-3489	620	1118	3022	4250	6602			17.2	8.1
Oil	8589	7742	7428	9499	10772	11724	12455	13118	13509	-1.4	3.8	1.5	0.8
- Crude oil and Feedstocks	7382	6798	5492	7539	8613	9332	9883	10385	10677	-2.9	4.6	1.4	0.8
- Oil products	1207	944	1936	1960	2159	2391	2571	2734	2832	4.8	1.1	1.8	1.0
Natural gas	4786	6424	7482	7535	8470	8723	8887	9053	9224	4.6	1.2	0.5	0.4
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Gross Inland Consumption	47380	40801	40307	44798	46535	45933	48115	50771	51033	-1.6	1.4	0.3	0.6
Solids	29882	22556	21645	20099	17717	15157	15050	15251	16688	-3.2	-2.0	-1.6	1.0
Oil	8964	7876	7790	9748	10972	11924	12655	13318	13709	-1.4	3.5	1.4	0.8
Natural gas	5248	6552	7500	7703	8643	8902	9069	9238	9412	3.6	1.4	0.5	0.4
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Renewable energy forms	100	627	727	1955	3139	3629	4608	5457	5989	22.0	15.7	3.9	2.7
as % in Gross Inland Consumption													
Solids	63.1	55.3	53.7	44.9	38.1	33.0	31.3	30.0	32.7				
Oil	18.9	19.3	19.3	21.8	23.6	26.0	26.3	26.2	26.9				
Natural gas	11.1	16.1	18.6	17.2	18.6	19.4	18.8	18.2	18.4				
Nuclear	6.9	7.7	8.7	14.2	16.1	16.5	16.3	17.7	13.6				
Renewable energy forms	0.2	1.5	1.8	4.4	6.7	7.9	9.6	10.7	11.7				
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	82239	87402	91977	105120	118894	1.6	1.2	1.1	2.6
Self consumption and grid losses	8541	8837	10601	11632	10439	10697	11408	13157	18590	2.2	-0.2	0.9	5.0
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13473	11130	11777	12642	14766	3.7	-1.6	-1.3	2.3
Solids	9947	13571	14031	13955	12359	9975	9957	10396	12361	3.5	-1.3	-2.1	2.2
Oil (including refinery gas)	741	311	203	126	106	28	27	1	1	-12.2	-6.3	-12.8	-27.4
Gas (including derived gases)	300	573	1270	1286	904	1024	1006	1002	906	15.5	-3.3	1.1	-1.0
Biomass & Waste	0	119	369	224	104	103	787	1244	1498		-11.9	22.4	6.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	18634	14422	11312	13108	13785	14269	14937	15378	15355	-4.9	2.0	0.8	0.3
Refineries	7946	7026	6047	7957	8869	9614	10183	10691	10995	-2.7	3.9	1.4	0.8
Biofuels and hydrogen production	0	11	0	3	396	632	1025	1148	1246			10.0	2.0
District heating	2138	1404	999	909	1224	968	846	741	533	-7.3	2.1	-3.6	-4.5
Derived gases, cokeries etc.	8549	5982	4266	4239	3296	3056	2882	2798	2581	-6.7	-2.5	-1.3	-1.1
Energy Branch Consumption	2124	1866	1919	1915	2211	2234	2285	2400	2807	-1.0	1.4	0.3	2.1
Non-Energy Uses	1680	2132	1962	2419	2802	3173	3554	3842	4059	1.6	3.6	2.4	1.3
Final Energy Demand	36267	25697	23905	25801	28392	30229	31668	33064	33945	-4.1	1.7	1.1	0.7
by sector													
Industry	19215	12191	10031	9439	10046	10441	10783	11094	11310	-6.3	0.0	0.7	0.5
- energy intensive industries	8050	6719	6276	6588	6970	7168	7268	7393	7486	-2.5	1.1	0.4	0.3
- other industrial sectors	11165	5472	3755	2851	3076	3273	3515	3700	3823	-10.3	-2.0	1.3	0.8
Residential	8625	5796	5260	6063	6817	7149	7326	7577	7687	-4.8	2.6	0.7	0.5
Tertiary	5622	4871	3893	3730	3980	4285	4577	4977	5280	-3.6	0.2	1.4	1.4
Transport	2804	2840	4721	6569	7548	8354	8981	9417	9668	5.3	4.8	1.8	0.7
by fuel													
Solids	17789	6457	5164	3619	3811	3582	3692	3586	3193	-11.6	-3.0	-0.3	-1.4
Oil	6229	5018	5291	6913	7570	8260	8600	9000	9167	-1.6	3.6	1.3	0.6
Gas	5146	6119	6419	6581	7362	7803	7870	8016	8339	2.2	1.4	0.7	0.6
Electricity	4142	4129	4243	4750	4552	5121	5622	6225	6726	0.2	0.7	2.1	1.8
Heat (from CHP and District Heating)	2959	3664	2624	2478	2545	2504	2686	2688	2674	-1.2	-0.3	0.5	0.0
Renewable energy forms	0	309	165	1460	2551	2958	3196	3545	3841		31.5	2.3	1.9
Other	0	0	0	0	1	1	3	5	5			15.2	7.3
RES in Gross Final Energy Consumption ^(A)			610	1832	3023	3465	4286	5049	5543		17.4	3.6	2.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	143.2	135.6	135.8	135.2	127.7	-3.1	-0.4	-0.5	-0.6
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	113.2	105.4	106.5	108.8	103.8	-2.8	-0.3	-0.6	-0.3
Power generation/District heating	48.8	60.4	62.1	61.0	54.3	44.5	44.0	45.2	40.7	2.4	-1.3	-2.1	-0.8
Energy Branch	2.3	1.5	2.2	2.3	2.8	2.8	2.8	2.8	2.8	-0.5	2.2	0.2	-0.2
Industry	58.1	29.0	25.2	20.9	22.1	22.3	23.1	23.0	21.9	-8.0	-1.3	0.4	-0.6
Residential	24.0	10.6	7.9	7.1	8.2	8.2	8.1	8.2	8.3	-10.5	0.3	0.0	0.2
Tertiary	14.1	9.2	5.9	4.5	4.7	4.7	4.6	4.7	4.9	-8.4	-2.1	-0.3	0.7
Transport	7.5	7.7	13.4	19.1	21.1	23.0	23.9	24.9	25.3	6.0	4.6	1.3	0.6
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.8	12.1	12.3	12.4	-3.8	-0.8	0.6	0.2
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	70.1	66.4	66.6	66.2	62.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Czech Republic: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	373.6	309.3	270.0	249.1	224.8	-1.9	-2.5	-3.2	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.43	2.30	2.21	2.14	2.03	-1.2	-1.7	-0.9	-0.8
Import Dependency %	16.1	20.6	23.1	27.4	39.5	44.0	48.2	48.9	53.9				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	19.9	23.7	27.7	31.1	34.1		2.7	3.4	2.1
as % of GDP			18.3	16.9	16.0	15.9	15.5	15.3	15.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.6	52.5	46.1	41.8	38.4	-7.3	-5.0	-2.5	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	88.4	77.6	66.1	59.9	54.8	-5.8	-1.2	-2.9	-1.9
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	70.4	63.1	55.7	52.8	50.1	-7.4	-3.5	-2.3	-1.1
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.8	32.6	31.4	29.8	27.8	4.0	2.5	-0.5	-1.2
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.7	58.7	57.4	55.5	53.9	7.5	4.2	-0.1	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.44	0.35	0.33	0.31	0.25	1.8	-2.3	-2.9	-2.5
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.98	1.92	1.89	1.84	1.78	-2.6	-1.0	-0.5	-0.6
Industry	3.03	2.38	2.51	2.21	2.20	2.14	2.14	2.08	1.93	-1.8	-1.3	-0.3	-1.0
Residential	2.78	1.84	1.50	1.16	1.20	1.15	1.11	1.08	1.08	-6.0	-2.3	-0.8	-0.3
Tertiary	2.51	1.89	1.51	1.21	1.19	1.09	1.00	0.94	0.93	-5.0	-2.3	-1.7	-0.8
Transport	2.68	2.71	2.85	2.90	2.79	2.75	2.66	2.64	2.62	0.6	-0.2	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	10.2	11.0	13.0	14.7	15.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.8	6.9	10.5	11.3	12.0				
Gross Electricity generation by source (in GWh)													
			72898	81916	82239	87402	91977	105120	118894		1.2	1.1	2.6
Nuclear energy			13588	24724	28995	29433	30388	35583	28810		7.9	0.5	-0.5
Solids			50038	47938	42520	45992	46226	51413	70831		-1.6	0.8	4.4
Oil (including refinery gas)			528	447	114	66	34	15	12		-14.2	-11.3	-10.1
Gas (including derived gases)			6087	5565	6582	7593	7645	8099	7771		0.8	1.5	0.2
Biomass-waste			899	841	960	1090	3917	5997	7127		0.7	15.1	6.2
Hydro (pumping excluded)			1758	2380	2472	2479	2541	2571	2677		3.5	0.3	0.5
Wind			0	22	595	745	1218	1427	1647			7.4	3.1
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14889	16742	17076	17076	17472		2.1	1.4	0.2
<u>Nuclear energy</u>			1661	3504	3519	3534	3541	4141	3344		7.8	0.1	-0.6
<u>Renewable energy</u>			1148	1227	1645	1750	2098	2261	2433		3.7	2.5	1.5
Hydro (pumping excluded)			1142	1196	1245	1247	1251	1256	1262		0.9	0.1	0.1
Wind			7	30	398	497	834	983	1142		50.2	7.7	3.2
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9726	11458	11437	10673	11695		0.5	1.6	0.2
of which cogeneration units			3030	3110	2741	3724	4271	5032	6098		-1.0	4.5	3.6
Solids fired			7747	7661	7986	9725	9150	8011	8816		0.3	1.4	-0.4
Gas fired			1208	1302	1387	1390	1457	1528	1573		1.4	0.5	0.8
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	228	225	773	1105	1296		3.3	13.0	5.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	58.7	56.0	57.9	66.1	70.5				
Efficiency of gross thermal power generation (%)			31.2	30.2	32.0	42.3	42.2	44.6	49.9				
% of gross electricity from CHP			21.1	16.7	15.8	25.2	26.8	28.2	33.9				
Carbon free gross electricity generation (%)			22.3	34.1	40.2	38.6	41.4	43.4	33.9				
- nuclear			18.6	30.2	35.3	33.7	33.0	33.9	24.2				
- renewable energy forms			3.6	4.0	4.9	4.9	8.4	9.5	9.6				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	92.9	95.4	101.3	105.1	116.3	129.7	145.8	160.6	173.0	0.9	1.4	2.3	1.7
Private cars and motorcycles	23.6	18.6	16.2	14.7	14.9	15.4	16.1	17.1	17.8	-3.7	-0.8	0.8	1.0
Rail	46.8	59.0	67.3	71.3	80.6	91.1	103.6	114.8	124.1	3.7	1.8	2.5	1.8
Aviation	20.6	15.7	15.4	15.6	15.9	16.7	17.6	18.4	19.1	-2.9	0.4	1.0	0.8
Inland navigation	1.9	2.1	2.5	3.5	4.9	6.5	8.5	10.3	12.0	2.8	6.9	5.7	3.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
Trucks	64.2	53.9	55.6	59.3	64.7	70.3	76.8	83.5	90.1	-1.4	1.5	1.7	1.6
Rail	26.3	31.3	37.3	43.4	51.5	58.2	64.5	70.7	76.6	3.6	3.3	2.3	1.7
Inland navigation	38.0	22.6	17.5	14.8	12.9	11.9	12.2	12.8	13.4	-7.5	-3.0	-0.6	0.9
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.0
Energy demand in transport (ktoe)													
Public road transport	2804	2840	4721	6569	7548	8354	8981	9417	9668	5.3	4.8	1.8	0.7
Private cars and motorcycles	132	110	98	111	111	112	111	109	105	-2.9	1.3	0.0	-0.6
Trucks	1271	1373	2257	2850	3192	3487	3737	3878	3862	5.9	3.5	1.6	0.3
Rail	956	971	1868	2987	3536	3955	4241	4479	4711	6.9	6.6	1.8	1.1
Aviation	272	200	295	271	237	216	200	191	181	0.8	-2.2	-1.7	-1.0
Inland navigation	174	185	197	346	471	584	691	761	809	1.3	9.1	3.9	1.6
Inland navigation	0	0	5	5	2	1	1	0	0		-11.0	-8.2	-5.2

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Czech Republic: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	25707	24944	23515	87	382	2014	0.3	1.6	9.4
Solids	34715	25002	23520	14039	12029	10086	-24	-12	0	-0.2	-0.1	0.0
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	178	181	188	11	13	9	6.4	7.5	5.0
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Renewable energy sources	100	727	2142	3697	4695	6103	100	381	667	2.8	8.8	12.3
Hydro	100	151	205	213	219	230	1	1	0	0.5	0.4	0.0
Biomass & Waste	0	576	1933	3340	4246	5541	110	351	615	3.4	9.0	12.5
Wind	0	0	2	64	105	142	-26	2	5	-29.2	1.7	3.4
Solar and others	0	0	2	81	126	190	15	28	47	22.3	29.1	32.8
Geothermal	0	0	0	0	0	0	0	0	0	23.2	25.7	29.5
Net Imports	7630	9297	12271	20226	23172	27518	-833	-1482	-2778	-4.0	-6.0	-9.2
Solids	-5685	-4751	-3489	1118	3022	6602	-1374	-1951	-2979	-55.1	-39.2	-31.1
Oil	8589	7428	9499	11724	12455	13509	-129	-318	-447	-1.1	-2.5	-3.2
- Crude oil and Feedstocks	7382	5492	7539	9332	9883	10677	-98	-241	-337	-1.0	-2.4	-3.1
- Oil products	1207	1936	1960	2391	2571	2832	-31	-77	-110	-1.3	-2.9	-3.7
Natural gas	4786	7482	7535	8723	8887	9224	527	618	438	6.4	7.5	5.0
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	45933	48115	51033	-746	-1100	-764	-1.6	-2.2	-1.5
Solids	29882	21645	20099	15157	15050	16688	-1397	-1963	-2979	-8.4	-11.5	-15.1
Oil	8964	7790	9748	11924	12655	13709	-129	-318	-447	-1.1	-2.4	-3.2
Natural gas	5248	7500	7703	8902	9069	9412	537	631	447	6.4	7.5	5.0
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	3629	4608	5989	243	550	876	7.2	13.5	17.1
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	33.0	31.3	32.7	-2.5	-3.3	-5.3			
Oil	18.9	19.3	21.8	26.0	26.3	26.9	0.1	-0.1	-0.5			
Natural gas	11.1	18.6	17.2	19.4	18.8	18.4	1.5	1.7	1.1			
Nuclear	6.9	8.7	14.2	16.5	16.3	13.6	0.3	0.4	2.8			
Renewable energy forms	0.2	1.8	4.4	7.9	9.6	11.7	0.6	1.3	1.9			
Gross Electricity Generation in GWh_e	62260	72898	81916	87402	91977	118894	-11683	-12408	-7577	-11.8	-11.9	-6.0
Self consumption and grid losses	8541	10601	11632	10697	11408	18590	-1812	-1988	1960	-14.5	-14.8	11.8
Fuel Inputs to Thermal Power Generation	10989	15873	15591	11130	11777	14766	-1892	-2031	-2856	-14.5	-14.7	-16.2
Solids	9947	14031	13955	9975	9957	12361	-1707	-2346	-3356	-14.6	-19.1	-21.4
Oil (including refinery gas)	741	203	126	28	27	1	0	-1	1	0.0	-4.2	-0.0
Gas (including derived gases)	300	1270	1286	1024	1006	906	-211	-81	50	-17.1	-7.5	5.8
Biomass & Waste	0	369	224	103	787	1498	25	398	449	32.5	102.1	42.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	14269	14937	15355	416	317	40	3.0	2.2	0.3
Refineries	7946	6047	7957	9614	10183	10995	-99	-242	-339	-1.0	-2.3	-3.0
Biofuels and hydrogen production	0	0	3	632	1025	1246	93	269	245	17.2	35.5	24.5
District heating	2138	999	909	968	846	533	130	71	-4	15.5	9.2	-0.7
Derived gases, cokeries etc.	8549	4266	4239	3056	2882	2581	293	219	138	10.6	8.2	5.6
Energy Branch Consumption	2124	1919	1915	2234	2285	2807	-30	-58	256	-1.3	-2.5	10.0
Non-Energy Uses	1680	1962	2419	3173	3554	4059	-32	-37	-49	-1.0	-1.0	-1.2
Final Energy Demand	36267	23905	25801	30229	31668	33945	231	24	53	0.8	0.1	0.2
by sector												
Industry	19215	10031	9439	10441	10783	11310	105	-22	-110	1.0	-0.2	-1.0
- energy intensive industries	8050	6276	6588	7168	7268	7486	97	-15	-29	1.4	-0.2	-0.4
- other industrial sectors	11165	3755	2851	3273	3515	3823	8	-7	-81	0.2	-0.2	-2.1
Residential	8625	5260	6063	7149	7326	7687	110	130	216	1.6	1.8	2.9
Tertiary	5622	3893	3730	4285	4577	5280	51	19	108	1.2	0.4	2.1
Transport	2804	4721	6569	8354	8981	9668	-36	-103	-161	-0.4	-1.1	-1.6
by fuel												
Solids	17789	5164	3619	3582	3692	3193	131	271	288	3.8	7.9	9.9
Oil	6229	5291	6913	8260	8600	9167	-97	-276	-393	-1.2	-3.1	-4.1
Gas	5146	6419	6581	7803	7870	8339	755	673	471	10.7	9.4	6.0
Electricity	4142	4243	4750	5121	5622	6726	-856	-901	-829	-14.3	-13.8	-11.0
Heat (from CHP and District Heating)	2959	2624	2478	2504	2686	2674	91	120	134	3.8	4.7	5.3
Renewable energy forms	0	165	1460	2958	3196	3841	207	136	380	7.5	4.4	11.0
Other	0	0	0	1	3	5	0	0	0	1.9	2.6	-0.4
RES in Gross Final Energy Consumption ^(A)		610	1832	3465	4286	5543	219	450	770	6.8	11.7	16.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	135.6	135.8	127.7	-4.2	-7.0	-23.7	-3.0	-4.9	-15.6
CO₂ Emissions (energy related)	154.8	116.7	114.8	105.4	106.5	103.8	-4.6	-7.2	-23.6	-4.2	-6.3	-18.5
Power generation/District heating	48.8	62.1	61.0	44.5	44.0	40.7	-6.8	-9.1	-24.7	-13.3	-17.2	-37.8
Energy Branch	2.3	2.2	2.3	2.8	2.8	2.8	0.1	0.1	0.0	3.5	2.4	-0.3
Industry	58.1	25.2	20.9	22.3	23.1	21.9	1.2	1.7	0.7	5.5	8.1	3.3
Residential	24.0	7.9	7.1	8.2	8.1	8.3	0.5	0.4	0.5	6.1	5.8	5.9
Tertiary	14.1	5.9	4.5	4.7	4.6	4.9	0.8	0.7	1.0	21.0	19.1	25.1
Transport	7.5	13.4	19.1	23.0	23.9	25.3	-0.3	-1.0	-1.1	-1.4	-4.0	-4.1
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.8	12.1	12.4	0.4	0.2	-0.1	3.9	1.3	-0.5
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	18.3	17.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	66.4	66.6	62.6	-2.0	-3.4	-11.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Czech Republic: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	309.3	270.0	224.8	-5.0	-6.2	-3.4	-1.6	-2.2	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.30	2.21	2.03	-0.06	-0.10	-0.43	-2.6	-4.2	-17.3
Import Dependency %	16.1	23.1	27.4	44.0	48.2	53.9	-1.1	-1.9	-4.6			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	23.7	27.7	34.1	0.1	0.5	1.3	0.4	1.8	4.1
as % of GDP		18.3	16.9	15.9	15.5	15.0	0.1	0.3	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.5	1.4						
as % of GDP				0.07	0.28	0.59						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	52.5	46.1	38.4	0.5	-0.1	-0.4	1.0	-0.2	-1.0
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	77.6	66.1	54.8	1.2	1.2	1.5	1.6	1.8	2.9
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	63.1	55.7	50.1	0.8	0.2	1.0	1.2	0.4	2.1
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	32.6	31.4	27.8	-0.1	-0.2	-0.4	-0.4	-0.8	-1.5
Freight transport (toe/Mtkm)	18.5	38.3	54.3	58.7	57.4	53.9	0.0	-0.2	-0.1	0.0	-0.3	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.35	0.33	0.25	-0.02	-0.04	-0.14	-6.3	-10.4	-35.4
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.92	1.89	1.78	0.06	0.06	0.03	3.0	3.2	1.6
Industry	3.03	2.51	2.21	2.14	2.14	1.93	0.09	0.16	0.08	4.4	8.3	4.3
Residential	2.78	1.50	1.16	1.15	1.11	1.08	0.05	0.04	0.03	4.5	3.9	2.9
Tertiary	2.51	1.51	1.21	1.09	1.00	0.93	0.18	0.16	0.17	19.6	18.7	22.5
Transport	2.68	2.85	2.90	2.75	2.66	2.62	-0.03	-0.08	-0.07	-1.0	-2.9	-2.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	11.0	13.0	15.5	0.7	1.4	2.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.9	10.5	12.0	1.0	2.9	2.5			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	87402	91977	118894	118894	-11683	-12408	-7577	-11.8	-11.9	-6.0
Nuclear energy	13588	24724	29433	30388	28810		0	0	6090	0.0	0.0	26.8
Solids	50038	47938	45992	46226	70831		-10288	-13607	-16857	-18.3	-22.7	-19.2
Oil (including refinery gas)	528	447	66	34	12		0	-3	7	-0.1	-7.3	151.3
Gas (including derived gases)	6087	5565	7593	7645	7771		-1265	-322	843	-14.3	-4.0	12.2
Biomass-waste	899	841	1090	3917	7127		164	1493	2286	17.7	61.6	47.2
Hydro (pumping excluded)	1758	2380	2479	2541	2677		13	9	0	0.5	0.4	0.0
Wind	0	22	745	1218	1647		-307	20	54	-29.2	1.7	3.4
Solar	0	0	4	8	20		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	12048	13981	16742	17076	17472		-804	-555	-1976	-4.6	-3.1	-10.2
<u>Nuclear energy</u>	1661	3504	3534	3541	3344		0	0	703	0.0	0.0	26.6
<u>Renewable energy</u>	1148	1227	1750	2098	2433		-218	15	39	-11.1	0.7	1.6
Hydro (pumping excluded)	1142	1196	1247	1251	1262		1	1	0	0.1	0.1	0.0
Wind	7	30	497	834	1142		-219	14	39	-30.6	1.8	3.5
Solar	0	1	6	12	29		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	9239	9250	11458	11437	11695		-586	-571	-2718	-4.9	-4.8	-18.9
of which cogeneration units	3030	3110	3724	4271	6098		-292	-300	505	-7.3	-6.6	9.0
Solids fired	7747	7661	9725	9150	8816		-552	-857	-2683	-5.4	-8.6	-23.3
Gas fired	1208	1302	1390	1457	1573		-56	-26	-337	-3.9	-1.7	-17.6
Oil fired	118	122	118	57	11		0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	225	773	1296		22	313	404	10.9	67.9	45.3
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	63.9	61.7	56.0	57.9	70.5		-4.5	-5.6	1.0			
Efficiency of gross thermal power generation (%)	31.2	30.2	42.3	42.2	49.9		-1.4	-1.5	1.4			
% of gross electricity from CHP	21.1	16.7	25.2	26.8	33.9		-1.4	-1.2	7.5			
Carbon free gross electricity generation (%)	22.3	34.1	38.6	41.4	33.9		4.4	6.4	8.7			
- nuclear	18.6	30.2	33.7	33.0	24.2		4.0	3.9	6.3			
- renewable energy forms	3.6	4.0	4.9	8.4	9.6		0.5	2.5	2.4			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	92.9	101.3	105.1	129.7	145.8	173.0	-0.4	-1.1	-1.8	-0.3	-0.7	-1.0
Private cars and motorcycles	23.6	16.2	14.7	15.4	16.1	17.8	0.0	0.1	0.1	0.1	0.4	0.6
Rail	46.8	67.3	71.3	91.1	103.6	124.1	-0.3	-1.0	-1.6	-0.4	-0.9	-1.3
Aviation	20.6	15.4	15.6	16.7	17.6	19.1	0.1	0.1	0.1	0.7	0.8	0.8
Inland navigation	1.9	2.5	3.5	6.5	8.5	12.0	-0.2	-0.3	-0.5	-2.3	-3.4	-4.0
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	64.2	55.6	59.3	70.3	76.8	90.1	-0.1	-0.3	-0.5	-0.1	-0.4	-0.6
Trucks	26.3	37.3	43.4	58.2	64.5	76.6	-0.1	-0.4	-0.6	-0.2	-0.6	-0.8
Rail	38.0	17.5	14.8	11.9	12.2	13.4	0.1	0.1	0.1	0.4	0.6	0.6
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.4
Energy demand in transport (ktoe)												
Public road transport	2804	4721	6569	8354	8981	9668	-36	-103	-161	-0.4	-1.1	-1.6
Private cars and motorcycles	132	98	111	112	111	105	0	0	0	0.1	0.4	0.1
Trucks	1271	2257	2850	3487	3737	3862	-10	-30	-43	-0.3	-0.8	-1.1
Rail	956	1868	2987	3955	4241	4711	-9	-26	-39	-0.2	-0.6	-0.8
Aviation	272	295	271	216	200	181	2	-7	1	0.8	-3.4	0.5
Inland navigation	174	197	346	584	691	809	-19	-40	-80	-3.2	-5.5	-9.0
Inland navigation	0	5	5	1	1	0	0	0	0	0.1	0.3	0.4

Source: PRIMES

Denmark: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	10040	15562	27617	31173	27955	22355	19435	18837	19227	10.6	0.1	-3.6	-0.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0	
Natural gas	2770	4702	7412	9383	8096	4380	3515	3279	3935	10.3	0.9	-8.0	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1199	1534	2064	2897	3359	3976	4920	5558	6292	5.6	5.0	3.9	2.5	
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.3	0.3	0.2	
Biomass & Waste	1140	1423	1687	2313	2618	3063	3750	4198	4692	4.0	4.5	3.7	2.3	
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8	
Solar and others	2	5	7	10	56	197	397	427	477	12.5	22.6	21.6	1.8	
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.5	3.8	1.8	
Net Imports	8605	7534	-7076	-10498	-8020	-3164	-243	409	-188					
Solids	6216	7664	3784	3505	3705	3991	3777	3513	2434	-4.8	-0.2	0.2	-4.3	
Oil	2711	1429	-8094	-9381	-7631	-5374	-2832	-2063	-1247					
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8729	-6347	-3564	-2679	-1774					
- Oil products	679	627	1512	1804	1098	973	731	616	527	8.3	-3.2	-4.0	-3.2	
Natural gas	-928	-1496	-2882	-5010	-4300	-2326	-1867	-1742	-2090					
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6	
Gross Inland Consumption	17856	20244	19659	19534	19085	18314	18290	18317	18081	1.0	-0.3	-0.4	-0.1	
Solids	6088	6498	3987	3715	3705	3991	3777	3513	2434	-4.1	-0.7	0.2	-4.3	
Oil	8144	9105	9043	8133	8020	7749	7265	7008	6795	1.1	-1.2	-1.0	-0.7	
Natural gas	1818	3170	4449	4399	3796	2053	1648	1537	1845	9.4	-1.6	-8.0	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6	
Renewable energy forms	1199	1540	2123	3168	3666	4334	5360	6050	6842	5.9	5.6	3.9	2.5	
as % in Gross Inland Consumption														
Solids	34.1	32.1	20.3	19.0	19.4	21.8	20.7	19.2	13.5					
Oil	45.6	45.0	46.0	41.6	42.0	42.3	39.7	38.3	37.6					
Natural gas	10.2	15.7	22.6	22.5	19.9	11.2	9.0	8.4	10.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	6.7	7.6	10.8	16.2	19.2	23.7	29.3	33.0	37.8					
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	36962	31779	32020	36885	40594	3.4	0.3	-1.4	2.4	
Self consumption and grid losses	3290	4659	4046	3775	3661	3357	3467	4185	4419	2.1	-1.0	-0.5	2.5	
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6247	5182	5078	5394	5300	2.7	-2.2	-2.1	0.4	
Solids	5541	6061	3667	3444	3477	3743	3208	2878	1784	-4.0	-0.5	-0.8	-5.7	
Oil (including refinery gas)	237	1008	1344	344	271	20	17	10	49	19.0	-14.8	-24.2	11.2	
Gas (including derived gases)	174	975	2112	2003	1346	28	0	0	507	28.4	-4.4			
Biomass & Waste	65	378	699	1338	1153	1392	1853	2506	2959	26.9	5.1	4.9	4.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9073	10750	8984	8343	8711	8764	8799	8487	8362	-0.1	-0.3	0.1	-0.5	
Refineries	8027	9958	8452	7821	7771	7653	7436	7321	7226	0.5	-0.8	-0.4	-0.3	
Biofuels and hydrogen production	0	0	0	0	193	349	587	617	659			11.8	1.2	
District heating	1005	761	515	509	747	762	776	550	477	-6.5	3.8	0.4	-4.7	
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4				
Energy Branch Consumption	736	1014	1160	1258	1135	847	758	762	769	4.7	-0.2	-4.0	0.1	
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2	
Final Energy Demand	13492	14720	14610	15324	15270	15259	15429	15401	15279	0.8	0.4	0.1	-0.1	
by sector														
Industry	2711	3026	2935	2831	2906	2943	2948	2957	2999	0.8	-0.1	0.1	0.2	
- energy intensive industries	1076	1121	1243	1152	1174	1190	1171	1161	1159	1.5	-0.6	0.0	-0.1	
- other industrial sectors	1636	1905	1692	1679	1732	1753	1777	1796	1841	0.3	0.2	0.3	0.4	
Residential	3946	4468	4154	4398	4314	4135	4278	4310	4301	0.5	0.4	-0.1	0.1	
Tertiary	2822	2779	2801	2840	2606	2619	2605	2577	2514	-0.1	-0.7	0.0	-0.4	
Transport	4012	4447	4720	5254	5444	5563	5598	5557	5465	1.6	1.4	0.3	-0.2	
by fuel														
Solids	396	405	290	236	227	248	569	635	649	-3.1	-2.4	9.6	1.3	
Oil	7097	7132	6950	7204	7028	6991	6695	6542	6326	-0.2	0.1	-0.5	-0.6	
Gas	1159	1691	1667	1701	1761	1709	1363	1343	1115	3.7	0.5	-2.5	-2.0	
Electricity	2517	2655	2791	2882	2731	2598	2663	2989	3246	1.0	-0.2	-0.2	2.0	
Heat (from CHP and District Heating)	1758	2242	2255	2408	2376	2287	2383	2174	2004	2.5	0.5	0.0	-1.7	
Renewable energy forms	566	595	657	892	1146	1425	1755	1717	1938	1.5	5.7	4.4	1.0	
Other	0	0	0	0	0	1	2	2	2			13.7	4.2	
RES in Gross Final Energy Consumption ^(A)			1919	2512	3308	3914	4780	5263	5994		5.6	3.7	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.9	58.3	54.9	51.9	47.2	0.1	-1.1	-1.4	-1.5	
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.5	42.7	39.5	37.5	33.4	0.1	-1.2	-1.6	-1.7	
Power generation/District heating	24.5	30.2	24.0	19.7	18.0	15.0	12.7	11.4	8.4	-0.2	-2.8	-3.4	-4.1	
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.6	1.1	0.7	0.7	4.9	-0.6	-6.6	-4.4	
Industry	5.4	6.0	5.4	5.0	4.9	5.0	5.4	5.5	5.1	-0.1	-0.8	0.9	-0.5	
Residential	4.9	4.9	3.9	3.5	3.2	3.1	2.7	2.8	2.6	-2.3	-2.1	-1.4	-0.6	
Tertiary	3.6	3.1	2.9	2.7	2.5	2.4	2.4	2.3	2.2	-2.1	-1.4	-0.6	-1.0	
Transport	11.9	13.1	13.9	15.5	15.7	15.6	15.2	14.9	14.5	1.6	1.2	-0.3	-0.5	
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.8	2.7	2.7	5.4	-0.3	-0.4	-0.2	
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.8	12.6	11.7	11.1	-0.7	-1.2	-0.7	-1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	90.1	83.6	78.6	74.4	67.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.3	70.6	65.0	60.7	56.3	-1.6	-2.1	-2.2	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.44	2.33	2.16	2.05	1.85	-0.8	-0.9	-1.2	-1.6
Import Dependency %	45.7	34.5	-33.7	-51.6	-40.2	-16.5	-1.3	2.1	-1.0				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.9	19.5	21.7	23.5	24.9		1.6	1.9	1.4
as % of GDP			7.8	8.0	7.6	7.5	7.7	7.8	7.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	85.4	79.4	74.8	71.4	-1.1	-0.8	-1.5	-1.1
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.7	73.6	70.8	66.9	63.0	-1.4	-1.8	-1.7	-1.2
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.8	68.9	63.1	58.1	53.1	-2.7	-2.7	-1.8	-1.7
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	37.2	35.9	33.5	31.1	0.0	0.6	-0.7	-1.4
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	70.4	67.6	65.5	63.1	0.1	0.5	-0.8	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.23	0.20	0.17	0.12	-3.1	-3.2	-2.4	-4.4
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.71	1.66	1.65	1.59	-0.7	-0.4	-0.3	-0.5
Industry	2.00	1.98	1.83	1.76	1.70	1.69	1.83	1.85	1.70	-0.9	-0.7	0.7	-0.7
Residential	1.24	1.09	0.93	0.80	0.73	0.74	0.64	0.64	0.60	-2.8	-2.4	-1.3	-0.6
Tertiary	1.27	1.12	1.04	0.94	0.97	0.94	0.92	0.88	0.86	-2.0	-0.6	-0.6	-0.7
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.71	2.69	2.65	0.0	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	20.5	24.4	29.6	32.8	37.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.4	10.9	11.7	12.9				
Gross Electricity generation by source (in GWh)													
			36043	36269	36962	31779	32020	36885	40594		0.3	-1.4	2.4
Nuclear energy			0	0	0	0	0	0	0				
Solids	14345	13553	15249	15897	14625	14209	10011			0.6	-0.4	-3.7	
Oil (including refinery gas)	5222	1525	1541	450	200	167	347			-11.5	-18.5	5.7	
Gas (including derived gases)	9658	9549	8125	2256	1361	1501	3919			-1.7	-16.4	11.2	
Biomass-waste	2548	5006	4081	4853	6820	10119	13223			4.8	5.3	6.8	
Hydro (pumping excluded)	30	23	31	31	32	32	32			0.3	0.3	0.2	
Wind	4240	6613	7928	8279	8957	10822	13019			6.5	1.2	3.8	
Solar	0	0	6	13	24	34	42					15.8	5.8
Geothermal and other renewables	0	0	0	0	0	0	0						
Net Generation Capacity in MW_e			11888	12794	12775	12444	11788	12190	13147		0.7	-0.8	1.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2311	3014	3663	3780	4023	4627	5232		4.7	0.9	2.7
Hydro (pumping excluded)			10	11	11	11	11	11	11		1.5	0.0	0.0
Wind			2300	3000	3636	3732	3944	4520	5101		4.7	0.8	2.6
Solar			2	3	16	37	68	97	120		24.9	15.8	5.8
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9577	9781	9113	8664	7765	7563	7915		-0.5	-1.6	0.2
of which cogeneration units			7504	8538	5740	5347	4428	3724	3744		-2.6	-2.6	-1.7
Solids fired			5528	5566	4819	4425	3541	3032	2213		-1.4	-3.0	-4.6
Gas fired			2328	2485	2395	2411	2132	1992	2670		0.3	-1.2	2.3
Oil fired			1271	1236	1182	988	911	894	851		-0.7	-2.6	-0.7
Biomass-waste fired			450	494	717	840	1180	1645	2182		4.8	5.1	6.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			32.7	30.4	31.1	27.5	29.3	32.5	33.5				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.9	38.9	39.0	41.4	44.6				
% of gross electricity from CHP			63.9	68.3	61.8	63.3	62.0	56.6	50.1				
Carbon free gross electricity generation (%)			18.9	32.1	32.6	41.5	49.4	57.0	64.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	32.6	41.5	49.4	57.0	64.8				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	70.1	73.0	77.8	81.6	86.4	90.5	93.7	97.2	100.2	1.1	1.0	0.8	0.7
Private cars and motorcycles	6.4	7.3	7.4	7.4	7.5	7.6	7.8	8.0	8.2	1.4	0.1	0.4	0.5
Rail	47.8	49.0	51.9	54.4	57.0	58.5	59.4	60.7	61.8	0.8	0.9	0.4	0.4
Aviation	5.1	4.9	5.5	6.2	6.7	7.3	7.8	8.2	8.6	0.9	2.0	1.5	1.0
Inland navigation	5.5	7.0	9.0	9.8	11.4	13.3	14.7	16.2	17.4	5.0	2.4	2.6	1.6
Freight transport activity (Gtkm)	5.2	4.7	3.9	3.7	3.7	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8
Trucks	21.7	26.7	27.5	27.0	29.1	31.2	33.1	35.1	37.3	2.4	0.5	1.3	1.2
Rail	18.1	22.4	24.0	23.3	25.0	26.7	28.2	30.0	31.8	2.9	0.4	1.2	1.2
Inland navigation	1.7	2.0	2.0	2.0	2.2	2.4	2.6	2.7	2.9	1.6	0.8	1.6	1.3
Energy demand in transport (ktoe)	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	-2.4	2.5	1.7	1.4
Public road transport	4012	4447	4720	5254	5444	5563	5598	5557	5465	1.6	1.4	0.3	-0.2
Private cars and motorcycles	57	76	78	83	81	78	77	73	68	3.1	0.4	-0.5	-1.2
Trucks	1628	1709	1788	2034	2046	1996	1923	1767	1645	0.9	1.4	-0.6	-1.5
Rail	1374	1690	1816	1952	2021	2091	2132	2205	2296	2.8	1.1	0.5	0.7
Aviation	113	117	103	106	109	110	107	99	54	-1.0	0.6	-0.2	-6.7
Inland navigation	690	675	820	944	1049	1147	1214	1263	1249	1.7	2.5	1.5	0.3
	150	181	115	136	138	141	145	150	153	-2.6	1.8	0.6	0.5

Source: PRIMES

Denmark: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22355	19435	19227	-1651	-779	662	-6.9	-3.9	3.6
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	4380	3515	3935	-2166	-1861	-1065	-33.1	-34.6	-21.3
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	3976	4920	6292	514	1082	1727	14.9	28.2	37.8
Hydro	2	3	2	3	3	3	0	0	0	3.1	1.8	0.0
Biomass & Waste	1140	1687	2313	3063	3750	4692	381	811	1274	14.2	27.6	37.3
Wind	52	365	569	712	770	1120	25	0	151	3.7	0.0	15.6
Solar and others	2	7	10	197	397	477	108	271	302	120.7	214.8	172.1
Geothermal	2	3	3	0	0	0	0	0	0	32.2	51.5	76.8
Net Imports	8605	-7076	-10498	-3164	-243	-188	-171	-1215	-2625	5.7	-125.0	-107.7
Solids	6216	3784	3505	3991	3777	2434	-394	-976	-1521	-9.0	-20.5	-38.5
Oil	2711	-8094	-9381	-5374	-2832	-1247	-621	-1034	-1335	13.1	57.5	-1532.1
- Crude oil and Feedstocks	2032	-9607	-11186	-6347	-3564	-1774	-401	-588	-768	6.7	19.7	76.4
- Oil products	679	1512	1804	973	731	527	-220	-447	-566	-18.5	-37.9	-51.8
Natural gas	-928	-2882	-5010	-2326	-1867	-2090	800	700	81	-25.6	-27.3	-3.7
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	18314	18290	18081	-1822	-1992	-1959	-9.0	-9.8	-9.8
Solids	6088	3987	3715	3991	3777	2434	-394	-976	-1521	-9.0	-20.5	-38.5
Oil	8144	9043	8133	7749	7265	6795	-621	-1032	-1331	-7.4	-12.4	-16.4
Natural gas	1818	4449	4399	2053	1648	1845	-1366	-1161	-984	-40.0	-41.3	-34.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4334	5360	6842	559	1177	1877	14.8	28.1	37.8
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	21.8	20.7	13.5	0.0	-2.8	-6.3			
Oil	45.6	46.0	41.6	42.3	39.7	37.6	0.7	-1.2	-3.0			
Natural gas	10.2	22.6	22.5	11.2	9.0	10.2	-5.8	-4.8	-3.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	23.7	29.3	37.8	4.9	8.7	13.1			
Gross Electricity Generation in GWh_e	25733	36043	36269	31779	32020	40594	-7094	-7714	-1975	-18.2	-19.4	-4.6
Self consumption and grid losses	3290	4046	3775	3357	3467	4419	-698	-872	-411	-17.2	-20.1	-8.5
Fuel Inputs to Thermal Power Generation	6016	7822	7129	5182	5078	5300	-1424	-1491	-1046	-21.6	-22.7	-16.5
Solids	5541	3667	3444	3743	3208	1784	-398	-1299	-1657	-9.6	-28.8	-48.2
Oil (including refinery gas)	237	1344	344	20	17	49	-258	-236	-143	-92.9	-93.3	-74.5
Gas (including derived gases)	174	2112	2003	28	0	507	-990	-405	-141	-97.3	-100.0	-21.7
Biomass & Waste	65	699	1338	1392	1853	2959	222	449	895	19.0	32.0	43.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8764	8799	8362	-257	-277	-506	-2.9	-3.1	-5.7
Refineries	8027	8452	7821	7653	7436	7226	-401	-588	-768	-5.0	-7.3	-9.6
Biofuels and hydrogen production	0	0	0	349	587	659	38	116	50	12.4	24.7	8.2
District heating	1005	515	509	762	776	477	105	194	213	16.0	33.4	80.6
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	847	758	769	-227	-216	-173	-21.1	-22.2	-18.4
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	15259	15429	15279	-1109	-1235	-1514	-6.8	-7.4	-9.0
by sector												
Industry	2711	2935	2831	2943	2948	2999	-61	-93	-99	-2.0	-3.0	-3.2
- energy intensive industries	1076	1243	1152	1190	1171	1159	-12	-33	-32	-1.0	-2.7	-2.7
- other industrial sectors	1636	1692	1679	1753	1777	1841	-49	-60	-67	-2.7	-3.3	-3.5
Residential	3946	4154	4398	4135	4278	4301	-455	-337	-316	-9.9	-7.3	-6.8
Tertiary	2822	2801	2840	2619	2605	2514	-375	-425	-521	-12.5	-14.0	-17.2
Transport	4012	4720	5254	5563	5598	5465	-217	-381	-579	-3.8	-6.4	-9.6
by fuel												
Solids	396	290	236	248	569	649	3	322	137	1.3	131.0	26.7
Oil	7097	6950	7204	6991	6695	6326	-321	-670	-996	-4.4	-9.1	-13.6
Gas	1159	1667	1701	1709	1363	1115	-166	-524	-541	-8.9	-27.8	-32.7
Electricity	2517	2791	2882	2598	2663	3246	-549	-587	-132	-17.4	-18.1	-3.9
Heat (from CHP and District Heating)	1758	2255	2408	2287	2383	2004	-230	-117	-282	-9.1	-4.7	-12.4
Renewable energy forms	566	657	892	1425	1755	1938	155	340	301	12.2	24.0	18.4
Other	0	0	0	1	2	2	0	0	-1	6.5	6.9	-26.4
RES in Gross Final Energy Consumption ^(A)		1919	2512	3914	4780	5994	539	1130	1771	16.0	30.9	42.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	58.3	54.9	47.2	-7.3	-10.6	-13.2	-11.1	-16.2	-21.8
CO₂ Emissions (energy related)	51.7	52.4	48.9	42.7	39.5	33.4	-6.6	-9.7	-12.3	-13.5	-19.7	-27.0
Power generation/District heating	24.5	24.0	19.7	15.0	12.7	8.4	-4.8	-7.0	-7.6	-24.4	-35.6	-47.5
Energy Branch	1.5	2.4	2.5	1.6	1.1	0.7	-0.5	-0.7	-1.0	-22.1	-37.9	-58.2
Industry	5.4	5.4	5.0	5.0	5.4	5.1	0.0	0.4	-0.1	-0.8	8.6	-2.4
Residential	4.9	3.9	3.5	3.1	2.7	2.6	-0.3	-0.6	-0.9	-8.6	-17.9	-26.7
Tertiary	3.6	2.9	2.7	2.4	2.4	2.2	-0.3	-0.4	-0.7	-9.6	-13.1	-24.1
Transport	11.9	13.9	15.5	15.6	15.2	14.5	-0.8	-1.5	-2.0	-4.6	-8.8	-12.1
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.8	2.8	2.7	0.0	0.0	0.0	-0.8	-0.6	0.2
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.8	12.6	11.1	-0.6	-0.9	-0.9	-4.8	-6.7	-7.1
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	83.6	78.6	67.6	-10.5	-15.2	-18.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	70.6	65.0	56.3	-7.0	-7.1	-6.1	-9.0	-9.8	-9.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.33	2.16	1.85	-0.12	-0.27	-0.43	-4.8	-11.0	-19.0
Import Dependency %	45.7	-33.7	-51.6	-16.5	-1.3	-1.0	-2.2	-5.9	-12.6			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	19.5	21.7	24.9	-0.1	0.2	1.1	-0.8	1.1	4.6
as % of GDP		7.8	8.0	7.5	7.7	7.7	-0.1	0.1	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				-0.1	0.3	1.1						
as % of GDP				-0.05	0.09	0.35						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	85.4	79.4	71.4	-1.8	-2.5	-2.4	-2.0	-3.0	-3.2
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	73.6	70.8	63.0	-8.1	-5.6	-4.6	-9.9	-7.3	-6.8
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	68.9	63.1	53.1	-9.9	-10.3	-11.0	-12.5	-14.0	-17.2
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	37.2	35.9	31.1	-0.7	-1.0	-1.6	-1.8	-2.7	-5.0
Freight transport (toe/Mtkm)	68.3	69.2	75.8	70.4	67.6	63.1	-2.5	-4.6	-6.6	-3.4	-6.4	-9.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.23	0.20	0.12	-0.03	-0.07	-0.10	-12.2	-26.2	-43.4
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.71	1.66	1.59	0.03	0.00	-0.08	2.0	0.2	-4.8
Industry	2.00	1.83	1.76	1.69	1.83	1.70	0.02	0.20	0.01	1.2	12.0	0.8
Residential	1.24	0.93	0.80	0.74	0.64	0.60	0.01	-0.08	-0.16	1.4	-11.4	-21.3
Tertiary	1.27	1.04	0.94	0.94	0.92	0.86	0.03	0.01	-0.08	3.3	1.1	-8.4
Transport	2.96	2.95	2.96	2.81	2.71	2.65	-0.03	-0.07	-0.08	-0.9	-2.6	-2.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		12.4	15.5	24.4	29.6	37.8	4.9	8.7	13.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	10.9	12.9	0.9	2.8	2.3			
Gross Electricity generation by source (in GWh_e)												
	36043	36269	31779	32020	40594	40594	-7094	-7714	-1975	-18.2	-19.4	-4.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	15897	14625	10011	10011	-1546	-4284	-5754	-8.9	-22.7	-36.5
Oil (including refinery gas)	5222	1525	450	200	347	347	-1115	-1305	-1015	-71.3	-86.7	-74.5
Gas (including derived gases)	9658	9549	2256	1361	3919	3919	-5406	-3547	-1053	-70.6	-72.3	-21.2
Biomass-waste	2548	5006	4853	6820	13223	13223	677	1422	4086	16.2	26.3	44.7
Hydro (pumping excluded)	30	23	31	32	32	32	1	1	0	3.1	1.8	0.0
Wind	4240	6613	8279	8957	13019	13019	296	0	1761	3.7	0.0	15.6
Solar	0	0	13	24	42	42	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	11888	12794	12444	11788	13147	13147	-269	-188	184	-2.1	-1.6	1.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4023	5232	5232	93	0	575	2.5	0.0	12.3
Hydro (pumping excluded)	10	11	11	11	11	11	0	0	0	0.0	0.0	0.0
Wind	2300	3000	3732	3944	5101	5101	93	0	575	2.6	0.0	12.7
Solar	2	3	37	68	120	120	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8664	7765	7915	7915	-362	-188	-390	-4.0	-2.4	-4.7
of which cogeneration units	7504	8538	5347	4428	3744	3744	-794	-295	-387	-12.9	-6.3	-9.4
Solids fired	5528	5566	4425	3541	2213	2213	0	0	-212	0.0	0.0	-8.7
Gas fired	2328	2485	2411	2132	2670	2670	-508	-508	-695	-17.4	-19.2	-20.7
Oil fired	1271	1236	988	911	851	851	0	0	-48	0.0	0.0	-5.3
Biomass-waste fired	450	494	840	1180	2182	2182	145	320	565	21.0	37.2	34.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	27.5	29.3	33.5	33.5	-5.5	-6.5	-2.0			
Efficiency of gross thermal power generation (%)	34.9	35.8	38.9	39.0	44.6	44.6	-1.2	-1.3	2.3			
% of gross electricity from CHP	63.9	68.3	63.3	62.0	50.1	50.1	1.1	3.2	1.1			
Carbon free gross electricity generation (%)	18.9	32.1	41.5	49.4	64.8	64.8	10.1	13.2	16.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	41.5	49.4	64.8	64.8	10.1	13.2	16.7			
Transport sector												
Passenger transport activity (Gpkm)												
	70.1	77.8	81.6	90.5	93.7	100.2	-1.0	-1.9	-2.4	-1.1	-2.0	-2.3
Public road transport	6.4	7.4	7.4	7.6	7.8	8.2	0.1	0.2	0.2	1.7	2.6	3.0
Private cars and motorcycles	47.8	51.9	54.4	58.5	59.4	61.8	-1.0	-1.8	-2.4	-1.7	-2.9	-3.7
Rail	5.1	5.5	6.2	7.3	7.8	8.6	0.2	0.1	0.3	2.4	1.9	3.6
Aviation	5.5	9.0	9.8	13.3	14.7	17.4	-0.3	-0.4	-0.6	-2.0	-2.8	-3.2
Inland navigation	5.2	3.9	3.7	3.8	4.0	4.3	0.0	0.0	0.0	-0.6	-0.2	-0.2
Freight transport activity (Gtkm)												
	21.7	27.5	27.0	31.2	33.1	37.3	-0.6	-0.9	-1.3	-1.8	-2.7	-3.3
Trucks	18.1	24.0	23.3	26.7	28.2	31.8	-0.7	-1.1	-1.5	-2.5	-3.8	-4.6
Rail	1.7	2.0	2.0	2.4	2.6	2.9	0.1	0.1	0.2	4.4	5.6	6.5
Inland navigation	1.9	1.5	1.7	2.1	2.3	2.6	0.0	0.1	0.1	1.6	2.4	2.9
Energy demand in transport (ktoe)												
	4012	4720	5254	5563	5598	5465	-217	-381	-579	-3.8	-6.4	-9.6
Public road transport	57	78	83	78	77	68	0	-1	-4	-0.5	-1.4	-5.1
Private cars and motorcycles	1628	1788	2034	1996	1923	1645	-67	-103	-126	-3.2	-5.1	-7.1
Trucks	1374	1816	1952	2091	2132	2296	-120	-224	-343	-5.4	-9.5	-13.0
Rail	113	103	106	110	107	54	1	3	6	1.2	2.4	13.0
Aviation	690	820	944	1147	1214	1249	-31	-54	-110	-2.6	-4.3	-8.1
Inland navigation	150	115	136	141	145	153	-1	-1	-3	-0.7	-0.8	-1.8

Source: PRIMES

Estonia: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6249	3618	3332	4304	3335	3606	3256	3445	3563	-6.1	0.0	-0.2	0.9	
Solids	5798	3129	2830	3261	2516	2707	2064	2032	1912	-6.9	-1.2	-2.0	-0.8	
Oil	0	0	2	331	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	450	489	500	712	820	899	1192	1412	1650	1.1	5.1	3.8	3.3	
Hydro	0	0	0	2	2	2	2	3	3		17.1	1.8	0.3	
Biomass & Waste	450	488	500	706	760	838	1101	1273	1465	1.0	4.3	3.8	2.9	
Wind	0	0	0	5	56	56	81	123	164		91.0	3.9	7.3	
Solar and others	0	0	0	0	2	3	7	13	18			16.0	9.7	
Geothermal	0	0	0	0	0	0	0	0	0			2.7	1.1	
Net Imports	4456	1987	1447	1463	2171	2347	2338	2320	2301	-10.6	4.1	0.7	-0.2	
Solids	697	292	244	27	121	129	136	148	129	-10.0	-6.8	1.2	-0.5	
Oil	3139	1178	626	867	1565	1707	1749	1776	1824	-14.9	9.6	1.1	0.4	
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.1	0.4	
- Oil products	3139	1178	626	867	1564	1706	1748	1775	1823	-14.9	9.6	1.1	0.4	
Natural gas	1222	583	662	800	734	722	716	685	687	-5.9	1.0	-0.2	-0.4	
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Gross Inland Consumption	10642	5630	4712	5627	5355	5780	5407	5569	5662	-7.8	1.3	0.1	0.5	
Solids	6703	3598	3119	3255	2637	2835	2201	2180	2042	-7.4	-1.7	-1.8	-0.7	
Oil	2858	1032	510	1090	1413	1534	1561	1580	1623	-15.8	10.7	1.0	0.4	
Natural gas	1222	583	662	800	734	722	716	685	687	-5.9	1.0	-0.2	-0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Renewable energy forms	460	483	501	621	721	791	1049	1247	1460	0.9	3.7	3.8	3.4	
as % in Gross Inland Consumption														
Solids	63.0	63.9	66.2	57.8	49.2	49.1	40.7	39.1	36.1					
Oil	26.9	18.3	10.8	19.4	26.4	26.5	28.9	28.4	28.7					
Natural gas	11.5	10.3	14.1	14.2	13.7	12.5	13.2	12.3	12.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	8.6	10.6	11.0	13.5	13.7	19.4	22.4	25.8					
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	11123	11689	13142	14692	16473	-6.8	2.7	1.7	2.3	
Self consumption and grid losses	2615	1409	1247	1422	1437	1551	1660	1921	2171	-7.1	1.4	1.5	2.7	
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2748	2877	2540	2636	2744	-8.0	1.1	-0.8	0.8	
Solids	5085	2499	2213	2297	2454	2649	2026	1994	1867	-8.0	1.0	-1.9	-0.8	
Oil (including refinery gas)	210	80	12	10	23	9	41	42	42	-25.2	7.4	5.7	0.2	
Gas (including derived gases)	357	100	226	227	218	167	191	177	177	-4.5	-0.4	-1.3	-0.8	
Biomass & Waste	2	2	2	5	53	53	282	423	659	-0.3	38.2	18.2	8.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2285	1007	783	769	378	484	381	368	342	-10.2	-7.0	0.1	-1.1	
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.4	1.1	0.4	
Biofuels and hydrogen production	0	0	0	0	45	74	110	119	130			9.4	1.7	
District heating	1755	527	485	511	317	400	263	242	206	-12.1	-4.2	-1.9	-2.4	
Derived gases, cokeries etc.	529	479	297	257	14	9	7	5	4	-5.6	-26.1	-7.6	-4.3	
Energy Branch Consumption	295	148	179	209	208	216	214	227	236	-4.9	1.5	0.3	1.0	
Non-Energy Uses	69	225	219	230	224	217	218	218	217	12.2	0.2	-0.3	0.0	
Final Energy Demand	6392	2627	2445	2854	3260	3526	3708	3867	3969	-9.2	2.9	1.3	0.7	
by sector														
Industry	2742	794	531	654	773	840	890	946	991	-15.1	3.8	1.4	1.1	
- energy intensive industries	738	430	203	215	227	246	261	275	285	-12.1	1.1	1.4	0.9	
- other industrial sectors	2004	364	328	440	546	594	629	671	706	-16.6	5.2	1.4	1.2	
Residential	1482	1054	984	977	986	1005	1036	1075	1090	-4.0	0.0	0.5	0.5	
Tertiary	1330	289	353	498	616	682	734	781	807	-12.4	5.7	1.8	0.9	
Transport	839	490	577	725	886	1000	1048	1064	1081	-3.7	4.4	1.7	0.3	
by fuel														
Solids	1059	201	122	102	106	107	111	118	116	-19.5	-1.4	0.5	0.5	
Oil	1803	855	748	960	1171	1274	1280	1296	1364	-8.4	4.6	0.9	0.6	
Gas	439	202	134	207	258	302	323	335	339	-11.2	6.7	2.3	0.5	
Electricity	608	510	506	584	648	735	832	939	1045	-1.8	2.5	2.5	2.3	
Heat (from CHP and District Heating)	2086	593	511	547	531	544	536	539	527	-13.1	0.4	0.1	-0.2	
Renewable energy forms	397	265	424	453	546	564	626	639	577	0.7	2.5	1.4	-0.8	
Other	0	0	0	0	0	0	0	0	0			16.6	2.4	
RES in Gross Final Energy Consumption ^(A)			538	564	694	750	986	1166	1350	2.6	3.6	3.2		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	20.0	21.3	18.9	18.3	17.5	-9.1	1.4	-0.5	-0.8	
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.3	17.5	14.9	14.8	14.4	-9.7	1.5	-0.9	-0.3	
Power generation/District heating	27.9	12.3	10.9	11.2	11.6	12.3	9.7	9.5	8.9	-9.0	0.6	-1.7	-0.9	
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.2	-0.8	-0.7	
Industry	4.6	1.7	0.8	0.8	1.1	1.1	1.1	1.2	1.4	-16.0	2.8	0.8	2.1	
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.9	0.7	0.1	
Tertiary	1.9	0.3	0.3	0.5	0.6	0.7	0.7	0.8	0.7	-17.6	8.9	1.0	0.5	
Transport	2.4	1.4	1.7	2.1	2.5	2.8	2.8	2.8	2.8	-3.6	4.0	1.2	0.1	
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.3	1.4	1.5	-5.3	9.7	3.6	1.4	
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.6	2.7	2.0	1.6	-5.7	-0.3	-0.2	-5.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	44.4	47.2	42.0	40.6	38.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	330.3	290.6	229.5	205.1	189.1	-7.1	-6.3	-3.6	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.05	3.03	2.76	2.66	2.55	-2.1	0.2	-1.0	-0.8
Import Dependency %	41.2	34.8	30.0	25.5	39.4	39.4	41.8	40.2	39.2				
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	2.8	3.4	3.8	4.1		3.7	3.5	1.9
as % of GDP			22.2	16.8	14.7	14.3	14.3	13.9	13.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.7	50.3	45.1	41.4	39.2	-12.1	-5.5	-2.3	-1.4
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.3	39.7	34.8	31.6	29.2	-3.6	-7.2	-3.0	-1.8
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	83.0	75.1	68.4	63.0	58.8	-12.4	-1.8	-1.9	-1.5
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.3	29.0	27.7	26.3	25.3	0.2	-0.7	-0.6	-0.9
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.2	21.6	21.8	21.6	21.9	-7.9	1.1	0.8	0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.62	0.64	0.48	0.44	0.38	0.5	-1.0	-2.6	-2.2
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.39	1.41	1.36	1.33	1.35	-3.1	1.1	-0.2	-0.1
Industry	1.67	2.20	1.51	1.28	1.37	1.37	1.29	1.24	1.43	-1.0	-1.0	-0.6	1.0
Residential	1.33	0.44	0.29	0.36	0.35	0.36	0.35	0.36	0.34	-14.2	1.9	0.2	-0.4
Tertiary	1.42	0.87	0.77	0.94	1.04	1.00	0.97	0.97	0.92	-5.9	3.0	-0.7	-0.5
Transport	2.89	2.90	2.92	2.94	2.82	2.78	2.69	2.67	2.63	0.1	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	20.0	20.1	25.2	28.5	32.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.4	6.4	9.2	9.9	10.8				
Gross Electricity generation by source (in GWh)													
			8511	10203	11123	11689	13142	14692	16473		2.7	1.7	2.3
Nuclear energy			0	0	0	0	0	0	0				
Solids			7611	8927	9252	10030	9311	9685	9969		2.0	0.1	0.7
Oil (including refinery gas)			51	42	95	36	168	174	175		6.4	5.9	0.4
Gas (including derived gases)			787	1000	856	668	1321	1316	1252		0.8	4.4	-0.5
Biomass-waste			57	158	249	278	1368	2054	3140		15.9	18.6	8.7
Hydro (pumping excluded)			5	22	24	27	29	29	30		17.1	1.8	0.3
Wind			1	54	646	649	945	1433	1907		91.0	3.9	7.3
Solar			0	0	0	0	0	0	0				4.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2999	2998	2715	2661	2501	2987	3541		-1.0	-0.8	3.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2	39	249	250	358	586	858		62.3	3.7	9.1
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1
Wind			1	32	242	243	351	578	850		75.6	3.8	9.3
Solar			0	0	0	0	1	1	1				4.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2997	2959	2466	2411	2143	2402	2683		-1.9	-1.4	2.3
of which cogeneration units			477	513	443	401	635	719	918		-0.7	3.7	3.8
Solids fired			2738	2672	2159	2134	1412	1171	1134		-2.3	-4.2	-2.2
Gas fired			175	200	207	218	429	828	954		1.7	7.6	8.3
Oil fired			65	65	66	14	82	85	105		0.2	2.2	2.5
Biomass-waste fired			19	21	33	45	219	318	490		5.8	20.9	8.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			28.9	34.7	42.3	45.4	54.8	51.2	48.4				
Efficiency of gross thermal power generation (%)			29.8	34.3	32.7	32.9	41.2	43.2	45.5				
% of gross electricity from CHP			17.6	33.1	22.4	18.8	30.0	29.2	32.2				
Carbon free gross electricity generation (%)			0.7	2.3	8.3	8.2	17.8	23.9	30.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.7	2.3	8.3	8.2	17.8	23.9	30.8				
Transport sector													
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	16.9	17.7	18.4	18.8	-0.3	3.3	1.1	0.6
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.4	2.4	-5.1	-0.1	-0.6	-0.3
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.1	13.0	13.7	14.2	14.4	4.2	4.6	1.2	0.5
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.5	2.0
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.6	4.7
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.8	23.6	25.5	26.8	27.6	0.5	5.6	2.0	0.8
Trucks	4.5	1.5	3.9	5.8	8.6	10.7	12.3	13.4	14.2	-1.4	8.1	3.7	1.4
Rail	7.0	3.8	8.1	10.6	12.3	12.9	13.2	13.3	13.4	1.5	4.2	0.7	0.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	839	490	577	725	886	1000	1048	1064	1081	-3.7	4.4	1.7	0.3
Public road transport	44	21	25	23	21	20	18	16	15	-5.5	-1.6	-1.3	-1.8
Private cars and motorcycles	273	263	307	338	384	400	395	381	363	1.2	2.3	0.3	-0.8
Trucks	414	139	167	263	367	454	506	535	580	-8.7	8.2	3.3	1.4
Rail	65	44	51	48	54	56	51	44	26	-2.4	0.6	-0.7	-6.5
Aviation	36	18	20	42	49	58	66	75	84	-5.9	9.6	3.0	2.5
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.7	0.3

Source: PRIMES

Estonia: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3606	3256	3563	137	-191	-69	3.9	-5.5	-1.9
Solids	5798	2830	3261	2707	2064	1912	0	-542	-562	0.0	-20.8	-22.7
Oil	0	2	331	0	0	0	0	0	0	-229.4	-115.0	-354.5
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	450	500	712	899	1192	1650	137	352	493	17.9	41.8	42.6
Hydro	0	0	2	2	2	3	0	0	0	3.2	0.8	0.0
Biomass & Waste	450	500	706	838	1101	1465	125	313	392	17.6	39.7	36.5
Wind	0	0	5	56	81	164	10	35	88	22.3	75.1	117.1
Solar and others	0	0	0	3	7	18	1	4	12	49.3	100.2	207.4
Geothermal	0	0	0	0	0	0	0	0	0	25.4	34.1	42.9
Net Imports	4456	1447	1463	2347	2338	2301	-256	-222	-363	-9.8	-8.7	-13.6
Solids	697	244	27	129	136	129	0	-4	-5	0.1	-2.6	-3.4
Oil	3139	626	867	1707	1749	1824	-66	-96	-128	-3.7	-5.2	-6.6
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-3.5	-5.0	-6.3
- Oil products	3139	626	867	1706	1748	1823	-66	-96	-128	-3.7	-5.2	-6.6
Natural gas	1222	662	800	722	716	687	-174	-81	-179	-19.4	-10.2	-20.7
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5780	5407	5662	-119	-412	-431	-2.0	-7.1	-7.1
Solids	6703	3119	3255	2835	2201	2042	0	-546	-566	0.0	-19.9	-21.7
Oil	2858	510	1090	1534	1561	1623	-66	-96	-128	-4.1	-5.8	-7.3
Natural gas	1222	662	800	722	716	687	-174	-81	-179	-19.4	-10.2	-20.7
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	791	1049	1460	120	311	442	18.0	42.1	43.4
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	49.1	40.7	36.1	1.0	-6.5	-6.7			
Oil	26.9	10.8	19.4	26.5	28.9	28.7	-0.6	0.4	-0.1			
Natural gas	11.5	14.1	14.2	12.5	13.2	12.1	-2.7	-0.5	-2.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	13.7	19.4	25.8	2.3	6.7	9.1			
Gross Electricity Generation in GWh_e	17178	8511	10203	11689	13142	16473	-1253	-1479	-614	-9.7	-10.1	-3.6
Self consumption and grid losses	2615	1247	1422	1551	1660	2171	-68	-294	-261	-4.2	-15.0	-10.7
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2877	2540	2744	-196	-411	-325	-6.4	-13.9	-10.6
Solids	5085	2213	2297	2649	2026	1867	0	-525	-554	0.0	-20.6	-22.9
Oil (including refinery gas)	210	12	10	9	41	42	-33	-1	-7	-79.1	-3.5	-13.9
Gas (including derived gases)	357	226	227	167	191	177	-160	-46	-52	-48.9	-19.6	-22.7
Biomass & Waste	2	2	5	53	282	659	-3	162	287	-6.0	134.7	77.3
Geothermal heat	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Input to other conversion processes	2285	783	769	484	381	342	28	-22	-72	6.0	-5.5	-17.4
Refineries	1	1	1	1	1	1	0	0	0	-3.5	-5.0	-6.3
Biofuels and hydrogen production	0	0	0	74	110	130	10	27	19	16.4	32.2	17.2
District heating	1755	485	511	400	263	206	17	-49	-91	4.4	-15.8	-30.6
Derived gases, cokeries etc.	529	297	257	9	7	4	0	0	0	3.3	2.8	0.4
Energy Branch Consumption	295	179	209	216	214	236	-4	-27	-30	-1.7	-11.1	-11.2
Non-Energy Uses	69	219	230	217	218	217	0	0	0	-0.1	-0.1	-0.2
Final Energy Demand	6392	2445	2854	3526	3708	3969	-82	-143	-186	-2.3	-3.7	-4.5
by sector												
Industry	2742	531	654	840	890	991	-19	-43	-64	-2.2	-4.6	-6.1
- energy intensive industries	738	203	215	246	261	285	-6	-12	-15	-2.2	-4.4	-4.9
- other industrial sectors	2004	328	440	594	629	706	-13	-31	-49	-2.2	-4.6	-6.5
Residential	1482	984	977	1005	1036	1090	-14	-26	-18	-1.4	-2.4	-1.6
Tertiary	1330	353	498	682	734	807	-32	-39	-40	-4.5	-5.0	-4.7
Transport	839	577	725	1000	1048	1081	-16	-36	-64	-1.6	-3.3	-5.6
by fuel												
Solids	1059	122	102	107	111	116	0	-5	-3	-0.3	-4.0	-2.3
Oil	1803	748	960	1274	1280	1364	-41	-93	-123	-3.1	-6.8	-8.3
Gas	439	134	207	302	323	339	10	3	-40	3.4	1.0	-10.6
Electricity	608	506	584	735	832	1045	-102	-102	-30	-12.2	-10.9	-2.8
Heat (from CHP and District Heating)	2086	511	547	544	536	527	-32	-56	-57	-5.6	-9.5	-9.8
Renewable energy forms	397	424	453	564	626	577	84	110	67	17.4	21.3	13.2
Other	0	0	0	0	0	0	0	0	0	3.6	2.1	-1.7
RES in Gross Final Energy Consumption ^(A)		538	564	750	986	1350	117	290	412	18.5	41.8	43.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	21.3	18.9	17.5	-0.7	-2.9	-3.3	-3.2	-13.2	-15.7
CO₂ Emissions (energy related)	39.2	14.1	15.2	17.5	14.9	14.4	-0.6	-2.8	-3.2	-3.4	-15.6	-18.0
Power generation/District heating	27.9	10.9	11.2	12.3	9.7	8.9	-0.5	-2.4	-2.7	-3.9	-20.0	-23.0
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	-4.6	-11.3	-12.9
Industry	4.6	0.8	0.8	1.1	1.1	1.4	-0.1	-0.2	-0.2	-8.6	-14.9	-14.7
Residential	2.0	0.3	0.4	0.4	0.4	0.4	0.0	0.0	0.0	1.0	1.4	-1.2
Tertiary	1.9	0.3	0.5	0.7	0.7	0.7	0.1	0.1	0.0	11.9	11.5	2.8
Transport	2.4	1.7	2.1	2.8	2.8	2.8	-0.1	-0.2	-0.3	-2.6	-5.9	-8.2
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.3	1.5	0.0	0.0	0.0	-1.0	-1.6	-1.6
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.6	2.7	1.6	-0.1	-0.1	-0.1	-2.7	-3.8	-4.2
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	47.2	42.0	38.8	-1.6	-6.4	-7.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Estonia: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	290.6	229.5	189.1	-6.0	-17.5	-14.4	-2.0	-7.1	-7.1
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	3.03	2.76	2.55	-0.04	-0.28	-0.34	-1.4	-9.1	-11.7
Import Dependency %	41.2	30.0	25.5	39.4	41.8	39.2	-3.4	-0.8	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	2.8	3.4	4.1	0.0	0.1	0.2	0.5	3.1	4.3
as % of GDP		22.2	16.8	14.3	14.3	13.6	0.1	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.1	0.2						
as % of GDP				0.07	0.44	0.56						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	50.3	45.1	39.2	-1.1	-2.2	-2.5	-2.2	-4.6	-6.1
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	39.7	34.8	29.2	-0.6	-0.9	-0.5	-1.4	-2.4	-1.6
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	75.1	68.4	58.8	-3.6	-3.6	-2.9	-4.5	-5.0	-4.7
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	29.0	27.7	25.3	-0.2	-0.5	-0.9	-0.7	-1.6	-3.4
Freight transport (toe/Mtkm)	41.2	18.0	18.8	21.6	21.8	21.9	-0.3	-0.6	-1.1	-1.3	-2.9	-4.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.64	0.48	0.38	0.03	-0.06	-0.09	4.6	-11.3	-18.5
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.41	1.36	1.35	0.00	-0.03	-0.06	0.2	-2.0	-3.9
Industry	1.67	1.51	1.28	1.37	1.29	1.43	-0.10	-0.16	-0.15	-6.6	-10.9	-9.2
Residential	1.33	0.29	0.36	0.36	0.35	0.34	0.01	0.01	0.00	2.4	3.9	0.4
Tertiary	1.42	0.77	0.94	1.00	0.97	0.92	0.15	0.14	0.07	17.2	17.3	7.9
Transport	2.89	2.92	2.94	2.78	2.69	2.63	-0.03	-0.07	-0.07	-1.0	-2.7	-2.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	20.1	25.2	32.2	3.5	8.2	10.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	9.2	10.8	1.0	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11689	13142	16473	16473	-1253	-1479	-614	-9.7	-10.1	-3.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	10030	9311	9969	9969	59	-2465	-3134	0.6	-20.9	-23.9
Oil (including refinery gas)	51	42	36	168	175	175	-136	-4	-13	-79.0	-2.3	-6.8
Gas (including derived gases)	787	1000	668	1321	1252	1252	-1282	-182	-130	-65.7	-12.1	-9.4
Biomass-waste	57	158	278	1368	3140	3140	-13	766	1633	-4.5	127.4	108.4
Hydro (pumping excluded)	5	22	27	29	30	30	1	0	0	3.2	0.8	0.0
Wind	1	54	649	945	1907	1907	118	405	1029	22.3	75.1	117.1
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2661	2501	3541	3541	-269	-112	454	-9.2	-4.3	14.7
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	250	358	858	858	41	146	550	19.4	68.4	178.7
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	243	351	850	850	41	146	550	20.1	70.9	183.3
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2411	2143	2683	2683	-310	-258	-96	-11.4	-10.7	-3.4
of which cogeneration units	477	513	401	635	918	918	-133	-61	42	-24.9	-8.7	4.8
Solids fired	2738	2672	2134	1412	1134	1134	-23	-228	-371	-1.1	-13.9	-24.6
Gas fired	175	200	218	429	954	954	-262	-151	132	-54.7	-26.1	16.1
Oil fired	65	65	14	82	105	105	-28	4	-3	-66.8	5.5	-3.2
Biomass-waste fired	19	21	45	219	490	490	3	117	146	6.1	114.5	42.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	45.4	54.8	48.4	48.4	-0.7	-3.1	-8.5			
Efficiency of gross thermal power generation (%)	29.8	34.3	32.9	41.2	45.5	45.5	-1.7	0.2	0.2			
% of gross electricity from CHP	17.6	33.1	18.8	30.0	32.2	32.2	-8.0	2.6	7.4			
Carbon free gross electricity generation (%)	0.7	2.3	8.2	17.8	30.8	30.8	1.6	9.8	16.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	8.2	17.8	30.8	30.8	1.6	9.8	16.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.9	17.7	18.8	-0.1	-0.2	-0.3	-0.6	-1.2	-1.6
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.4	0.0	0.0	0.0	0.5	1.0	1.3
Rail	5.1	7.7	10.1	13.0	13.7	14.4	-0.1	-0.2	-0.3	-0.9	-1.6	-2.1
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.6	1.2	1.5
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	0.0	-2.2	-3.3	-3.7
Freight transport activity (Gtkm)	0.6	0.4	0.4	0.5	0.5	0.5	0.0	0.0	0.0	-0.1	0.3	0.5
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.6	25.5	27.6	-0.1	-0.2	-0.4	-0.5	-0.9	-1.3
Rail	4.5	3.9	5.8	10.7	12.3	14.2	-0.2	-0.3	-0.5	-1.6	-2.5	-3.2
Inland navigation	7.0	8.1	10.6	12.9	13.2	13.4	0.0	0.1	0.1	0.4	0.6	0.8
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	839	577	725	1000	1048	1081	-16	-36	-64	-1.6	-3.3	-5.6
Private cars and motorcycles	44	25	23	20	18	15	0	0	0	0.0	-0.1	-2.7
Trucks	273	307	338	400	395	363	-4	-9	-13	-1.1	-2.1	-3.6
Rail	414	167	263	454	506	580	-10	-22	-39	-2.1	-4.1	-6.3
Aviation	65	51	48	56	51	26	0	0	0	0.4	0.2	-1.9
Inland navigation	36	20	42	58	66	84	-2	-6	-11	-3.8	-7.8	-11.3
Inland navigation	7	7	11	11	12	12	0	0	0	-0.1	0.1	0.0

Source: PRIMES

Finland: EC proposal with JI/CDM & without RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16834	20422	22235	23588	24517	2.4	1.2	2.8	1.0	
Solids	1581	2061	1207	2129	1643	1674	1675	1467	1197	-2.7	3.1	0.2	-3.3	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8574	1.5	0.4	4.0	-0.5	
Renewable energy sources	5273	6133	7959	8124	9137	9754	11566	13128	14746	4.2	1.4	2.4	2.5	
Hydro	934	1111	1261	1185	1198	1209	1214	1225	1234	3.0	-0.5	0.1	0.2	
Biomass & Waste	4338	5021	6691	6924	7847	8438	10139	11547	12926	4.4	1.6	2.6	2.5	
Wind	0	1	7	15	84	84	127	237	449		28.7	4.2	13.5	
Solar and others	0	0	1	1	8	23	87	118	137	3.8	30.0	27.5	4.7	
Geothermal	0	0	0	0	0	0	0	0	0			3.7	0.5	
Net Imports	18031	15542	18512	19163	18548	17155	15136	13254	12064	0.3	0.0	-2.0	-2.2	
Solids	4378	3774	3533	3338	3811	3665	3647	2968	2006	-2.1	0.8	-0.4	-5.8	
Oil	10477	8205	10535	10844	9573	9306	8599	8160	7996	0.1	-1.0	-1.1	-0.7	
- Crude oil and Feedstocks	8890	8548	12115	11017	11481	11317	10878	10597	10491	3.1	-0.5	-0.5	-0.4	
- Oil products	1587	-343	-1580	-173	-1907	-2011	-2279	-2437	-2495					
Natural gas	2261	2839	3422	3598	3872	3108	2384	1712	1582	4.2	1.2	-4.7	-4.0	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	34880	37074	36869	36338	36075	1.2	0.7	0.6	-0.2	
Solids	5327	5950	5087	4925	5454	5339	5322	4435	3203	-0.5	0.7	-0.2	-5.0	
Oil	9939	8344	9195	10482	9072	8804	8097	7656	7490	-0.8	-0.1	-1.1	-0.8	
Natural gas	2261	2839	3422	3598	3872	3108	2384	1712	1582	4.2	1.2	-4.7	-4.0	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8574	1.5	0.4	4.0	-0.5	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9048	9658	11452	12998	14601	3.8	1.3	2.4	2.5	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.6	14.4	14.4	12.2	8.9					
Oil	34.3	28.8	28.3	30.4	26.0	23.7	22.0	21.1	20.8					
Natural gas	7.8	9.8	10.5	10.4	11.1	8.4	6.5	4.7	4.4					
Nuclear	17.3	17.1	17.9	17.4	17.4	24.3	24.4	24.7	23.8					
Renewable energy forms	19.0	21.2	24.5	23.3	25.9	26.1	31.1	35.8	40.5					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	76395	84505	98448	102413	111933	2.6	0.9	2.6	1.3	
Self consumption and grid losses	5547	6510	5449	5710	6407	7379	8860	9735	11280	-0.2	1.6	3.3	2.4	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6913	6597	7804	7929	8577	2.4	0.0	1.2	0.9	
Solids	3216	3882	3168	2974	3555	3439	3485	2729	1574	-0.1	1.2	-0.2	-7.6	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0	-7.8				
Gas (including derived gases)	1015	1581	2106	2384	2217	1414	1036	548	586	7.6	0.5	-7.3	-5.5	
Biomass & Waste	926	996	1518	2073	1141	1744	3283	4652	6416	5.1	-2.8	11.1	6.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15302	15269	14787	14307	13798	2.4	0.0	-0.3	-0.7	
Refineries	10689	12029	13200	13194	11915	11757	11324	11046	10939	2.1	-1.0	-0.5	-0.3	
Biofuels and hydrogen production	0	0	0	0	101	253	391	441	508			14.5	2.6	
District heating	573	548	803	954	2022	2025	1933	1839	1402	3.4	9.7	-0.5	-3.2	
Derived gases, cokeries etc.	793	1451	1306	1325	1263	1234	1139	981	950	5.1	-0.3	-1.0	-1.8	
Energy Branch Consumption	781	965	1285	1228	1206	1220	1259	1307	1344	5.1	-0.6	0.4	0.7	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26068	26441	26327	25852	25810	1.1	0.8	0.1	-0.2	
by sector														
Industry	9618	9988	12053	11988	12604	12711	12640	12811	12809	2.3	0.4	0.0	0.1	
- energy intensive industries	7351	7628	9456	9067	9419	9429	9328	9436	9409	2.6	0.0	-0.1	0.1	
- other industrial sectors	2267	2359	2596	2921	3185	3282	3312	3375	3400	1.4	2.1	0.4	0.3	
Residential	5321	5418	4536	4846	4959	5049	5015	4501	4419	-1.6	0.9	0.1	-1.3	
Tertiary	2479	2484	3127	3471	3485	3602	3609	3497	3497	2.3	1.1	0.3	-0.3	
Transport	4309	4151	4443	4816	5021	5079	5063	5043	5085	0.3	1.2	0.1	0.0	
by fuel														
Solids	1621	1277	1099	966	1035	1010	1019	996	989	-3.8	-0.6	-0.2	-0.3	
Oil	8100	7563	7507	7890	7208	6919	6478	6204	6060	-0.8	-0.4	-1.1	-0.7	
Gas	1501	1523	1328	1156	1477	1562	981	724	702	-1.2	1.1	-4.0	-3.3	
Electricity	5068	5608	6487	6959	7321	7725	8249	8440	9209	2.5	1.2	1.2	1.1	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3814	4045	4216	4137	3692	3.8	3.2	1.0	-1.3	
Renewable energy forms	3522	3944	4957	4552	5213	5178	5383	5348	5157	3.5	0.5	0.3	-0.4	
Other	0	0	0	0	0	1	1	2	2			13.2	2.0	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8555	8939	10635	11888	13244		1.1	2.2	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.6	64.4	59.8	52.1	45.5	-0.3	-0.3	-1.4	-2.7	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	53.9	50.7	46.9	40.5	34.8	-0.1	0.0	-1.4	-2.9	
Power generation/District heating	17.8	21.8	20.2	20.5	21.7	19.5	18.6	14.3	9.3	1.3	0.8	-1.6	-6.7	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	2.0	1.6	1.4	7.0	-1.7	-1.3	-3.2	
Industry	14.1	12.4	12.5	11.8	10.8	10.6	8.8	7.4	7.2	-1.2	-1.5	-2.0	-1.9	
Residential	6.4	5.9	2.3	2.1	1.8	1.5	1.1	0.9	0.8	-9.6	-2.7	-4.5	-3.8	
Tertiary	2.1	1.7	3.0	3.0	2.8	2.7	2.5	2.6	2.4	3.8	-0.8	-1.3	-0.2	
Transport	12.7	12.2	13.1	14.2	14.5	14.3	13.9	13.7	13.6	0.3	1.1	-0.4	-0.2	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.9	3.7	3.6	3.5	0.1	-0.1	-0.5	-0.6	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.8	9.2	8.1	7.2	-1.2	-1.6	-1.6	-2.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	94.6	88.8	82.5	71.9	62.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	190.4	182.9	166.6	151.5	141.5	-0.8	-2.0	-1.3	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.37	1.27	1.11	0.96	-1.3	-0.7	-1.9	-2.7
Import Dependency %	61.1	53.1	55.8	54.7	52.4	45.7	40.5	36.0	33.0				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.1	21.1	24.3	27.3	30.0		3.2	2.4	2.1
as % of GDP			10.1	10.5	10.4	10.4	11.0	11.4	11.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	66.3	60.6	57.0	54.1	-2.9	-3.1	-1.9	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	81.9	76.5	70.4	58.9	54.7	-2.7	-2.0	-1.5	-2.5
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	88.0	82.2	75.0	66.5	62.1	1.0	-1.3	-1.6	-1.9
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.3	31.4	30.1	29.7	-0.3	0.3	-0.6	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.0	42.9	41.2	40.1	39.2	-1.7	0.3	-0.6	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.14	0.12	0.09	0.06	-1.6	-1.0	-3.4	-7.1
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.15	1.10	1.00	0.95	0.93	-2.3	-1.1	-1.4	-0.7
Industry	1.46	1.24	1.03	0.98	0.85	0.83	0.69	0.58	0.57	-3.4	-1.9	-2.1	-2.0
Residential	1.21	1.09	0.52	0.43	0.36	0.29	0.23	0.20	0.17	-8.1	-3.5	-4.6	-2.6
Tertiary	0.84	0.70	0.96	0.86	0.80	0.75	0.68	0.73	0.69	1.4	-1.8	-1.6	0.1
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	31.7	32.6	38.9	44.2	49.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.2	8.2	9.5				
Gross Electricity generation by source (in GWh)													
			69976	70536	76395	84505	98448	102413	111933		0.9	2.6	1.3
Nuclear energy			22475	23267	23470	36243	36243	36243	35432		0.4	4.4	-0.2
Solids			10359	9486	13720	11501	13964	10983	7168		2.8	0.2	-6.5
Oil (including refinery gas)			444	419	471	350	267	167	125		0.6	-5.5	-7.3
Gas (including derived gases)			10776	11400	12127	7258	7339	5057	6383		1.2	-4.9	-1.4
Biomass-waste			11185	12010	11693	14114	25029	32930	43222		0.4	7.9	5.6
Hydro (pumping excluded)			14657	13782	13933	14053	14112	14244	14348		-0.5	0.1	0.2
Wind			78	170	975	975	1476	2761	5220		28.7	4.2	13.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18301	18543	19846	20580	23417		0.7	0.8	1.7
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	4108		0.0	4.6	-0.2
<u>Renewable energy</u>			3057	3104	3451	3472	3708	4206	5094		1.2	0.7	3.2
Hydro (pumping excluded)			3016	3018	3076	3091	3116	3135	3150		0.2	0.1	0.1
Wind			38	82	367	367	569	1036	1899		25.5	4.5	12.8
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12159	10864	11931	12167	14216		0.7	-0.2	1.8
of which cogeneration units			7129	7583	6843	7135	9286	9742	10257		-0.4	3.1	1.0
Solids fired			5539	5687	5630	4771	3566	2901	2134		0.2	-4.5	-5.0
Gas fired			2479	2444	2753	2624	2609	2485	4449		1.1	-0.5	5.5
Oil fired			1341	1340	1341	602	546	448	176		0.0	-8.6	-10.7
Biomass-waste fired			1942	2247	2434	2866	5210	6333	7457		2.3	7.9	3.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.7	49.7	53.9	53.7	51.6				
Efficiency of gross thermal power generation (%)			40.7	38.0	47.3	43.3	51.4	53.3	57.1				
% of gross electricity from CHP			44.9	45.7	44.8	36.7	46.4	47.2	49.1				
Carbon free gross electricity generation (%)			69.2	69.8	65.6	77.4	78.1	84.2	87.8				
- nuclear			32.1	33.0	30.7	42.9	36.8	35.4	31.7				
- renewable energy forms			37.0	36.8	34.8	34.5	41.3	48.8	56.1				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.4	99.4	103.0	106.9	109.8	0.8	1.5	0.9	0.6
Public road transport	8.5	8.0	7.7	7.4	7.6	7.7	8.0	8.3	8.4	-1.0	-0.2	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.3	71.5	73.1	74.8	75.6	0.9	1.9	0.7	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.4	4.8	5.3	5.6	0.6	0.7	1.4	1.5
Aviation	5.3	6.1	7.9	8.6	9.7	11.0	12.3	13.8	15.3	4.1	2.1	2.4	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.1	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.3	43.5	44.4	45.7	46.6	1.7	0.0	0.5	0.5
Trucks	26.3	24.5	32.0	31.9	32.1	33.1	33.4	34.0	34.5	2.0	0.0	0.4	0.3
Rail	8.4	9.6	10.1	9.7	10.1	10.2	10.8	11.5	11.9	1.9	-0.1	0.7	0.9
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5021	5079	5063	5043	5085	0.3	1.2	0.1	0.0
Public road transport	97	84	55	57	58	57	57	57	56	-5.4	0.4	-0.1	-0.2
Private cars and motorcycles	1840	1867	1904	2137	2280	2274	2263	2210	2219	0.3	1.8	-0.1	-0.2
Trucks	1699	1557	1715	1764	1766	1769	1734	1737	1758	0.1	0.3	-0.2	0.1
Rail	99	102	94	97	101	103	101	99	73	-0.6	0.8	0.0	-3.1
Aviation	459	408	505	565	624	686	717	750	788	1.0	2.1	1.4	1.0
Inland navigation	116	134	170	195	191	191	191	190	190	3.9	1.2	0.0	0.0

Source: PRIMES

Finland: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20422	22235	24517	954	1662	3245	4.9	8.1	15.3
Solids	1581	1207	2129	1674	1675	1197	-5	-78	-508	-0.3	-4.4	-29.8
Oil	0	37	205	0	0	0	0	0	0	-362.6	2113.0	-103.5
Natural gas	0	0	0	0	0	0	0	0	0	0.0	0.0	10.2
Nuclear	5006	5799	6003	8994	8994	8574	0	0	793	0.0	0.0	10.2
Renewable energy sources	5273	7959	8124	9754	11566	14746	959	1740	2961	10.9	17.7	25.1
Hydro	934	1261	1185	1209	1214	1234	14	11	0	1.2	1.0	0.0
Biomass & Waste	4338	6691	6924	8438	10139	12926	903	1606	2537	12.0	18.8	24.4
Wind	0	7	15	84	127	449	27	55	321	48.3	76.4	250.0
Solar and others	0	1	1	23	87	137	14	68	103	163.2	351.7	301.3
Geothermal	0	0	0	0	0	0	0	0	0	34.9	59.3	64.9
Net Imports	18031	18512	19163	17155	15136	12064	-2059	-3403	-5267	-10.7	-18.4	-30.4
Solids	4378	3533	3338	3665	3647	2006	-489	-378	-1571	-11.8	-9.4	-43.9
Oil	10477	10535	10844	9306	8599	7996	-345	-717	-1062	-3.6	-7.7	-11.7
- Crude oil and Feedstocks	8890	12115	11017	11317	10878	10491	-207	-443	-671	-1.8	-3.9	-6.0
- Oil products	1587	-1580	-173	-2011	-2279	-2495	-138	-274	-390	7.3	13.7	18.5
Natural gas	2261	3422	3598	3108	2384	1582	-1215	-2291	-2606	-28.1	-49.0	-62.2
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	37074	36869	36075	-1105	-1741	-2021	-2.9	-4.5	-5.3
Solids	5327	5087	4925	5339	5322	3203	-494	-455	-2079	-8.5	-7.9	-39.4
Oil	9939	9195	10482	8804	8097	7490	-345	-716	-1061	-3.8	-8.1	-12.4
Natural gas	2261	3422	3598	3108	2384	1582	-1215	-2291	-2606	-28.1	-49.0	-62.2
Nuclear	5006	5799	6003	8994	8994	8574	0	0	793	0.0	0.0	10.2
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	9658	11452	14601	949	1721	2932	10.9	17.7	25.1
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	14.4	14.4	8.9	-0.9	-0.5	-5.0			
Oil	34.3	28.3	30.4	23.7	22.0	20.8	-0.2	-0.9	-1.7			
Natural gas	7.8	10.5	10.4	8.4	6.5	4.4	-2.9	-5.6	-6.6			
Nuclear	17.3	17.9	17.4	24.3	24.4	23.8	0.7	1.1	3.3			
Renewable energy forms	19.0	24.5	23.3	26.1	31.1	40.5	3.2	5.9	9.8			
Gross Electricity Generation in GWh_e	54367	69976	70536	84505	98448	111933	-5039	-2557	3665	-5.6	-2.5	3.4
Self consumption and grid losses	5547	5449	5710	7379	8860	11280	-332	179	636	-4.3	2.1	6.0
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6597	7804	8577	-401	-580	-995	-5.7	-6.9	-10.4
Solids	3216	3168	2974	3439	3485	1574	-555	-408	-2006	-13.9	-10.5	-56.0
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	8.7	-100.0
Gas (including derived gases)	1015	2106	2384	1414	1036	586	-819	-1697	-1901	-36.7	-62.1	-76.4
Biomass & Waste	926	1518	2073	1744	3283	6416	973	1525	2912	126.2	86.7	83.1
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Fuel Input to other conversion processes	12055	15309	15473	15269	14787	13798	-661	-929	-1406	-4.1	-5.9	-9.2
Refineries	10689	13200	13194	11757	11324	10939	-208	-443	-672	-1.7	-3.8	-5.8
Biofuels and hydrogen production	0	0	0	253	391	508	28	80	57	12.7	25.9	12.7
District heating	573	803	954	2025	1933	1402	-542	-592	-799	-21.1	-23.5	-36.3
Derived gases, cokeries etc.	793	1306	1325	1234	1139	950	60	26	7	5.1	2.3	0.8
Energy Branch Consumption	781	1285	1228	1220	1259	1344	-42	-37	-49	-3.3	-2.8	-3.5
Non-Energy Uses	1441	896	1095	1212	1233	1258	0	-1	0	0.0	0.0	0.0
Final Energy Demand	21727	24159	25121	26441	26327	25810	-832	-1314	-2109	-3.1	-4.8	-7.6
by sector												
Industry	9618	12053	11988	12711	12640	12809	-226	-435	-353	-1.7	-3.3	-2.7
- energy intensive industries	7351	9456	9067	9429	9328	9409	-161	-324	-265	-1.7	-3.4	-2.7
- other industrial sectors	2267	2596	2921	3282	3312	3400	-65	-111	-89	-1.9	-3.2	-2.5
Residential	5321	4536	4846	5049	5015	4419	-205	-315	-957	-3.9	-5.9	-17.8
Tertiary	2479	3127	3471	3602	3609	3497	-244	-296	-464	-6.3	-7.6	-11.7
Transport	4309	4443	4816	5079	5063	5085	-156	-269	-335	-3.0	-5.0	-6.2
by fuel												
Solids	1621	1099	966	1010	1019	989	0	-42	-44	0.0	-4.0	-4.3
Oil	8100	7507	7890	6919	6478	6060	-290	-519	-839	-4.0	-7.4	-12.2
Gas	1501	1328	1156	1562	981	702	7	-336	-291	0.5	-25.5	-29.3
Electricity	5068	6487	6959	7725	8249	9209	-403	-232	266	-5.0	-2.7	3.0
Heat (from CHP and District Heating)	1915	2780	3597	4045	4216	3692	-247	-488	-1100	-5.8	-10.4	-22.9
Renewable energy forms	3522	4957	4552	5178	5383	5157	101	303	-100	2.0	6.0	-1.9
Other	0	0	0	1	1	2	0	0	-1	4.0	2.7	-27.6
RES in Gross Final Energy Consumption ^(A)		7701	7458	8939	10635	13244	701	1582	2539	8.5	17.5	23.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	64.4	59.8	45.5	-6.8	-10.7	-18.9	-9.6	-15.2	-29.4
CO₂ Emissions (energy related)	54.4	53.8	54.1	50.7	46.9	34.8	-5.9	-9.3	-17.5	-10.4	-16.5	-33.5
Power generation/District heating	17.8	20.2	20.5	19.5	18.6	9.3	-4.9	-6.6	-13.5	-20.3	-26.2	-59.3
Energy Branch	1.4	2.7	2.5	2.2	2.0	1.4	-0.1	-0.2	-0.7	-3.5	-9.4	-31.6
Industry	14.1	12.5	11.8	10.6	8.8	7.2	0.0	-0.9	-0.9	0.3	-9.8	-10.8
Residential	6.4	2.3	2.1	1.5	1.1	0.8	-0.2	-0.2	-0.7	-9.7	-17.8	-47.8
Tertiary	2.1	3.0	3.0	2.7	2.5	2.4	-0.2	-0.3	-0.6	-6.0	-10.2	-19.5
Transport	12.7	13.1	14.2	14.3	13.9	13.6	-0.5	-1.0	-1.2	-3.6	-6.8	-8.1
CO ₂ Emissions (non energy related)	3.9	3.9	3.9	3.9	3.7	3.5	0.0	-0.1	-0.2	1.3	-2.4	-5.1
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.8	9.2	7.2	-1.0	-1.3	-1.2	-9.3	-12.7	-14.5
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	88.8	82.5	62.7	-9.4	-14.8	-26.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	182.9	166.6	141.5	-5.5	-7.9	-7.9	-2.9	-4.5	-5.3
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.37	1.27	0.96	-0.11	-0.18	-0.41	-7.7	-12.6	-29.8
Import Dependency %	61.1	55.8	54.7	45.7	40.5	33.0	-4.0	-6.9	-11.9			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.1	24.3	30.0	0.4	0.8	1.5	2.0	3.4	5.3
as % of GDP		10.1	10.5	10.4	11.0	11.8	0.2	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.8	1.5						
as % of GDP				0.21	0.37	0.60						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	66.3	60.6	54.1	-1.2	-2.1	-1.5	-1.7	-3.3	-2.7
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	76.5	70.4	54.7	-3.1	-4.4	-11.8	-3.9	-5.9	-17.8
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	82.2	75.0	62.1	-5.6	-6.2	-8.2	-6.3	-7.6	-11.7
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.3	31.4	29.7	-0.5	-0.7	-1.0	-1.4	-2.2	-3.4
Freight transport (toe/Mtkm)	50.4	42.6	44.5	42.9	41.2	39.2	-1.3	-2.5	-2.3	-3.0	-5.7	-5.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.14	0.12	0.06	-0.03	-0.03	-0.08	-15.5	-22.0	-56.8
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.10	1.00	0.93	0.00	-0.04	-0.05	0.3	-4.1	-5.1
Industry	1.46	1.03	0.98	0.83	0.69	0.57	0.02	-0.05	-0.05	2.1	-6.6	-8.3
Residential	1.21	0.52	0.43	0.29	0.23	0.17	-0.02	-0.03	-0.10	-6.1	-12.7	-36.5
Tertiary	0.84	0.96	0.86	0.75	0.68	0.69	0.00	-0.02	-0.07	0.4	-2.8	-8.9
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.05	-0.06	-0.7	-1.9	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	32.6	38.9	49.2	3.5	7.3	12.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.2	9.5	0.7	1.8	1.7			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	84505	98448	111933	111933	-5039	-2557	3665	-5.6	-2.5	3.4
Nuclear energy	22475	23267	36243	36243	35432	35432	0	0	3611	0.0	0.0	11.3
Solids	10359	9486	11501	13964	7168	7168	-3001	-1216	-7518	-20.7	-8.0	-51.2
Oil (including refinery gas)	444	419	350	267	125	125	-83	-61	25	-19.2	-18.7	25.4
Gas (including derived gases)	10776	11400	7258	7339	6383	6383	-5020	-9218	-10401	-40.9	-55.7	-62.0
Biomass-waste	11185	12010	14114	25029	43222	43222	2582	7167	14219	22.4	40.1	49.0
Hydro (pumping excluded)	14657	13782	14053	14112	14348	14348	166	133	0	1.2	1.0	0.0
Wind	78	170	975	1476	5220	5220	317	639	3728	48.3	76.4	250.0
Solar	2	3	11	18	35	35	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18543	19846	23417	23417	-62	-294	2002	-0.3	-1.5	9.3
<u>Nuclear energy</u>	2687	2690	4207	4207	4108	4108	0	0	417	0.0	0.0	11.3
<u>Renewable energy</u>	3057	3104	3472	3708	5094	5094	120	261	1338	3.6	7.6	35.6
Hydro (pumping excluded)	3016	3018	3091	3116	3150	3150	19	19	19	0.6	0.6	0.6
Wind	38	82	367	569	1899	1899	101	242	1319	37.8	74.1	227.4
Solar	3	4	14	23	44	44	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10864	11931	14216	14216	-182	-555	247	-1.6	-4.4	1.8
of which cogeneration units	7129	7583	7135	9286	10257	10257	-79	229	-432	-1.1	2.5	-4.0
Solids fired	5539	5687	4771	3566	2134	2134	-277	-277	-798	-5.5	-7.2	-27.2
Gas fired	2479	2444	2624	2609	4449	4449	-367	-1809	-1093	-12.3	-41.0	-19.7
Oil fired	1341	1340	602	546	176	176	-98	-121	-189	-14.0	-18.2	-51.8
Biomass-waste fired	1942	2247	2866	5210	7457	7457	560	1653	2328	24.3	46.5	45.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.7	53.9	51.6	51.6	-2.9	-0.8	-3.0			
Efficiency of gross thermal power generation (%)	40.7	38.0	43.3	51.4	57.1	57.1	-4.3	0.1	2.6			
% of gross electricity from CHP	44.9	45.7	36.7	46.4	49.1	49.1	-2.0	-0.2	-4.4			
Carbon free gross electricity generation (%)	69.2	69.8	77.4	78.1	87.8	87.8	7.8	9.8	16.9			
- nuclear	32.1	33.0	42.9	36.8	31.7	31.7	2.4	0.9	2.3			
- renewable energy forms	37.0	36.8	34.5	41.3	56.1	56.1	5.4	8.9	14.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	74.8	81.0	88.2	99.4	103.0	109.8	-0.9	-1.5	-2.1	-0.9	-1.4	-1.9
Private cars and motorcycles	8.5	7.7	7.4	7.7	8.0	8.4	0.1	0.2	0.2	1.3	1.9	2.3
Rail	51.9	56.6	63.4	71.5	73.1	75.6	-0.7	-1.3	-1.8	-1.0	-1.8	-2.3
Aviation	3.7	3.9	4.0	4.4	4.8	5.6	0.0	0.1	0.1	1.1	1.5	1.9
Inland navigation	5.3	7.9	8.6	11.0	12.3	15.3	-0.3	-0.4	-0.6	-2.2	-3.3	-3.7
Freight transport activity (Gtkm)	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.4	-0.3	-0.2
Trucks	35.8	42.4	41.8	43.5	44.4	46.6	-0.5	-0.9	-1.2	-1.2	-2.0	-2.4
Rail	26.3	32.0	31.9	33.1	33.4	34.5	-0.7	-1.2	-1.5	-2.2	-3.4	-4.2
Inland navigation	8.4	10.1	9.7	10.2	10.8	11.9	0.2	0.3	0.4	2.0	2.7	3.2
Energy demand in transport (ktoe)	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.4	0.5
Public road transport	4309	4443	4816	5079	5063	5085	-156	-269	-335	-3.0	-5.0	-6.2
Private cars and motorcycles	97	55	57	57	57	56	0	-1	-3	-0.6	-1.4	-5.0
Trucks	1840	1904	2137	2274	2263	2219	-54	-83	-123	-2.3	-3.5	-5.2
Rail	1699	1715	1764	1769	1734	1758	-83	-148	-154	-4.5	-7.8	-8.1
Aviation	99	94	97	103	101	73	1	-1	-2	0.6	-0.7	-2.8
Inland navigation	459	505	565	686	717	788	-19	-34	-50	-2.7	-4.6	-5.9
Inland navigation	116	170	195	191	191	190	-1	-2	-3	-0.7	-1.0	-1.7

Source: PRIMES

France: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	142453	154180	161444	163143	159724	1.8	0.8	1.3	-0.1	
Solids	7625	5359	2267	383	367	215	2	0	0	-11.4	-16.7	-41.2	-15.6	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	119075	111336	2.8	0.9	0.5	-0.9	
Renewable energy sources	15778	17903	18065	16695	25496	31691	39045	44067	48388	1.4	3.5	4.4	2.2	
Hydro	4635	6322	5822	4491	6068	6088	6110	6110	6110	2.3	0.4	0.1	0.0	
Biomass & Waste	11014	11434	12087	11968	17952	22440	28050	31394	32738	0.9	4.0	4.6	1.6	
Wind	0	0	7	82	810	1480	2263	3768	6532		61.7	10.8	11.2	
Solar and others	19	15	26	24	419	1400	2274	2466	2727	2.8	32.2	18.4	1.8	
Geothermal	110	132	124	130	248	283	348	329	281	1.2	7.2	3.5	-2.1	
Net Imports	120027	116049	133463	143600	134706	126936	119865	118145	114739	1.1	0.1	-1.2	-0.4	
Solids	13004	9010	13201	13660	12412	7038	6668	7618	6896	0.2	-0.6	-6.0	0.3	
Oil	86558	85551	90452	94460	90188	89048	85061	83300	82428	0.4	0.0	-0.6	-0.3	
- Crude oil and Feedstocks	76007	78951	84375	84707	83811	83252	81337	80460	80014	1.0	-0.1	-0.3	-0.2	
- Oil products	10551	6600	6077	9753	6377	5796	3725	2840	2414	-5.4	0.5	-5.2	-4.2	
Natural gas	24371	27493	35778	40720	36481	34300	29561	26983	24057	3.9	0.2	-2.1	-2.0	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274248	278075	278164	278027	271085	1.3	0.6	0.1	-0.3	
Solids	19955	15287	15240	14428	12779	7253	6669	7618	6896	-2.7	-1.7	-6.3	0.3	
Oil	87673	85826	88790	92086	87277	86007	81916	80039	79049	0.1	-0.2	-0.6	-0.4	
Natural gas	26032	29577	35766	40996	36481	34300	29561	26983	24057	3.2	0.2	-2.1	-2.0	
Nuclear	81018	97308	107093	116474	116590	122274	122397	119075	111336	2.8	0.9	0.5	-0.9	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	26352	33341	41899	47260	51718	1.4	3.8	4.7	2.1	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	4.7	2.6	2.4	2.7	2.5					
Oil	38.7	35.8	34.3	33.4	31.8	30.9	29.4	28.8	29.2					
Natural gas	11.5	12.3	13.8	14.9	13.3	12.3	10.6	9.7	8.9					
Nuclear	35.8	40.6	41.4	42.3	42.5	44.0	44.0	42.8	41.1					
Renewable energy forms	7.0	7.5	7.0	6.0	9.6	12.0	15.1	17.0	19.1					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	584686	600297	622399	677157	725592	2.6	0.9	0.6	1.5	
Self consumption and grid losses	48047	53203	56438	59733	57685	57978	60335	71975	83096	1.6	0.2	0.5	3.3	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	9409	5080	7344	13704	15643	1.7	-3.3	-2.4	7.9	
Solids	7334	5441	6231	6402	5217	1	2	1272	1072	-1.6	-1.8	-55.2	90.3	
Oil (including refinery gas)	1921	605	1272	1653	0	0	0	1	5	-4.0				
Gas (including derived gases)	1423	1216	4062	6291	1544	493	427	1672	2173	11.1	-9.2	-12.1	17.7	
Biomass & Waste	439	1224	1565	1640	2648	4586	6915	10759	12394	13.6	5.4	10.1	6.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	97083	98645	97951	97370	97213	0.8	0.0	0.1	-0.1	
Refineries	79634	83057	90084	87693	85396	84884	83009	82183	81779	1.2	-0.5	-0.3	-0.1	
Biofuels and hydrogen production	0	155	328	434	4840	7106	9117	9827	10352		30.9	6.5	1.3	
District heating	1019	605	312	273	262	267	276	247	219	-11.1	-1.7	0.5	-2.3	
Derived gases, cokeries etc.	8896	7079	6668	5837	6585	6388	5549	5113	4864	-2.8	-0.1	-1.7	-1.3	
Energy Branch Consumption	9230	10345	10689	10095	9291	7555	7166	7396	7739	1.5	-1.4	-2.6	0.8	
Non-Energy Uses	13272	16593	15672	15786	16411	17110	17690	18243	18731	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	160157	163786	161986	160671	159592	1.1	0.5	0.1	-0.1	
by sector														
Industry	36205	36949	36579	35580	36294	37461	37306	37209	37282	0.1	-0.1	0.3	0.0	
- energy intensive industries	24279	21310	22143	20671	20807	21079	20628	20268	20009	-0.9	-0.6	-0.1	-0.3	
- other industrial sectors	11926	15639	14436	14909	15486	16382	16679	16941	17272	1.9	0.7	0.7	0.4	
Residential	36375	36198	42516	45491	46154	46447	45885	44339	42276	1.6	0.8	-0.1	-0.8	
Tertiary	21726	24164	21620	25696	26584	26952	25846	25326	24482	0.0	2.1	-0.3	-0.5	
Transport	41908	44125	51599	49756	51126	52927	52949	53798	55552	2.1	-0.1	0.4	0.5	
by fuel														
Solids	9017	6905	5775	4685	4057	3881	3865	3803	3404	-4.4	-3.5	-0.5	-1.3	
Oil	67377	67964	71964	71245	69838	68430	64481	62240	60920	0.7	-0.3	-0.8	-0.6	
Gas	23400	27098	30880	33902	32755	31559	27522	23448	19848	2.8	0.6	-1.7	-3.2	
Electricity	25960	29456	33096	36330	37679	40462	42999	48055	52245	2.5	1.3	1.3	2.0	
Heat (from CHP and District Heating)	774	459	237	207	230	239	268	250	228	-11.1	-0.3	1.5	-1.6	
Renewable energy forms	9686	9553	10364	10153	15594	19208	22840	22857	22926	0.7	4.2	3.9	0.0	
Other	0	0	0	0	4	8	11	18	20			11.3	5.9	
RES in Gross Final Energy Consumption ^(A)			16928	15420	24863	31155	39006	43855	47997		3.9	4.6	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	517.3	479.4	449.1	430.9	411.0	-0.1	-0.8	-1.4	-0.9	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	345.8	313.4	286.8	277.6	263.6	0.6	-0.8	-1.9	-0.8	
Power generation/District heating	40.1	27.6	39.6	46.7	25.1	1.9	1.7	9.7	10.1	-0.1	-4.4	-23.7	19.7	
Energy Branch	17.1	19.1	19.6	16.6	14.4	12.9	8.5	8.1	7.9	1.4	-3.1	-5.1	-0.7	
Industry	79.1	76.1	70.1	66.0	67.6	67.5	60.8	56.7	52.2	-1.2	-0.4	-1.0	-1.5	
Residential	55.2	52.2	61.5	64.8	60.9	56.1	50.6	41.0	31.6	1.1	-0.1	-1.8	-4.6	
Tertiary	39.2	40.9	32.1	39.2	38.8	36.1	31.6	27.9	24.2	-2.0	1.9	-2.1	-2.6	
Transport	122.1	129.0	150.6	145.2	139.0	138.8	133.6	134.1	137.6	2.1	-0.8	-0.4	0.3	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	31.2	30.8	30.2	29.7	29.3	-1.8	0.1	-0.3	-0.3	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	135.2	132.1	123.6	118.1	-1.1	-1.1	-0.6	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	91.6	84.9	79.5	76.3	72.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	France: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.7	127.6	114.2	103.7	93.3	-0.7	-1.3	-2.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.26	1.13	1.03	1.00	0.97	-0.8	-1.3	-2.0	-0.6
Import Dependency %	52.4	47.9	50.9	51.6	48.6	45.2	42.6	42.0	41.8				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	166.2	188.1	212.6	230.7	249.9		1.7	2.5	1.6
as % of GDP			8.9	8.6	8.6	8.6	8.7	8.6	8.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.0	75.5	67.1	60.7	56.2	-1.5	-1.8	-2.1	-1.8
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.3	80.2	72.3	64.4	57.3	-0.1	-1.2	-2.0	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	90.6	77.7	69.1	61.4	-2.3	0.1	-2.6	-2.3
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.7	28.0	26.6	25.9	-0.2	-1.8	-0.9	-0.8
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	73.7	70.6	68.1	66.4	0.8	0.7	-0.6	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.04	0.00	0.00	0.01	0.01	-2.4	-5.3		
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.91	1.82	1.71	1.62	1.54	-0.5	-0.8	-1.1	-1.0
Industry	2.18	2.06	1.92	1.85	1.86	1.80	1.63	1.52	1.40	-1.3	-0.3	-1.3	-1.5
Residential	1.52	1.44	1.45	1.43	1.32	1.21	1.10	0.93	0.75	-0.5	-0.9	-1.8	-3.8
Tertiary	1.81	1.69	1.48	1.53	1.46	1.34	1.22	1.10	0.99	-2.0	-0.2	-1.8	-2.1
Transport	2.91	2.92	2.92	2.92	2.72	2.62	2.52	2.49	2.48	0.0	-0.7	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	15.1	18.5	23.3	26.3	28.9				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	9.1	13.1	17.1	18.3	18.8				
Gross Electricity generation by source (in GWh)													
			536004	570542	584686	600297	622399	677157	725592		0.9	0.6	1.5
Nuclear energy			415087	451448	451980	475395	475869	464415	468948		0.9	0.5	-0.1
Solids			25644	27018	22169	33	55	7314	6144		-1.4	-45.1	60.3
Oil (including refinery gas)			6896	7042	1838	1559	0	385	698		-12.4		
Gas (including derived gases)			16214	26341	17715	13258	8800	20448	20228		0.9	-6.8	8.7
Biomass-waste			4381	5496	10498	21491	38745	67556	80026		9.1	13.9	7.5
Hydro (pumping excluded)			67698	52224	70554	70792	71050	71050	71050		0.4	0.1	0.0
Wind			77	959	9415	17208	26317	43809	75956		61.7	10.8	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1382	1882	2049			11.6	4.0
Net Generation Capacity in MW_e			111945	113154	115581	119621	124426	129893	152368		0.3	0.7	2.0
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	54098	54405		0.0	0.3	-1.7
<u>Renewable energy</u>			25092	26102	29671	32989	36582	43647	55978		1.7	2.1	4.3
Hydro (pumping excluded)			25016	25313	25659	25718	25782	25824	25862		0.3	0.0	0.0
Wind			66	756	3704	6914	9876	16518	28511		49.6	10.3	11.2
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	717	976	1063			11.6	4.0
<u>Thermal power</u>			24306	24482	23099	22065	23157	32148	41985		-0.5	0.0	6.1
of which cogeneration units			4205	5546	4778	5864	9010	13372	15126		1.3	6.5	5.3
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	8934	8317	8232	13424	23049		7.3	-0.8	10.8
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	2547	4608	8992	13389	15095		11.5	13.4	5.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	55.4	55.2	55.1	57.3	52.2				
Efficiency of gross thermal power generation (%)			34.8	35.5	47.7	61.5	55.7	60.1	58.9				
% of gross electricity from CHP			3.1	2.9	4.6	5.9	7.6	11.9	12.4				
Carbon free gross electricity generation (%)			90.9	89.4	92.9	97.5	98.6	95.8	96.3				
- nuclear			77.4	79.1	77.3	79.2	76.5	68.6	64.6				
- renewable energy forms			13.5	10.3	15.6	18.3	22.1	27.3	31.6				
Transport sector													
Passenger transport activity (Gpkm)													
	746.0	799.7	886.4	940.3	994.2	1052.5	1102.3	1163.6	1226.3	1.7	1.2	1.0	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	49.9	54.3	58.3	62.1	0.3	1.0	1.5	1.4
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	810.1	827.3	855.3	884.1	1.7	0.9	0.6	0.7
Rail	73.9	64.6	80.7	89.7	99.5	113.0	126.4	139.0	150.5	0.9	2.1	2.4	1.8
Aviation	26.1	34.1	46.0	53.1	62.0	75.7	90.3	106.8	125.1	5.8	3.0	3.8	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.2	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)													
	211.8	233.0	268.4	254.9	273.4	294.3	312.2	334.8	358.7	2.4	0.2	1.3	1.4
Trucks	153.5	178.2	204.0	205.3	228.6	249.1	264.6	284.0	304.3	2.9	1.1	1.5	1.4
Rail	50.7	48.1	55.3	40.7	35.9	36.3	38.6	41.6	45.1	0.9	-4.2	0.7	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.8	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)													
	41908	44125	51599	49756	51126	52927	52949	53798	55552	2.1	-0.1	0.4	0.5
Public road transport	384	403	417	424	425	436	453	441	427	0.8	0.2	0.6	-0.6
Private cars and motorcycles	23233	22171	24945	23052	22738	22557	21775	21466	21715	0.7	-0.9	-0.4	0.0
Trucks	12587	14909	17407	18419	19448	20646	21038	21871	22976	3.3	1.1	0.8	0.9
Rail	1150	1220	1373	1264	1171	1161	1124	1058	945	1.8	-1.6	-0.4	-1.7
Aviation	3839	4690	6683	6291	7047	7834	8256	8648	9167	5.7	0.5	1.6	1.1
Inland navigation	714	731	775	305	298	294	303	314	322	0.8	-0.1	0.2	0.6

Source: PRIMES

France: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	154180	161444	159724	9931	14175	17921	6.9	9.6	12.6
Solids	7625	2267	383	215	2	0	0	-14	-14	-0.2	-88.2	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0		1200.0	-100.0
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	111336	0	0	-1850	0.0	0.0	-1.6
Renewable energy sources	15778	18065	16695	31691	39045	48388	9932	14189	19784	45.6	57.1	69.2
Hydro	4635	5822	4491	6088	6110	6110	637	543	0	11.7	9.8	0.0
Biomass & Waste	11014	12087	11968	22440	28050	32738	7794	11303	13220	53.2	67.5	67.7
Wind	0	7	82	1480	2263	6532	331	464	4510	28.8	25.8	223.1
Solar and others	19	26	24	1400	2274	2727	1022	1669	1906	270.8	276.0	232.1
Geothermal	110	124	130	283	348	281	148	210	148	109.9	152.4	110.9
Net Imports	120027	133463	143600	126936	119865	114739	-21000	-30097	-34841	-14.2	-20.1	-23.3
Solids	13004	13201	13660	7038	6668	6896	-6912	-6637	-566	-49.6	-49.9	-7.6
Oil	86558	90452	94460	89048	85061	82428	-7779	-12464	-17286	-8.0	-12.8	-17.3
- Crude oil and Feedstocks	76007	84375	84707	83252	81337	80014	-4598	-7112	-10311	-5.2	-8.0	-11.4
- Oil products	10551	6077	9753	5796	3725	2414	-3180	-5352	-6976	-35.4	-59.0	-74.3
Natural gas	24371	35778	40720	34300	29561	24057	-8027	-13926	-20408	-19.0	-32.0	-45.9
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	278075	278164	271085	-11061	-15902	-16890	-3.8	-5.4	-5.9
Solids	19955	15240	14428	7253	6669	6896	-6913	-6651	-580	-48.8	-49.9	-7.8
Oil	87673	88790	92086	86007	81916	79049	-7771	-12444	-17256	-8.3	-13.2	-17.9
Natural gas	26032	35766	40996	34300	29561	24057	-8027	-13926	-20408	-19.0	-32.0	-45.9
Nuclear	81018	107093	116474	122274	122397	111336	0	0	-1850	0.0	0.0	-1.6
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	33341	41899	51718	11650	17119	23204	53.7	69.1	81.4
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	2.6	2.4	2.5	-2.3	-2.1	-0.1			
Oil	38.7	34.3	33.4	30.9	29.4	29.2	-1.5	-2.6	-4.3			
Natural gas	11.5	13.8	14.9	12.3	10.6	8.9	-2.3	-4.2	-6.6			
Nuclear	35.8	41.4	42.3	44.0	44.0	41.1	1.7	2.4	1.8			
Renewable energy forms	7.0	7.0	6.0	12.0	15.1	19.1	4.5	6.6	9.2			
Gross Electricity Generation in GWh_e	416667	536004	570542	600297	622399	725592	-24752	-14852	94018	-4.0	-2.3	14.9
Self consumption and grid losses	48047	56438	59733	57978	60335	83096	-5755	-4520	13861	-9.0	-7.0	20.0
Fuel Inputs to Thermal Power Generation	11117	13129	15985	5080	7344	15643	-7441	-5789	7064	-59.4	-44.1	82.3
Solids	7334	6231	6402	1	2	1072	-6875	-6440	-216	-100.0	-100.0	-16.8
Oil (including refinery gas)	1921	1272	1653	0	0	5	0	-13	2		-100.0	53.7
Gas (including derived gases)	1423	4062	6291	493	427	2173	-3977	-3884	-922	-89.0	-90.1	-29.8
Biomass & Waste	439	1565	1640	4586	6915	12394	3411	4547	8200	290.3	192.0	195.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	98645	97951	97213	-546	-2146	-5684	-0.6	-2.1	-5.5
Refineries	79634	90084	87693	84884	83009	81779	-4598	-7112	-10311	-5.1	-7.9	-11.2
Biofuels and hydrogen production	0	328	434	7106	9117	10352	3868	4941	4738	119.4	118.3	84.4
District heating	1019	312	273	267	276	219	-25	-27	-93	-8.4	-9.0	-29.9
Derived gases, cokeries etc.	8896	6668	5837	6388	5549	4864	209	52	-18	3.4	0.9	-0.4
Energy Branch Consumption	9230	10689	10095	7555	7166	7739	-467	-577	-26	-5.8	-7.4	-0.3
Non-Energy Uses	13272	15672	15786	17110	17690	18731	0	1	0	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	163786	161986	159592	-6712	-12446	-19842	-3.9	-7.1	-11.1
by sector												
Industry	36205	36579	35580	37461	37306	37282	-270	-1341	-2511	-0.7	-3.5	-6.3
- energy intensive industries	24279	22143	20671	21079	20628	20009	-41	-586	-1140	-0.2	-2.8	-5.4
- other industrial sectors	11926	14436	14909	16382	16679	17272	-230	-756	-1371	-1.4	-4.3	-7.4
Residential	36375	42516	45491	46447	45885	42276	-1589	-2352	-6048	-3.3	-4.9	-12.5
Tertiary	21726	21620	25696	26952	25846	24482	-2588	-4341	-6078	-8.8	-14.4	-19.9
Transport	41908	51599	49756	52927	52949	55552	-2265	-4411	-5205	-4.1	-7.7	-8.6
by fuel												
Solids	9017	5775	4685	3881	3865	3404	-164	-287	-409	-4.1	-6.9	-10.7
Oil	67377	71964	71245	68430	64481	60920	-7609	-11866	-16251	-10.0	-15.5	-21.1
Gas	23400	30880	33902	31559	27522	19848	-3520	-8339	-18224	-10.0	-23.3	-47.9
Electricity	25960	33096	36330	40462	42999	52245	-1621	-862	6945	-3.9	-2.0	15.3
Heat (from CHP and District Heating)	774	237	207	239	268	228	-23	-10	-66	-8.8	-3.6	-22.5
Renewable energy forms	9686	10364	10153	19208	22840	22926	6224	8920	8162	47.9	64.1	55.3
Other	0	0	0	8	11	20	1	-3	2	14.8	-20.4	9.0
RES in Gross Final Energy Consumption ^(A)		16928	15420	31155	39006	47997	10375	15675	21089	49.9	67.2	78.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	479.4	449.1	411.0	-76.4	-106.6	-112.2	-13.7	-19.2	-21.4
CO₂ Emissions (energy related)	352.9	373.5	378.4	313.4	286.8	263.6	-69.4	-96.0	-101.6	-18.1	-25.1	-27.8
Power generation/District heating	40.1	39.6	46.7	1.9	1.7	10.1	-37.0	-35.2	-3.6	-95.0	-95.5	-26.3
Energy Branch	17.1	19.6	16.6	12.9	8.5	7.9	-1.0	-4.6	-4.7	-6.9	-35.2	-37.5
Industry	79.1	70.1	66.0	67.5	60.8	52.2	-1.6	-7.5	-16.1	-2.3	-11.0	-23.6
Residential	55.2	61.5	64.8	56.1	50.6	31.6	-7.7	-12.8	-31.4	-12.1	-20.2	-49.9
Tertiary	39.2	32.1	39.2	36.1	31.6	24.2	-5.6	-9.7	-16.7	-13.4	-23.5	-40.9
Transport	122.1	150.6	145.2	138.8	133.6	137.6	-16.5	-26.1	-29.0	-10.6	-16.4	-17.4
CO ₂ Emissions (non energy related)	36.8	30.7	31.1	30.8	30.2	29.3	0.5	-0.1	-0.7	1.6	-0.4	-2.5
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	135.2	132.1	118.1	-7.5	-10.5	-9.8	-5.2	-7.3	-7.7
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	84.9	79.5	72.8	-13.5	-18.9	-19.9			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						France: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	127.6	114.2	93.3	-5.1	-6.5	-5.8	-3.8	-5.4	-5.9
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.13	1.03	0.97	-0.20	-0.27	-0.30	-14.9	-20.8	-23.3
Import Dependency %	52.4	50.9	51.6	45.2	42.6	41.8	-5.5	-7.8	-9.5			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	188.1	212.6	249.9	10.2	17.4	29.4	5.7	8.9	13.4
as % of GDP		8.9	8.6	8.6	8.7	8.6	0.5	0.7	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				10.3	17.6	29.6						
as % of GDP				0.47	0.72	1.02						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.5	67.1	56.2	-0.5	-2.4	-3.8	-0.7	-3.5	-6.3
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	80.2	72.3	57.3	-2.7	-3.7	-8.2	-3.3	-4.9	-12.5
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	90.6	77.7	61.4	-8.7	-13.1	-15.3	-8.8	-14.4	-19.9
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.7	28.0	25.9	-0.5	-0.9	0.1	-1.6	-3.0	0.3
Freight transport (toe/Mtkm)	65.0	70.2	76.8	73.7	70.6	66.4	-2.4	-4.8	-7.4	-3.1	-6.4	-10.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.00	0.00	0.01	-0.06	-0.05	-0.01	-94.8	-95.4	-35.7
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.82	1.71	1.54	-0.11	-0.20	-0.35	-5.8	-10.5	-18.5
Industry	2.18	1.92	1.85	1.80	1.63	1.40	-0.03	-0.14	-0.32	-1.6	-7.8	-18.5
Residential	1.52	1.45	1.43	1.21	1.10	0.75	-0.12	-0.21	-0.56	-9.1	-16.1	-42.7
Tertiary	1.81	1.48	1.53	1.34	1.22	0.99	-0.07	-0.15	-0.35	-5.0	-10.7	-26.2
Transport	2.91	2.92	2.92	2.62	2.52	2.48	-0.19	-0.26	-0.27	-6.8	-9.4	-9.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	18.5	23.3	28.9	6.6	10.4	14.3			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	13.1	17.1	18.8	7.4	9.9	9.5			
Gross Electricity generation by source (in GWh_e)												
	536004	570542	600297	622399	725592	725592	-24752	-14852	94018	-4.0	-2.3	14.9
Nuclear energy	415087	451448	475395	475869	468948	468948	0	0	-8368	0.0	0.0	-1.8
Solids	25644	27018	33	55	6144	6144	-31905	-29913	-1185	-99.9	-99.8	-16.2
Oil (including refinery gas)	6896	7042	1559	0	698	698	-163	-1640	-2785	-9.5	-100.0	-80.0
Gas (including derived gases)	16214	26341	13258	8800	20228	20228	-19803	-23162	-7973	-59.9	-72.5	-28.3
Biomass-waste	4381	5496	21491	38745	80026	80026	15867	27235	60296	282.1	236.6	305.6
Hydro (pumping excluded)	67698	52224	70792	71050	71050	71050	7404	6313	0	11.7	9.8	0.0
Wind	77	959	17208	26317	75956	75956	3848	5396	52447	28.8	25.8	223.1
Solar	6	15	99	181	492	492	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	1382	2049	2049	0	919	1587	0.0	198.7	343.1
Net Generation Capacity in MW_e	111945	113154	119621	124426	152368	152368	1442	6232	37283	1.2	5.3	32.4
<u>Nuclear energy</u>	62547	62570	64567	64687	54405	54405	0	0	-967	0.0	0.0	-1.7
<u>Renewable energy</u>	25092	26102	32989	36582	55978	55978	1605	2722	20671	5.1	8.0	58.5
Hydro (pumping excluded)	25016	25313	25718	25782	25862	25862	312	312	84	1.2	1.2	0.3
Wind	66	756	6914	9876	28511	28511	1292	1932	19763	23.0	24.3	225.9
Solar	11	33	117	207	542	542	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	717	1063	1063	0	477	823	0.0	198.7	343.1
<u>Thermal power</u>	24306	24482	22065	23157	41985	41985	-163	3510	17580	-0.7	17.9	72.0
of which cogeneration units	4205	5546	5864	9010	15126	15126	-1634	992	3618	-21.8	12.4	31.4
Solids fired	9912	9150	4039	3774	2454	2454	0	0	0	0.0	0.0	0.0
Gas fired	4408	5210	8317	8232	23049	23049	-3211	-3110	9550	-27.9	-27.4	70.7
Oil fired	9128	8975	5100	2160	1387	1387	0	0	-2795	0.0	0.0	-66.8
Biomass-waste fired	860	1147	4608	8992	15095	15095	3048	6620	10825	195.3	279.1	253.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	52.2	54.9	55.2	55.1	52.2	52.2	-2.9	-4.2	-7.9			
Efficiency of gross thermal power generation (%)	34.8	35.5	61.5	55.7	58.9	58.9	11.8	6.6	0.0			
% of gross electricity from CHP	3.1	2.9	5.9	7.6	12.4	12.4	-0.3	1.2	4.3			
Carbon free gross electricity generation (%)	90.9	89.4	97.5	98.6	96.3	96.3	8.2	8.6	2.4			
- nuclear	77.4	79.1	79.2	76.5	64.6	64.6	3.1	1.8	-10.9			
- renewable energy forms	13.5	10.3	18.3	22.1	31.6	31.6	5.1	6.8	13.4			
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1052.5	1102.3	1226.3	-17.6	-34.2	-47.2	-1.6	-3.0	-3.7
Public road transport	41.3	42.4	44.0	49.9	54.3	62.1	0.7	1.5	2.1	1.5	2.8	3.5
Private cars and motorcycles	599.7	713.2	749.5	810.1	827.3	884.1	-20.2	-39.4	-54.9	-2.4	-4.5	-5.8
Rail	73.9	80.7	89.7	113.0	126.4	150.5	3.1	5.3	7.9	2.8	4.4	5.5
Aviation	26.1	46.0	53.1	75.7	90.3	125.1	-1.2	-1.6	-2.3	-1.5	-1.8	-1.8
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-0.9	-0.4	-0.2
Freight transport activity (Gtkm)	211.8	268.4	254.9	294.3	312.2	358.7	-6.7	-13.0	-19.2	-2.2	-4.0	-5.1
Trucks	153.5	204.0	205.3	249.1	264.6	304.3	-8.4	-15.6	-22.9	-3.3	-5.6	-7.0
Rail	50.7	55.3	40.7	36.3	38.6	45.1	1.7	2.5	3.5	4.8	7.0	8.4
Inland navigation	7.6	9.1	8.9	8.8	9.0	9.3	0.1	0.2	0.2	0.9	1.9	2.5
Energy demand in transport (ktoe)	41908	51599	49756	52927	52949	55552	-2265	-4411	-5205	-4.1	-7.7	-8.6
Public road transport	384	417	424	436	453	427	-2	-3	-26	-0.4	-0.7	-5.7
Private cars and motorcycles	23233	24945	23052	22557	21775	21715	-803	-1414	-159	-3.4	-6.1	-0.7
Trucks	12587	17407	18419	20646	21038	22976	-1226	-2497	-4081	-5.6	-10.6	-15.1
Rail	1150	1373	1264	1161	1124	945	9	16	7	0.8	1.4	0.8
Aviation	3839	6683	6291	7834	8256	9167	-241	-511	-946	-3.0	-5.8	-9.4
Inland navigation	714	775	305	294	303	322	-2	-2	0	-0.7	-0.5	0.1

Source: PRIMES

Germany: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	186698	141981	133330	135237	118364	113236	99862	93235	94558	-3.3	-1.2	-1.7	-0.5	
Solids	125210	78868	59628	56514	42678	39383	36370	37363	36887	-7.2	-3.3	-1.6	0.1	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	25606	33185	41495	45872	49171	5.4	9.2	4.9	1.7	
Hydro	1498	1873	1869	1684	1889	1889	1889	1889	1889	2.2	0.1	0.0	0.0	
Biomass & Waste	4797	5351	7877	12190	18285	22857	28571	31171	32223	5.1	8.8	4.6	1.2	
Wind	6	147	804	2341	3660	4486	6224	7882	9717	62.9	16.4	5.5	4.6	
Solar and others	11	41	96	365	1438	3544	4409	4548	4992	24.3	31.1	11.9	1.3	
Geothermal	7	9	10	138	334	410	403	382	350	3.4	42.4	1.9	-1.4	
Net Imports	164822	195060	204678	214351	204096	207084	210596	214696	211324	2.2	0.0	0.3	0.0	
Solids	2881	10931	21576	26781	31471	36784	42942	46426	47339	22.3	3.8	3.2	1.0	
Oil	120126	130810	125974	122228	108669	105952	102493	102156	98594	0.5	-1.5	-0.6	-0.4	
- Crude oil and Feedstocks	88505	101168	101801	113120	108285	106996	105430	106396	104623	1.4	0.6	-0.3	-0.1	
- Oil products	31621	29643	24173	9108	383	-1044	-2937	-4239	-6029	-2.7	-33.9			
Natural gas	41747	52904	56865	65734	63353	62408	60101	60647	59772	3.1	1.1	-0.5	-0.1	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319905	317691	307757	305161	303052	-0.4	-0.6	-0.4	-0.2	
Solids	131510	92177	83727	82805	74149	76167	79312	83789	84226	-4.4	-1.2	0.7	0.6	
Oil	124248	133627	129918	123409	108974	105853	101992	99386	95764	0.4	-1.7	-0.7	-0.6	
Natural gas	54976	67298	71853	80856	76853	74408	71101	70647	68272	2.7	0.7	-0.8	-0.4	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	25674	34189	45191	49905	53339	5.4	9.2	5.8	1.7	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.2	24.0	25.8	27.5	27.8					
Oil	35.0	39.5	38.2	35.7	34.1	33.3	33.1	32.6	31.6					
Natural gas	15.5	19.9	21.1	23.4	24.0	23.4	23.1	23.2	22.5					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.2	2.9	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	8.0	10.8	14.7	16.4	17.6					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	582811	598365	615660	676476	733974	0.4	0.3	0.5	1.8	
Self consumption and grid losses	65998	62673	74099	72965	66677	67548	71180	81844	88364	1.2	-1.0	0.7	2.2	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72148	76169	86919	99566	102826	-0.9	-1.7	1.9	1.7	
Solids	75843	69147	68066	66172	57806	60300	63706	68867	70092	-1.1	-1.6	1.0	1.0	
Oil (including refinery gas)	2871	2083	1108	2038	197	9	114	420	115	-9.1	-15.8	-5.3	0.0	
Gas (including derived gases)	12676	11982	12906	19233	9833	10483	11585	14255	14576	0.2	-2.7	1.7	2.3	
Biomass & Waste	1824	2665	3174	5102	4264	5320	11451	15961	17980	5.7	3.0	10.4	4.6	
Geothermal heat	0	0	0	0	49	57	61	63	63			2.4	0.3	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	141273	140329	138488	135423	132307	-1.8	0.3	-0.2	-0.5	
Refineries	106658	116715	119856	127082	118678	116951	114698	113033	110788	1.2	-0.1	-0.3	-0.3	
Biofuels and hydrogen production	0	31	222	1942	5891	7909	9895	9966	10101			38.8	5.3	
District heating	6389	3638	1435	873	3218	2872	2348	1842	1537	-13.9	8.4	-3.1	-4.2	
Derived gases, cokeries etc.	51565	19819	15423	14625	13486	12598	11547	10583	9881	-11.4	-1.3	-1.5	-1.5	
Energy Branch Consumption	15384	14906	14242	15144	13238	12627	12070	11962	11814	-0.8	-0.7	-0.9	-0.2	
Non-Energy Uses	23249	22912	25272	24779	24684	24721	24670	24251	23837	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	223279	220163	216010	217871	220473	217977	216227	214396	-0.4	-0.1	0.0	-0.2	
by sector														
Industry	72116	61981	59715	56706	57094	56100	53931	52961	52969	-1.9	-0.4	-0.6	-0.2	
- energy intensive industries	49422	42778	40359	38652	38654	37843	36015	34807	34331	-2.0	-0.4	-0.7	-0.5	
- other industrial sectors	22693	19203	19356	18053	18440	18257	17917	18154	18638	-1.6	-0.5	-0.3	0.4	
Residential	58400	62212	61905	65931	66046	67738	67649	67274	66541	0.6	0.6	0.2	-0.2	
Tertiary	39361	35275	32547	33416	32009	32318	32007	31288	30383	-1.9	-0.2	0.0	-0.5	
Transport	58494	62910	65997	61958	62722	64316	64389	64704	64504	1.2	-0.5	0.3	0.0	
by fuel														
Solids	38693	14917	10951	9639	9989	9969	10162	9918	9400	-11.9	-0.9	0.2	-0.8	
Oil	96422	104474	98052	87411	79236	76528	72522	70645	68599	0.2	-2.1	-0.9	-0.6	
Gas	42724	52595	58030	61814	63664	62328	58536	55601	52686	3.1	0.9	-0.8	-1.0	
Electricity	38391	38912	41496	44497	43526	45316	47212	51755	56174	0.8	0.5	0.8	1.8	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7458	7483	7694	7870	7533	-2.9	0.9	0.3	-0.2	
Renewable energy forms	2991	2734	4804	7222	13994	18841	21831	20416	19980	4.9	11.3	4.5	-0.9	
Other	0	0	0	0	5	9	20	23	24			15.7	1.7	
RES in Gross Final Energy Consumption (A)			8812	13195	23576	31708	41222	45395	48600		10.3	5.7	1.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	918.5	903.1	890.1	879.3	849.5	-1.7	-1.2	-0.3	-0.5	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	722.3	716.6	712.0	723.5	711.1	-1.5	-1.3	-0.1	0.0	
Power generation/District heating	375.1	328.9	316.2	325.0	267.3	277.3	292.8	319.4	323.1	-1.7	-1.7	0.9	1.0	
Energy Branch	26.2	27.7	27.1	28.9	23.4	19.4	19.4	18.2	17.4	0.3	-1.5	-1.8	-1.1	
Industry	170.5	130.6	118.3	105.6	103.1	98.8	91.4	89.2	87.7	-3.6	-1.4	-1.2	-0.4	
Residential	134.3	127.4	117.7	120.0	112.0	107.3	101.2	93.5	84.9	-1.3	-0.5	-1.0	-1.7	
Tertiary	84.7	64.1	53.1	51.1	48.7	46.1	43.6	39.4	35.6	-4.6	-0.8	-1.1	-2.0	
Transport	168.9	181.9	190.9	174.3	167.7	167.7	163.4	163.7	162.3	1.2	-1.3	-0.3	-0.1	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.5	78.4	77.9	77.3	76.1	-0.2	-0.8	0.2	-0.2	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	108.1	100.2	78.4	62.4	-3.7	-1.1	-1.8	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.1	72.8	71.8	70.9	68.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Germany: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.5	117.1	105.1	97.9	92.5	-2.1	-1.9	-2.1	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.26	2.26	2.31	2.37	2.35	-1.1	-0.7	0.2	0.1
Import Dependency %	46.1	57.3	59.8	61.6	63.3	64.6	67.8	69.7	69.1				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	259.7	279.1	304.1	318.2	328.2		2.7	1.6	0.8
as % of GDP			9.2	10.5	10.5	10.3	10.4	10.2	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	71.6	63.4	58.1	55.0	-2.8	-2.2	-2.3	-1.4
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.8	91.4	85.1	79.8	75.1	-1.3	-0.3	-1.3	-1.2
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.0	76.4	69.6	63.6	58.5	-4.3	-1.7	-1.9	-1.7
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	36.2	34.2	32.6	31.1	-1.2	-1.6	-1.0	-1.0
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	31.2	30.1	29.3	28.5	0.6	-2.4	-0.8	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.39	0.40	0.41	0.41	0.39	-1.4	-2.0	0.4	-0.5
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	1.98	1.90	1.83	1.78	1.73	-1.1	-1.0	-0.8	-0.6
Industry	2.36	2.11	1.98	1.86	1.81	1.76	1.70	1.69	1.66	-1.8	-0.9	-0.6	-0.2
Residential	2.30	2.05	1.90	1.82	1.70	1.58	1.50	1.39	1.28	-1.9	-1.1	-1.2	-1.6
Tertiary	2.15	1.82	1.63	1.53	1.52	1.43	1.36	1.26	1.17	-2.7	-0.7	-1.1	-1.5
Transport	2.89	2.89	2.89	2.81	2.67	2.61	2.54	2.53	2.52	0.0	-0.8	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	10.5	14.0	18.4	20.3	21.9				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	9.2	12.4	15.6	15.9	16.3				
Gross Electricity generation by source (in GWh)													
			567219	613054	582811	598365	615660	676476	733974	0.3	0.5	1.8	
Nuclear energy			169575	163026	130723	101327	34100	0	0	-2.6	-12.6		
Solids			286571	262420	293639	308197	332262	366216	391868	0.2	1.2	1.7	
Oil (including refinery gas)			5476	23814	1038	1170	6885	8597	6784	-15.3	20.8	-0.1	
Gas (including derived gases)			64676	96524	72222	77262	82473	103266	108440	1.1	1.3	2.8	
Biomass-waste			9782	19186	18114	32856	61538	80225	86967	6.4	13.0	3.5	
Hydro (pumping excluded)			21728	19577	21960	21960	21960	21960	21960	0.1	0.0	0.0	
Wind			9350	27224	42553	52161	72374	91653	112990	16.4	5.5	4.6	
Solar			60	1282	2505	3366	3997	4486	4891	45.2	4.8	2.0	
Geothermal and other renewables			0	0	56	66	71	73	73			2.4	0.3
Net Generation Capacity in MW_e			112509	122874	130772	132122	142413	156395	168353	1.5	0.9	1.7	
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0	-3.1	-12.5		
<u>Renewable energy</u>			9611	23545	30334	34410	42355	49717	54486	12.2	3.4	2.6	
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862	0.7	0.3	0.2	
Wind			6113	18428	23976	27055	34262	41060	45359	14.6	3.6	2.8	
Solar			90	1537	2697	3624	4303	4829	5266	40.5	4.8	2.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	84829	85546	95952	106678	113867	0.4	1.2	1.7	
of which cogeneration units			40073	37870	29543	29439	35383	35192	33626	-3.0	1.8	-0.5	
Solids fired			47883	45326	47621	48787	50489	53150	54043	-0.1	0.6	0.7	
Gas fired			24817	24439	27678	28553	32342	37757	43328	1.1	1.6	3.0	
Oil fired			7114	6403	5466	1860	2066	1781	1693	-2.6	-9.3	-2.0	
Biomass-waste fired			1783	2481	4053	6333	11041	13976	14789	8.6	10.5	3.0	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	11	13	14	14	14			2.4	0.3
Avg. Load factor of net power capacity (%)			53.7	53.1	47.5	48.5	46.3	46.2	46.7				
Efficiency of gross thermal power generation (%)			37.0	37.4	45.9	47.4	47.8	48.2	49.7				
% of gross electricity from CHP			16.9	15.5	20.5	21.1	25.7	25.5	24.3				
Carbon free gross electricity generation (%)			37.1	37.6	37.0	35.4	31.5	29.3	30.9				
- nuclear			29.9	26.6	22.4	16.9	5.5	0.0	0.0				
- renewable energy forms			7.2	11.0	14.6	18.5	26.0	29.3	30.9				
Transport sector													
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1224.8	1318.5	1388.2	1458.0	1515.3	2.0	1.2	1.3	0.9
Public road transport	73.1	68.5	69.0	68.2	67.1	70.4	75.7	80.2	84.3	-0.6	-0.3	1.2	1.1
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1041.1	1076.8	1110.5	1134.6	2.0	1.3	1.0	0.5
Rail	76.1	85.4	90.0	90.2	94.0	101.6	111.0	124.6	139.5	1.7	0.4	1.7	2.3
Aviation	34.3	46.2	62.0	70.5	83.8	103.0	122.2	140.0	154.0	6.1	3.1	3.8	2.3
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.6	2.7	2.7	-3.6	-1.0	0.6	0.7
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	497.9	533.6	560.2	586.9	610.3	1.9	1.6	1.2	0.9
Trucks	196.4	237.8	280.7	310.1	327.5	350.9	369.2	389.5	407.7	3.6	1.6	1.2	1.0
Rail	101.7	69.5	77.5	89.7	103.6	112.0	115.8	118.1	119.6	-2.7	2.9	1.1	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.7	75.2	79.3	83.0	1.9	0.0	1.2	1.0
Energy demand in transport (ktoe)	58494	62910	65997	61958	62722	64316	64389	64704	64504	1.2	-0.5	0.3	0.0
Public road transport	656	611	612	529	478	472	485	482	492	-0.7	-2.4	0.1	0.1
Private cars and motorcycles	38247	40001	39981	36421	36050	35799	34619	33889	33249	0.4	-1.0	-0.4	-0.4
Trucks	11518	13643	15834	14528	14194	14512	14756	15225	15675	3.2	-1.1	0.4	0.6
Rail	2111	2126	1946	1858	2014	2048	2003	1873	1612	-0.8	0.3	-0.1	-2.1
Aviation	5307	5975	7345	8304	9658	11145	12169	12864	13090	3.3	2.8	2.3	0.7
Inland navigation	656	554	279	318	327	341	357	372	384	-8.2	1.6	0.9	0.7

Source: PRIMES

Germany: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	113236	99862	94558	3855	11847	16323	3.5	13.5	20.9
Solids	125210	59628	56514	39383	36370	36887	-4883	-1628	-165	-11.0	-4.3	-0.4
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	33185	41495	49171	8738	13475	16487	35.7	48.1	50.4
Hydro	1498	1869	1684	1889	1889	1889	101	88	0	5.6	4.9	0.0
Biomass & Waste	4797	7877	12190	22857	28571	32223	5626	9493	10533	32.6	49.8	48.6
Wind	6	804	2341	4486	6224	9717	309	581	2419	7.4	10.3	33.2
Solar and others	11	96	365	3544	4409	4992	2468	3103	3405	229.2	237.6	214.5
Geothermal	7	10	138	410	403	350	235	209	130	134.6	108.1	59.1
Net Imports	164822	204678	214351	207084	210596	211324	-18192	-28742	-33768	-8.1	-12.0	-13.8
Solids	2881	21576	26781	36784	42942	47339	-1918	-5284	-2127	-5.0	-11.0	-4.3
Oil	120126	125974	122228	105952	102493	98594	-8273	-11677	-14083	-7.2	-10.2	-12.5
- Crude oil and Feedstocks	88505	101801	113120	106996	105430	104623	-4125	-5867	-7231	-3.7	-5.3	-6.5
- Oil products	31621	24173	9108	-1044	-2937	-6029	-4148	-5810	-6852	-133.6	-202.2	-832.7
Natural gas	41747	56865	65734	62408	60101	59772	-9004	-15477	-21727	-12.6	-20.5	-26.7
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	317691	307757	303052	-14333	-16881	-17425	-4.3	-5.2	-5.4
Solids	131510	83727	82805	76167	79312	84226	-6801	-6911	-2292	-8.2	-8.0	-2.6
Oil	124248	129918	123409	105853	101992	95764	-8269	-11663	-14062	-7.2	-10.3	-12.8
Natural gas	54976	71853	80856	74408	71101	68272	-9004	-15477	-21727	-10.8	-17.9	-24.1
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	34189	45191	53339	9741	17171	20656	39.8	61.3	63.2
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	24.0	25.8	27.8	-1.0	-0.8	0.8			
Oil	35.0	38.2	35.7	33.3	33.1	31.6	-1.1	-1.9	-2.7			
Natural gas	15.5	21.1	23.4	23.4	23.1	22.5	-1.7	-3.6	-5.6			
Nuclear	10.6	12.9	12.2	8.2	2.9	0.0	0.4	0.1	0.0			
Renewable energy forms	1.8	3.1	4.8	10.8	14.7	17.6	3.4	6.1	7.4			
Gross Electricity Generation in GWh_e	547549	567219	613054	598365	615660	733974	-65898	-57118	40157	-9.9	-8.5	5.8
Self consumption and grid losses	65998	74099	72965	67548	71180	88364	-8156	-5477	7536	-10.8	-7.1	9.3
Fuel Inputs to Thermal Power Generation	93214	85253	92546	76169	86919	102826	-12935	-11663	1865	-14.5	-11.8	1.8
Solids	75843	68066	66172	60300	63706	70092	-7437	-7657	-1674	-11.0	-10.7	-2.3
Oil (including refinery gas)	2871	1108	2038	9	114	115	-2122	-2009	-1632	-99.6	-94.6	-93.4
Gas (including derived gases)	12676	12906	19233	10483	11585	14576	-3780	-7739	-5799	-26.5	-40.0	-28.5
Biomass & Waste	1824	3174	5102	5320	11451	17980	367	5718	10970	7.4	99.7	156.5
Geothermal heat	0	0	0	57	61	63	36	25	0	175.9	68.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	140329	138488	132307	-838	-1678	-6286	-0.6	-1.2	-4.5
Refineries	106658	119856	127082	116951	114698	110788	-4148	-5906	-7270	-3.4	-4.9	-6.2
Biofuels and hydrogen production	0	222	1942	7909	9895	10101	2473	3459	2563	45.5	53.7	34.0
District heating	6389	1435	873	2872	2348	1537	-26	50	-2220	-0.9	2.2	-59.1
Derived gases, cokeries etc.	51565	15423	14625	12598	11547	9881	863	718	640	7.4	6.6	6.9
Energy Branch Consumption	15384	14242	15144	12627	12070	11814	-617	-644	-601	-4.7	-5.1	-4.8
Non-Energy Uses	23249	25272	24779	24721	24670	23837	-63	-112	-124	-0.3	-0.5	-0.5
Final Energy Demand	228372	220163	218010	220473	217977	214396	-7747	-11483	-17470	-3.4	-5.0	-7.5
by sector												
Industry	72116	59715	56706	56100	53931	52969	-6	-1074	-1640	0.0	-2.0	-3.0
- energy intensive industries	49422	40359	38652	37843	36015	34331	397	-372	-863	1.1	-1.0	-2.5
- other industrial sectors	22693	19356	18053	18257	17917	18638	-403	-703	-776	-2.2	-3.8	-4.0
Residential	58400	61905	65931	67738	67649	66541	-1461	-2261	-5076	-2.1	-3.2	-7.1
Tertiary	39361	32547	33416	32318	32007	30383	-4163	-4507	-5893	-11.4	-12.3	-16.2
Transport	58494	65997	61958	64316	64389	64504	-2117	-3640	-4862	-3.2	-5.4	-7.0
by fuel												
Solids	38693	10951	9639	9969	10162	9400	210	423	602	2.2	4.3	6.8
Oil	96422	98052	87411	76528	72522	68599	-5168	-9008	-12169	-6.3	-11.0	-15.1
Gas	42724	58030	61814	62328	58536	52686	-4154	-6636	-13446	-6.2	-10.2	-20.3
Electricity	38391	41496	44497	45316	47212	56174	-4953	-4414	2854	-9.9	-8.5	5.4
Heat (from CHP and District Heating)	9150	6831	7428	7483	7694	7533	-748	-939	-1229	-9.1	-10.9	-14.0
Renewable energy forms	2991	4804	7222	18841	21831	19980	7064	9090	5923	60.0	71.3	42.1
Other	0	0	0	9	20	24	1	2	-6	8.4	10.3	-19.1
RES in Gross Final Energy Consumption ^(A)		8812	13195	31708	41222	48600	9836	15535	18626	45.0	60.5	62.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	903.1	890.1	849.5	-80.0	-109.3	-111.1	-8.1	-10.9	-11.6
CO₂ Emissions (energy related)	959.8	823.3	804.8	716.6	712.0	711.1	-73.9	-98.9	-102.0	-9.3	-12.2	-12.5
Power generation/District heating	375.1	316.2	325.0	277.3	292.8	323.1	-45.9	-55.1	-33.2	-14.2	-15.8	-9.3
Energy Branch	26.2	27.1	28.9	19.4	19.4	17.4	-3.9	-3.4	-3.8	-16.7	-14.9	-17.9
Industry	170.5	118.3	105.6	98.8	91.4	87.7	4.0	2.4	5.0	4.2	2.7	6.1
Residential	134.3	117.7	120.0	107.3	101.2	84.9	-10.1	-16.2	-34.0	-8.6	-13.8	-28.6
Tertiary	84.7	53.1	51.1	46.1	43.6	35.6	-5.9	-7.0	-13.4	-11.3	-13.9	-27.3
Transport	168.9	190.9	174.3	167.7	163.4	162.3	-12.1	-19.5	-22.6	-6.7	-10.7	-12.2
CO₂ Emissions (non energy related)	84.5	82.9	75.8	78.4	77.9	76.1	2.4	0.8	-0.6	3.2	1.1	-0.8
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	108.1	100.2	62.4	-8.5	-11.3	-8.5	-7.3	-10.1	-12.0
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	72.8	71.8	68.5	-6.4	-8.8	-9.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Germany: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	117.1	105.1	92.5	-5.3	-5.8	-5.3	-4.3	-5.2	-5.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.26	2.31	2.35	-0.13	-0.18	-0.19	-5.3	-7.4	-7.5
Import Dependency %	46.1	59.8	61.6	64.6	67.8	69.1	-2.7	-5.3	-6.7			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	279.1	304.1	328.2	8.3	15.3	22.6	3.1	5.3	7.4
as % of GDP		9.2	10.5	10.3	10.4	10.0	0.3	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				8.4	15.5	22.8						
as % of GDP				0.31	0.53	0.70						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	71.6	63.4	55.0	0.0	-1.3	-1.7	0.0	-2.0	-3.0
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	91.4	85.1	75.1	-2.0	-2.8	-5.7	-2.1	-3.2	-7.1
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	76.4	69.6	58.5	-9.8	-9.8	-11.3	-11.4	-12.3	-16.2
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	36.2	34.2	31.1	-0.6	-0.8	-1.2	-1.5	-2.3	-3.8
Freight transport (toe/Mtkm)	39.2	41.5	35.3	31.2	30.1	28.5	-0.9	-1.6	-1.6	-2.9	-5.1	-5.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.40	0.41	0.39	-0.02	-0.03	-0.05	-4.9	-7.7	-12.1
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.90	1.83	1.73	-0.04	-0.08	-0.15	-2.1	-4.4	-8.0
Industry	2.36	1.98	1.86	1.76	1.70	1.66	0.07	0.08	0.14	4.2	4.7	9.4
Residential	2.30	1.90	1.82	1.58	1.50	1.28	-0.11	-0.18	-0.38	-6.6	-10.9	-23.2
Tertiary	2.15	1.63	1.53	1.43	1.36	1.17	0.00	-0.02	-0.18	0.2	-1.8	-13.3
Transport	2.89	2.89	2.81	2.61	2.54	2.52	-0.10	-0.15	-0.15	-3.7	-5.6	-5.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	14.0	18.4	21.9	4.7	7.5	9.3			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	12.4	15.6	16.3	4.0	6.0	5.1			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	567219	613054	598365	615660	733974	65898	-57118	40137		-9.9	-8.5	5.8
Solids	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	
Oil (including refinery gas)	286571	262420	308197	332262	391868	-37757	-35286	2643		-10.9	-9.6	0.7
Gas (including derived gases)	5476	23814	1170	6885	6784	-14651	-9550	-8164		-92.6	-58.1	-54.6
Biomass-waste	64676	96524	77262	82473	108440	-24721	-52013	-33236		-24.2	-38.7	-23.5
Hydro (pumping excluded)	9782	19186	32856	61538	86967	6430	31919	50783		24.3	107.8	140.3
Wind	21728	19577	21960	21960	21960	1170	1027	0		5.6	4.9	0.0
Solar	9350	27224	52161	72374	112990	3588	6757	28131		7.4	10.3	33.2
Geothermal and other renewables	60	1282	3366	3997	4891	0	0	0		0.0	0.0	0.0
Net Generation Capacity in MW _e	0	0	66	71	73	42	29	0		175.9	68.5	0.0
Nuclear energy	112509	122874	132122	142413	168353	-10645	-8604	16308		-7.5	-5.7	10.7
Renewable energy	21301	20680	12165	4105	0	0	0	0		0.0	0.0	
Hydro (pumping excluded)	9611	23545	34410	42355	54486	1348	1816	10105		4.1	4.5	22.8
Wind	3408	3580	3732	3790	3862	0	0	0		0.0	0.0	0.0
Solar	6113	18428	27055	34262	45359	1348	1816	10105		5.2	5.6	28.7
Other renewables (tidal etc.)	90	1537	3624	4303	5266	0	0	0		0.0	0.0	0.0
Thermal power	0	0	0	0	0	0	0	0		0	0	0
of which cogeneration units	81597	78649	85546	95952	113867	-11993	-10420	6203		-12.3	-9.8	5.8
Solids fired	40073	37870	29439	35383	33626	-4697	-5446	-2573		-13.8	-13.3	-7.1
Gas fired	47883	45326	48787	50489	54043	-4171	-3012	1888		-7.9	-5.6	3.6
Oil fired	24817	24439	28553	32342	43328	-7173	-10884	-3085		-20.1	-25.2	-6.6
Biomass-waste fired	7114	6403	1860	2066	1693	-3260	-2311	-1645		-63.7	-52.8	-49.3
Fuel Cells	1783	2481	6333	11041	14789	2603	5781	9045		69.8	109.9	157.5
Geothermal heat	0	0	0	0	0	0	0	0		0	0	0
Geothermal heat	0	0	13	14	14	8	6	0		173.4	67.9	0.0
Avg. Load factor of net power capacity (%)	53.7	53.1	48.5	46.3	46.7	-1.2	-1.4	-2.1				
Efficiency of gross thermal power generation (%)	37.0	37.4	47.4	47.8	49.7	0.1	0.0	0.1				
% of gross electricity from CHP	16.9	15.5	21.1	25.7	24.3	-1.3	-3.3	-4.2				
Carbon free gross electricity generation (%)	37.1	37.6	35.4	31.5	30.9	5.2	8.6	9.6				
- nuclear	29.9	26.6	16.9	5.5	0.0	1.7	0.5	0.0				
- renewable energy forms	7.2	11.0	18.5	26.0	30.9	3.5	8.1	9.6				
Transport sector												
Passenger transport activity (Gpkm)	889.5	1081.9	1142.4	1318.5	1388.2	1515.3	-17.7	-33.8	-43.9	-1.3	-2.4	-2.8
Public road transport	73.1	69.0	68.2	70.4	75.7	84.3	1.0	1.8	2.3	1.4	2.4	2.8
Private cars and motorcycles	702.1	858.2	911.1	1041.1	1076.8	1134.6	-18.8	-35.0	-45.5	-1.8	-3.1	-3.9
Rail	76.1	90.0	90.2	101.6	111.0	139.5	2.1	2.6	3.8	2.2	2.4	2.8
Aviation	34.3	62.0	70.5	103.0	122.2	154.0	-2.0	-3.2	-4.5	-1.9	-2.5	-2.8
Inland navigation	3.8	2.7	2.5	2.5	2.6	2.7	0.0	0.0	0.0	-0.2	0.4	0.6
Freight transport activity (Gtkm)	352.9	424.7	463.9	533.6	560.2	610.3	-7.1	-13.8	-19.6	-1.3	-2.4	-3.1
Trucks	196.4	280.7	310.1	350.9	369.2	407.7	-10.4	-18.6	-25.4	-2.9	-4.8	-5.9
Rail	101.7	77.5	89.7	112.0	115.8	119.6	3.1	4.1	4.9	2.8	3.7	4.3
Inland navigation	54.8	66.5	64.1	70.7	75.2	83.0	0.2	0.7	1.0	0.3	0.9	1.2
Energy demand in transport (ktoe)	58494	65997	61958	64316	64389	64504	-2117	-3640	-4862	-3.2	-5.4	-7.0
Public road transport	656	612	529	472	485	492	-2	-4	-24	-0.4	-0.8	-4.7
Private cars and motorcycles	38247	39981	36421	35799	34619	33249	-1068	-1727	-2022	-2.9	-4.8	-5.7
Trucks	11518	15834	14528	14512	14756	15675	-747	-1458	-1783	-4.9	-9.0	-10.2
Rail	2111	1946	1858	2048	2003	1612	10	96	176	0.5	5.0	12.3
Aviation	5307	7345	8304	11145	12169	13090	-310	-546	-1207	-2.7	-4.3	-8.4
Inland navigation	656	279	318	341	357	384	-1	-1	-2	-0.3	-0.2	-0.6

Source: PRIMES

Greece: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9152	9740	10010	10315	10904	6918	6441	6743	6528	0.9	0.9	-5.1	0.1	
Solids	7077	7911	8222	8538	8312	3437	2114	1874	1314	1.5	0.1	-12.8	-4.6	
Oil	832	459	280	100	97	100	98	0	0	-10.3	-10.1	0.2		
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2467	3380	4228	4869	5214	2.9	5.3	5.5	2.1	
Hydro	152	303	318	431	424	427	435	439	442	7.6	2.9	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2796	2855	1.2	4.2	4.6	1.8	
Wind	0	3	39	109	254	486	694	862	1079	74.8	20.7	10.6	4.5	
Solar and others	56	82	99	102	248	506	629	668	721	5.8	9.6	9.7	1.4	
Geothermal	3	3	2	1	19	59	92	104	117	-4.7	27.9	17.2	2.4	
Net Imports	15415	18207	21982	23336	24833	28460	29208	29878	29927	3.6	1.2	1.6	0.2	
Solids	988	925	768	371	226	1070	1072	1084	1441	-2.5	-11.5	16.8	3.0	
Oil	14366	17214	19527	20307	20617	21542	20840	20430	19928	3.1	0.5	0.1	-0.4	
- Crude oil and Feedstocks	14757	16955	20439	19352	20472	21343	20992	20831	20575	3.3	0.0	0.3	-0.2	
- Oil products	-391	259	-912	955	146	198	-152	-400	-647					
Natural gas	0	0	1689	2332	3692	5263	5795	6659	6842		8.1	4.6	1.7	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	32631	32058	32156	32989	32716	2.4	1.5	-0.1	0.2	
Solids	8091	8783	9040	8952	8538	4507	3186	2958	2755	1.1	-0.6	-9.4	-1.4	
Oil	12883	13952	15929	17951	17608	18322	17446	16799	16189	2.1	1.0	-0.1	-0.7	
Natural gas	138	44	1705	2354	3721	5263	5795	6659	6842	28.6	8.1	4.5	1.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2498	3726	5512	6379	6755	2.9	5.5	8.2	2.1	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.2	14.1	9.9	9.0	8.4					
Oil	57.8	57.7	56.6	57.5	54.0	57.2	54.3	50.9	49.5					
Natural gas	0.6	0.2	6.1	7.5	11.4	16.4	18.0	20.2	20.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	7.7	11.6	17.1	19.3	20.6					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62504	63724	67142	75270	81375	4.4	1.6	0.7	1.9	
Self consumption and grid losses	5818	6451	8431	10125	9872	9106	9274	10412	11158	3.8	1.6	-0.6	1.9	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11812	9771	9325	10217	10291	3.0	0.2	-2.3	1.0	
Solids	6890	7810	8234	8693	8198	4167	2865	2685	2487	1.8	0.0	-10.0	-1.4	
Oil (including refinery gas)	1708	2075	2036	2053	1027	1461	1224	1094	1076	1.8	-6.6	1.8	-1.3	
Gas (including derived gases)	18	14	1280	1605	2474	3709	4348	5293	5518	53.1	6.8	5.8	2.4	
Biomass & Waste	0	38	64	52	95	377	798	1044	1098		4.1	23.7	3.2	
Geothermal heat	0	0	0	0	17	57	89	100	113			17.9	2.4	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21226	22309	22212	22060	21862	3.0	-0.6	0.5	-0.2	
Refineries	16621	17860	22404	21415	20912	21779	21427	21172	20911	3.0	-0.7	0.2	-0.2	
Biofuels and hydrogen production	0	0	0	0	252	475	738	858	931			11.4	2.4	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	62	56	47	31	21	-8.8	7.4	-2.8	-7.8	
Energy Branch Consumption	1196	1174	1637	1758	1619	1579	1599	1624	1592	3.2	-0.1	-0.1	0.0	
Non-Energy Uses	651	441	689	711	702	701	712	721	719	0.6	0.2	0.1	0.1	
Final Energy Demand	14509	15801	18513	20742	22524	23799	24270	24569	24447	2.5	2.0	0.7	0.1	
by sector														
Industry	3942	4107	4437	4132	4058	4143	4166	4139	4135	1.2	-0.9	0.3	-0.1	
- energy intensive industries	2534	2489	2693	2526	2524	2597	2628	2631	2622	0.6	-0.6	0.4	0.0	
- other industrial sectors	1408	1618	1744	1607	1534	1546	1538	1508	1513	2.2	-1.3	0.0	-0.2	
Residential	3048	3323	4470	5467	6256	6773	7006	7088	7000	3.9	3.4	1.1	0.0	
Tertiary	1711	1940	2410	3075	3254	3415	3406	3499	3489	3.5	3.0	0.5	0.2	
Transport	5808	6431	7196	8068	8957	9468	9691	9843	9823	2.2	2.2	0.8	0.1	
by fuel														
Solids	1053	1074	888	446	321	323	306	263	261	-1.7	-9.7	-0.5	-1.6	
Oil	10041	10799	12584	14219	14987	15334	15202	14867	14319	2.3	1.8	0.1	-0.6	
Gas	15	14	257	585	936	1197	1127	1033	984	33.0	13.8	1.9	-1.4	
Electricity	2448	2931	3710	4377	4617	4758	5013	5594	6037	4.2	2.2	0.8	1.9	
Heat (from CHP and District Heating)	0	0	28	49	39	40	60	64	74		3.2	4.5	2.1	
Renewable energy forms	952	982	1046	1066	1625	2147	2559	2743	2769	0.9	4.5	4.6	0.8	
Other	0	0	0	0	1	1	3	3	3			16.8	1.4	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2416	3520	4557	5113	5481		5.3	6.6	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.7	114.2	106.7	105.0	102.3	2.0	0.2	-1.8	-0.4	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	95.1	83.9	77.0	76.0	73.7	2.3	0.6	-2.1	-0.4	
Power generation/District heating	34.1	39.0	43.7	46.3	43.1	30.5	25.8	26.7	26.3	2.5	-0.1	-5.0	0.2	
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.1	1.5	1.0	0.9	2.9	-0.8	-7.2	-5.1	
Industry	9.4	10.0	10.1	8.6	7.7	7.5	7.0	6.4	6.2	0.7	-2.6	-1.0	-1.1	
Residential	4.6	4.7	7.4	9.6	10.8	11.6	11.7	11.0	9.8	4.9	3.9	0.8	-1.7	
Tertiary	3.3	3.2	3.4	4.2	4.4	4.5	4.2	3.9	3.7	0.1	2.7	-0.4	-1.3	
Transport	17.2	19.0	21.2	23.8	25.8	26.8	26.8	27.0	26.7	2.1	2.0	0.4	-0.1	
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.3	9.7	9.8	9.8	1.2	0.8	0.9	0.2	
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	23.7	21.0	20.0	19.2	18.7	18.7	1.3	-1.6	-1.7	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	124.0	111.0	103.6	102.1	99.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: EC proposal with JI/CDM & without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.6	128.0	113.2	104.5	95.9	0.0	-2.4	-2.9	-1.6	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.91	2.62	2.39	2.30	2.25	-0.1	-0.8	-1.9	-0.6	
Import Dependency %	62.1	65.7	69.3	68.5	69.5	80.4	81.9	81.6	82.1					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	26.6	30.6	33.4	35.2		4.1	2.9	1.4	
as % of GDP			10.5	10.2	10.6	10.6	10.8	10.6	10.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	64.2	58.5	54.5	51.6	1.1	-3.4	-1.8	-1.3	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.7	93.1	85.7	78.6	72.2	1.6	-0.1	-1.4	-1.7	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.7	83.8	73.8	68.1	62.7	1.2	-0.8	-2.2	-1.6	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.2	29.9	28.7	27.3	-2.0	-0.8	-0.9	-0.9	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	95.0	89.5	86.8	85.1	-1.1	-1.4	-1.0	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.47	0.38	0.35	0.32	-1.9	-1.7	-5.7	-1.7	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.17	2.12	2.05	1.97	1.90	-0.4	-0.5	-0.6	-0.7	
Industry	2.39	2.43	2.28	2.09	1.91	1.80	1.67	1.56	1.51	-0.5	-1.8	-1.3	-1.0	
Residential	1.51	1.43	1.66	1.76	1.73	1.72	1.67	1.55	1.41	0.9	0.4	-0.4	-1.7	
Tertiary	1.96	1.65	1.40	1.36	1.36	1.32	1.24	1.12	1.07	-3.3	-0.3	-0.9	-1.5	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.3	14.3	18.2	20.1	21.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.1	8.0	8.8					
Gross Electricity generation by source (in GWh)														
			53415	59416	62504	63724	67142	75270	81375		1.6	0.7	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids	33790	35982	34383	19732	14304	13559	13884			0.2	-8.4	-0.3		
Oil (including refinery gas)	8979	8858	4873	7063	6030	5401	5251			-5.9	2.2	-1.4		
Gas (including derived gases)	5960	8114	14716	23595	27127	32701	35040			9.5	6.3	2.6		
Biomass-waste	543	179	549	2252	5504	7156	7638			0.1	25.9	3.3		
Hydro (pumping excluded)	3692	5016	4925	4960	5057	5102	5135			2.9	0.3	0.2		
Wind	451	1266	2957	5650	8072	10028	12546			20.7	10.6	4.5		
Solar		0	1	73	397	606	832	1343				23.6	8.3	
Geothermal and other renewables		0	0	28	75	443	490	539				31.8	2.0	
Net Generation Capacity in MW_e		11361	13277	15916	18884	20768	21763	23628		3.4	2.7	1.3		
<u>Nuclear energy</u>		0	0	0	0	0	0	0						
<u>Renewable energy</u>		3233	3744	4521	5835	7352	8396	9733		3.4	5.0	2.8		
Hydro (pumping excluded)		3043	3165	3235	3386	3489	3542	3577		0.6	0.8	0.2		
Wind		189	573	1226	2126	3207	3996	4921		20.6	10.1	4.4		
Solar		1	5	60	324	494	678	1051		46.8	23.6	7.8		
Other renewables (tidal etc.)		0	0	0	0	162	179	184				1.3		
<u>Thermal power</u>		8128	9533	11395	13048	13416	13367	13895		3.4	1.6	0.4		
of which cogeneration units		340	381	510	688	1131	925	1009		4.1	8.3	-1.1		
Solids fired		4505	4798	4796	4263	4263	4217	4110		0.6	-1.2	-0.4		
Gas fired		1134	1876	3344	5639	5610	5530	6603		11.4	5.3	1.6		
Oil fired		2487	2827	3145	2773	2648	2547	1945		2.4	-1.7	-3.0		
Biomass-waste fired		2	31	102	357	858	1037	1129		51.7	23.7	2.8		
Fuel Cells		0	0	0	0	0	0	0						
Geothermal heat		0	0	8	17	37	37	107				16.5	11.2	
Avg. Load factor of net power capacity (%)		49.7	47.4	42.1	36.8	35.5	38.0	38.0						
Efficiency of gross thermal power generation (%)		36.5	36.8	39.7	46.4	49.0	49.6	51.8						
% of gross electricity from CHP		1.2	1.5	2.5	4.5	8.3	8.4	8.5						
Carbon free gross electricity generation (%)		8.8	10.9	13.7	20.9	29.3	31.4	33.4						
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0						
- renewable energy forms		8.8	10.9	13.7	20.9	29.3	31.4	33.4						
Transport sector														
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	159.0	174.3	185.6	193.7	199.1	4.4	3.2	1.6	0.7	
Public road transport	17.7	20.2	21.7	21.4	21.7	21.8	22.3	22.6	22.7	2.0	0.0	0.3	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	103.8	110.4	115.1	117.5	6.2	4.7	1.7	0.6	
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.8	5.2	5.6	0.9	2.2	2.3	1.6	
Aviation	15.5	19.9	24.1	27.7	31.5	35.5	39.0	41.7	44.1	4.5	2.7	2.2	1.2	
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.1	9.2	9.2	2.1	0.2	0.3	0.2	
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	37.6	42.4	46.3	49.3	51.6	3.0	3.5	2.1	1.1	
Trucks	12.5	14.6	17.5	22.0	25.4	28.8	31.6	34.1	36.1	3.4	3.8	2.2	1.4	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.2	-3.5	6.5	3.1	1.3	
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.6	14.1	14.3	2.8	2.8	1.7	0.5	
Energy demand in transport (ktoe)	5808	6431	7196	8068	8957	9468	9691	9843	9823	2.2	2.2	0.8	0.1	
Public road transport	154	175	175	153	150	141	140	134	125	1.3	-1.5	-0.7	-1.1	
Private cars and motorcycles	1404	1704	2243	2913	3290	3400	3455	3452	3316	4.8	3.9	0.5	-0.4	
Trucks	2345	2726	2902	3120	3519	3784	3877	4012	4125	2.2	1.9	1.0	0.6	
Rail	75	57	60	58	64	68	74	77	73	-2.2	0.7	1.5	-0.2	
Aviation	1264	1226	1325	1181	1269	1392	1450	1473	1494	0.5	-0.4	1.3	0.3	
Inland navigation	566	544	491	643	665	682	695	696	690	-1.4	3.1	0.4	-0.1	

Source: PRIMES

Greece: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	6918	6441	6528	-2402	-3864	-3812	-25.8	-37.5	-36.9
Solids	7077	8222	8538	3437	2114	1314	-3091	-4923	-4978	-47.3	-70.0	-79.1
Oil	832	280	100	100	98	0	0	-2	0	0.0	-1.6	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3380	4228	5214	690	1061	1166	25.6	33.5	28.8
Hydro	152	318	431	427	435	442	1	4	3	0.2	0.9	0.6
Biomass & Waste	893	1010	1015	1903	2378	2855	323	558	649	20.4	30.7	29.4
Wind	0	39	109	486	694	1079	29	114	141	6.4	19.6	15.0
Solar and others	56	99	102	506	629	721	293	355	371	137.5	129.7	105.8
Geothermal	3	2	1	59	92	117	44	30	3	280.9	49.3	2.2
Net Imports	15415	21982	23336	28460	29208	29927	-487	-662	-860	-1.7	-2.2	-2.8
Solids	988	768	371	1070	1072	1441	-5	-10	49	-0.4	-1.0	3.5
Oil	14366	19527	20307	21542	20840	19928	-850	-1981	-2807	-3.8	-8.7	-12.3
- Crude oil and Feedstocks	14757	20439	19352	21343	20992	20575	-478	-1227	-1654	-2.2	-5.5	-7.4
- Oil products	-391	-912	955	198	-152	-647	-372	-754	-1153	-65.2	-125.3	-227.6
Natural gas	0	1689	2332	5263	5795	6842	22	45	356	0.4	0.8	5.5
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	32058	32156	32716	-2888	-4522	-4664	-8.3	-12.3	-12.5
Solids	8091	9040	8952	4507	3186	2755	-3096	-4933	-4928	-40.7	-60.8	-64.1
Oil	12883	15929	17951	18322	17446	16189	-849	-1979	-2799	-4.4	-10.2	-14.7
Natural gas	138	1705	2354	5263	5795	6842	22	45	356	0.4	0.8	5.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3726	5512	6755	1035	2345	2707	38.5	74.0	66.9
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	14.1	9.9	8.4	-7.7	-12.2	-12.1			
Oil	57.8	56.6	57.5	57.2	54.3	49.5	2.3	1.3	-1.3			
Natural gas	0.6	6.1	7.5	16.4	18.0	20.9	1.4	2.3	3.6			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.6	17.1	20.6	3.9	8.5	9.8			
Gross Electricity Generation in GWh_e	34767	53415	59416	63724	67142	81375	-10751	-12859	-6776	-14.4	-16.1	-7.7
Self consumption and grid losses	5818	8431	10125	9106	9274	11158	-2229	-2901	-2184	-19.7	-23.8	-16.4
Fuel Inputs to Thermal Power Generation	8617	11614	12403	9771	9325	10291	-2758	-3912	-2893	-22.0	-29.6	-21.9
Solids	6890	8234	8693	4167	2865	2487	-3083	-4896	-4830	-42.5	-63.1	-66.0
Oil (including refinery gas)	1708	2036	2053	1461	1224	1076	-95	-134	91	-6.1	-9.8	9.2
Gas (including derived gases)	18	1280	1605	3709	4348	5518	74	442	1051	2.0	11.3	23.5
Biomass & Waste	0	64	52	377	798	1098	303	647	796	404.9	426.3	263.5
Geothermal heat	0	0	0	57	89	113	43	29	0	301.6	48.3	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	22309	22212	21862	-436	-1092	-1594	-1.9	-4.7	-6.8
Refineries	16621	22404	21415	21779	21427	20911	-480	-1231	-1656	-2.2	-5.4	-7.3
Biofuels and hydrogen production	0	0	0	475	738	931	55	153	94	13.0	26.1	11.2
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	56	47	21	-11	-14	-32	-16.3	-22.6	-60.5
Energy Branch Consumption	1196	1637	1758	1579	1599	1592	-117	-135	-154	-6.9	-7.8	-8.8
Non-Energy Uses	651	689	711	701	712	719	-2	-3	-3	-0.3	-0.4	-0.4
Final Energy Demand	14509	18513	20742	23799	24270	24447	-885	-1630	-2333	-3.6	-6.3	-8.7
by sector												
Industry	3942	4437	4132	4143	4166	4135	-60	-136	-234	-1.4	-3.2	-5.4
- energy intensive industries	2534	2693	2526	2597	2628	2622	-22	-57	-84	-0.8	-2.1	-3.1
- other industrial sectors	1408	1744	1607	1546	1538	1513	-38	-79	-150	-2.4	-4.9	-9.0
Residential	3048	4470	5467	6773	7006	7000	-162	-335	-571	-2.3	-4.6	-7.5
Tertiary	1711	2410	3075	3415	3406	3489	-354	-594	-693	-9.4	-14.9	-16.6
Transport	5808	7196	8068	9468	9691	9823	-310	-564	-835	-3.2	-5.5	-7.8
by fuel												
Solids	1053	888	446	323	306	261	-10	-33	-88	-3.0	-9.8	-25.2
Oil	10041	12584	14219	15334	15202	14319	-591	-1200	-2024	-3.7	-7.3	-12.4
Gas	15	257	585	1197	1127	984	-100	-356	-662	-7.7	-24.0	-40.2
Electricity	2448	3710	4377	4758	5013	6037	-729	-850	-382	-13.3	-14.5	-6.0
Heat (from CHP and District Heating)	0	28	49	40	60	74	-8	7	18	-17.2	14.2	31.1
Renewable energy forms	952	1046	1066	2147	2559	2769	554	801	807	34.8	45.6	41.1
Other	0	0	0	1	3	3	0	0	0	6.8	5.2	-6.5
RES in Gross Final Energy Consumption ^(A)		1439	1626	3520	4557	5481	944	1592	1764	36.7	53.7	47.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	114.2	106.7	102.3	-18.0	-30.0	-31.8	-13.6	-21.9	-23.7
CO₂ Emissions (energy related)	71.2	89.2	96.2	83.9	77.0	73.7	-15.4	-26.3	-28.0	-15.5	-25.5	-27.5
Power generation/District heating	34.1	43.7	46.3	30.5	25.8	26.3	-12.9	-19.8	-17.4	-29.8	-43.4	-39.8
Energy Branch	2.6	3.4	3.6	3.1	1.5	0.9	-0.4	-2.0	-2.6	-11.5	-57.1	-74.4
Industry	9.4	10.1	8.6	7.5	7.0	6.2	-0.3	-0.8	-1.5	-4.1	-10.4	-19.3
Residential	4.6	7.4	9.6	11.6	11.7	9.8	-0.7	-1.2	-2.8	-5.5	-9.6	-22.1
Tertiary	3.3	3.4	4.2	4.5	4.2	3.7	0.0	-0.5	-0.9	-0.2	-9.7	-18.7
Transport	17.2	21.2	23.8	26.8	26.8	26.7	-1.1	-2.1	-2.9	-3.8	-7.2	-9.7
CO₂ Emissions (non energy related)	7.2	8.2	8.6	9.3	9.7	9.8	-0.1	-0.2	-0.2	-0.5	-1.6	-2.1
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	21.0	20.0	18.7	-2.6	-3.5	-3.6	-10.9	-14.8	-16.1
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	111.0	103.6	99.4	-17.5	-29.1	-30.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	128.0	113.2	95.9	-11.5	-15.9	-13.7	-8.3	-12.3	-12.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.62	2.39	2.25	-0.22	-0.42	-0.47	-7.9	-15.0	-17.2
Import Dependency %	62.1	69.3	68.5	80.4	81.9	82.1	4.8	7.6	7.2			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	26.6	30.6	35.2	1.1	1.9	2.6	4.3	6.7	8.1
as % of GDP		10.5	10.2	10.6	10.8	10.3	0.4	0.7	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				1.1	2.0	2.7						
as % of GDP				0.45	0.70	0.79						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	64.2	58.5	51.6	-0.9	-1.9	-2.9	-1.4	-3.2	-5.4
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	93.1	85.7	72.2	-2.2	-4.1	-5.9	-2.3	-4.6	-7.5
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	83.8	73.8	62.7	-8.7	-12.9	-12.4	-9.4	-14.9	-16.6
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.2	29.9	27.3	-0.4	-0.7	-1.0	-1.3	-2.2	-3.5
Freight transport (toe/Mtkm)	127.8	114.6	101.5	95.0	89.5	85.1	-2.9	-5.3	-7.4	-2.9	-5.6	-8.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.47	0.38	0.32	-0.10	-0.19	-0.17	-17.9	-32.8	-35.1
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.12	2.05	1.90	-0.01	-0.05	-0.13	-0.3	-2.3	-6.5
Industry	2.39	2.28	2.09	1.80	1.67	1.51	-0.05	-0.13	-0.26	-2.7	-7.4	-14.7
Residential	1.51	1.66	1.76	1.72	1.67	1.41	-0.06	-0.09	-0.26	-3.2	-5.3	-15.8
Tertiary	1.96	1.40	1.36	1.32	1.24	1.07	0.12	0.07	-0.03	10.1	6.0	-2.5
Transport	2.96	2.95	2.95	2.83	2.77	2.72	-0.02	-0.05	-0.06	-0.6	-1.7	-2.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.3	18.2	21.6	4.3	7.2	8.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.1	8.8	0.7	1.8	1.6			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	0	0	0	0			
Solids	33790	35982	19732	14304	13884	12615	-12615	-20181	-19524	-39.0	-58.5	-58.4
Oil (including refinery gas)	8979	8858	7063	6030	5251	4321	-832	-960	-26	-10.5	-13.7	-0.5
Gas (including derived gases)	5960	8114	23595	27127	35040	385	1795	4251	1.7	7.1	13.8	
Biomass-waste	543	179	2252	5504	7638	1910	4778	6230	558.6	658.2	442.6	
Hydro (pumping excluded)	3692	5016	4960	5057	5135	11	44	29	0.2	0.9	0.6	
Wind	451	1266	5650	8072	12546	339	1320	1640	6.4	19.6	15.0	
Solar	0	1	397	606	1343	0	0	268	0.0	0.0	24.9	
Geothermal and other renewables	0	0	75	443	539	51	345	355	221.1	352.0	193.4	
Net Generation Capacity in MW_e	11361	13277	18884	20768	23628	131	879	-328	0.7	4.4	-1.4	
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	3233	3744	5835	7352	9733	114	714	861	2.0	10.8	9.7	
Hydro (pumping excluded)	3043	3165	3386	3489	3577	0	28	28	0.0	0.8	0.8	
Wind	189	573	2126	3207	4921	114	525	473	5.7	19.6	10.6	
Solar	1	5	324	494	1051	0	0	175	0.0	0.0	19.9	
Other renewables (tidal etc.)	0	0	0	162	184	0	162	184				
<u>Thermal power</u>	8128	9533	13048	13416	13895	17	164	-1188	0.1	1.2	-7.9	
of which cogeneration units	340	381	688	1131	1009	-56	284	58	-7.6	33.6	6.1	
Solids fired	4505	4798	4263	4263	4110	-126	-126	214	-2.9	-2.9	5.5	
Gas fired	1134	1876	5639	5610	6603	0	-320	-2275	0.0	-5.4	-25.6	
Oil fired	2487	2827	2773	2648	1945	-152	-125	-87	-5.2	-4.5	-4.3	
Biomass-waste fired	2	31	357	858	1129	287	726	952	412.2	552.3	538.2	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	17	37	107	9	9	9	111.2	31.8	9.1	
Avg. Load factor of net power capacity (%)	49.7	47.4	36.8	35.5	38.0	-6.1	-8.0	-1.9				
Efficiency of gross thermal power generation (%)	36.5	36.8	46.4	49.0	51.8	2.6	5.0	5.5				
% of gross electricity from CHP	1.2	1.5	4.5	8.3	8.5	-0.1	3.1	3.0				
Carbon free gross electricity generation (%)	8.8	10.9	20.9	29.3	33.4	6.1	12.8	12.2				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	8.8	10.9	20.9	29.3	33.4	6.1	12.8	12.2				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	21.7	21.4	21.8	22.3	22.7	0.4	0.5	0.6	1.7	2.4	2.7
Private cars and motorcycles	32.2	58.6	80.0	103.8	110.4	117.5	-1.4	-2.6	-3.3	-1.3	-2.3	-2.8
Rail	2.8	3.1	3.4	4.3	4.8	5.6	0.1	0.1	0.1	1.5	1.4	2.6
Aviation	15.5	24.1	27.7	35.5	39.0	44.1	-0.7	-1.1	-1.5	-2.0	-2.8	-3.3
Inland navigation	7.0	8.7	8.7	8.9	9.1	9.2	0.0	0.0	-0.1	-0.4	-0.4	-0.6
Freight transport activity (Gtkm)												
Trucks	12.5	17.5	22.0	28.8	31.6	36.1	-0.7	-1.2	-1.7	-2.5	-3.7	-4.5
Rail	0.6	0.4	0.6	0.9	1.1	1.2	0.0	0.0	0.1	3.2	4.1	4.8
Inland navigation	6.6	8.7	10.1	12.7	13.6	14.3	0.1	0.2	0.2	0.7	1.1	1.3
Energy demand in transport (ktoe)												
Public road transport	154	175	153	141	140	125	0	-2	-6	-0.3	-1.1	-4.6
Private cars and motorcycles	1404	2243	2913	3400	3455	3316	-92	-154	-217	-2.6	-4.3	-6.1
Trucks	2345	2902	3120	3784	3877	4125	-182	-343	-518	-4.6	-8.1	-11.2
Rail	75	60	58	68	74	73	1	-2	1	1.1	-2.1	1.4
Aviation	1264	1325	1181	1392	1450	1494	-31	-56	-81	-2.2	-3.7	-5.1
Inland navigation	566	491	643	682	695	690	-5	-8	-14	-0.7	-1.1	-2.0

Source: PRIMES

Hungary: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	14146	13456	11207	10514	10256	9757	10166	10793	11138	-2.3	-0.9	-0.1	0.9
Solids	3948	3095	2893	1748	1617	1112	249	236	229	-3.1	-5.6	-17.0	-0.8
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2
Natural gas	3812	3788	2475	2331	2200	2000	1900	1790	1700	-4.2	-1.2	-1.5	-1.1
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1
Renewable energy sources	523	626	516	1212	1452	1783	3076	3895	4437	-0.1	10.9	7.8	3.7
Hydro	15	14	15	17	16	17	17	17	17	0.0	0.6	0.2	0.2
Biomass & Waste	422	526	415	1105	1297	1607	2590	3238	3665	-0.2	12.1	7.2	3.5
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8
Solar and others	0	0	0	2	17	43	356	513	618			35.5	5.7
Geothermal	86	86	86	87	116	109	96	95	89	0.0	3.0	-1.8	-0.8
Net Imports	14436	12629	14011	17558	18575	20355	20665	21130	21414	-0.3	2.9	1.1	0.4
Solids	1686	1395	1081	1340	1091	1128	1075	1100	1082	-4.3	0.1	-0.2	0.1
Oil	6621	5496	5352	5875	6588	7335	7426	7746	7905	-2.1	2.1	1.2	0.6
- Crude oil and Feedstocks	6475	5937	5866	6167	6659	7377	7464	7775	7933	-1.0	1.3	1.1	0.6
- Oil products	146	-441	-514	-291	-71	-42	-38	-29	-28				
Natural gas	5170	5532	7283	9807	10358	11541	11798	11116	11170	3.5	3.6	1.3	-0.5
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Gross Inland Consumption	28641	25864	25000	27920	28832	30113	30831	31923	32552	-1.4	1.4	0.7	0.5
Solids	5969	4549	3967	3090	2708	2240	1324	1336	1312	-4.0	-3.7	-6.9	-0.1
Oil	8734	7689	6907	7420	7788	8335	8426	8646	8705	-2.3	1.2	0.8	0.3
Natural gas	8913	9175	9657	12094	12558	13541	13698	12906	12870	0.8	2.7	0.9	-0.6
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Renewable energy forms	523	626	516	1212	1452	1783	3142	4841	5507	-0.1	10.9	8.0	5.8
as % in Gross Inland Consumption													
Solids	20.8	17.6	15.9	11.1	9.4	7.4	4.3	4.2	4.0				
Oil	30.5	29.7	27.6	26.6	27.0	27.7	27.3	27.1	26.7				
Natural gas	31.1	35.5	38.6	43.3	43.6	45.0	44.4	40.4	39.5				
Nuclear	12.4	14.0	14.6	12.8	13.1	12.8	12.8	12.4	12.2				
Renewable energy forms	1.8	2.4	2.1	4.3	5.0	5.9	10.2	15.2	16.9				
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	36825	42686	45542	51936	57037	2.2	0.5	2.1	2.3
Self consumption and grid losses	5478	6171	6295	5979	5462	5568	5597	6214	6655	1.4	-1.4	0.2	1.7
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	4936	5163	5154	6084	6789	1.9	-1.9	0.4	2.8
Solids	2871	2977	2731	1924	1794	1357	496	485	506	-0.5	-4.1	-12.1	0.2
Oil (including refinery gas)	440	1447	1052	122	0	0	0	1	6	9.1			46.6
Gas (including derived gases)	1636	1634	2140	3078	2839	3330	3375	3273	3566	2.7	2.9	1.7	0.6
Biomass & Waste	24	55	62	534	303	475	1283	2324	2710	10.2	17.2	15.5	7.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11679	10680	9226	9831	10406	11196	11453	11671	11682	-2.3	1.2	1.0	0.2
Refineries	8831	8500	7588	8390	9043	9676	9758	9944	9965	-1.5	1.8	0.8	0.2
Biofuels and hydrogen production	0	0	0	0	207	325	550	627	669			10.2	2.0
District heating	1145	789	471	629	452	519	520	560	527	-8.5	-0.4	1.4	0.1
Derived gases, cokeries etc.	1704	1392	1168	813	703	676	625	540	522	-3.7	-4.9	-1.2	-1.8
Energy Branch Consumption	1402	1310	1162	1581	1621	1683	1699	1785	1812	-1.9	3.4	0.5	0.6
Non-Energy Uses	1569	1609	1586	2282	2501	2659	2723	2754	2781	0.1	4.7	0.9	0.2
Final Energy Demand	19258	15814	15988	16098	19626	20616	21380	21986	22255	-1.8	2.1	0.9	0.4
by sector													
Industry	6523	3808	3489	3427	3465	3639	3789	3909	4051	-6.1	-0.1	0.9	0.7
- energy intensive industries	4160	2691	2563	2328	2259	2332	2399	2444	2499	-4.7	-1.3	0.6	0.4
- other industrial sectors	2364	1116	926	1099	1206	1308	1390	1465	1552	-8.9	2.7	1.4	1.1
Residential	6437	5911	5465	6411	7064	7148	7318	7369	7352	-1.6	2.6	0.4	0.0
Tertiary	3273	3442	3792	4085	4423	4690	4798	4948	4983	1.5	1.6	0.8	0.4
Transport	3024	2653	3252	4175	4674	5139	5476	5760	5868	0.7	3.7	1.6	0.7
by fuel													
Solids	2502	965	793	692	593	560	511	480	471	-10.9	-2.9	-1.5	-0.8
Oil	6009	4147	4173	4792	5115	5523	5658	5867	5913	-3.6	2.1	1.0	0.4
Gas	5941	6370	6503	7852	8514	8856	8865	8170	7823	0.9	2.7	0.4	-1.2
Electricity	2811	2500	2658	2823	2961	3264	3458	3874	4241	-0.6	1.1	1.6	2.1
Heat (from CHP and District Heating)	1570	1287	1440	1297	1402	1238	1211	1291	1245	-0.9	-0.3	-1.5	0.3
Renewable energy forms	425	545	430	642	1040	1174	1674	2301	2560	0.1	9.2	4.9	4.3
Other	0	0	0	0	0	1	2	2	2			16.8	3.1
RES in Gross Final Energy Consumption ^(A)			482	869	1279	1593	2845	4289	4870		10.3	8.3	5.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	80.8	82.4	79.6	77.8	77.5	-2.1	0.5	-0.1	-0.3
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	55.6	57.1	53.7	52.6	52.5	-2.0	0.4	-0.3	-0.2
Power generation/District heating	20.5	23.0	21.0	17.3	15.2	14.7	11.3	11.2	11.9	0.2	-3.2	-3.0	0.5
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.6	2.5	2.6	2.6	-4.9	5.2	0.2	0.4
Industry	14.7	8.7	6.4	6.3	6.0	6.8	6.9	5.6	5.4	-7.9	-0.7	1.4	-2.4
Residential	13.7	9.9	9.0	10.5	11.5	11.2	10.9	10.4	9.9	-4.1	2.5	-0.5	-1.0
Tertiary	5.6	5.5	6.2	6.7	7.2	7.5	7.4	7.4	7.2	1.1	1.4	0.3	-0.3
Transport	8.6	7.6	9.4	12.2	13.2	14.3	14.7	15.3	15.5	0.9	3.4	1.1	0.5
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.7	3.9	4.0	-3.6	-0.4	1.6	0.8
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	21.9	22.2	21.3	20.9	-2.2	1.0	0.0	-0.6
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	84.9	86.6	83.6	81.8	81.4				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	275.2	239.8	209.1	187.9	169.9	-2.5	-2.3	-2.7	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.93	1.89	1.74	1.65	1.61	-0.7	-1.1	-1.0	-0.8
Import Dependency %	50.4	48.8	56.0	62.9	64.4	67.6	67.0	66.2	65.8				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.4	20.6	23.3	25.9	26.9		2.9	3.0	1.4
as % of GDP			18.2	16.1	16.6	16.4	15.8	15.3	14.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.4	63.6	58.2	53.2	50.2	-9.6	-3.4	-1.9	-1.5
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.7	68.3	59.8	52.5	46.6	-1.9	-2.1	-2.9	-2.5
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.1	70.4	61.4	54.9	48.8	1.6	-2.3	-2.5	-2.3
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.9	34.5	33.3	32.0	30.0	2.1	2.2	-0.5	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.3	38.8	37.6	36.7	35.9	0.5	0.8	-0.4	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.27	0.24	0.18	0.16	0.16	-0.8	-3.6	-4.1	-1.2
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.93	1.93	1.87	1.76	1.71	-1.3	-0.1	-0.3	-0.9
Industry	2.25	2.28	1.85	1.84	1.73	1.86	1.82	1.43	1.33	-2.0	-0.6	0.5	-3.1
Residential	2.13	1.68	1.64	1.64	1.63	1.57	1.49	1.41	1.35	-2.6	-0.1	-0.9	-1.0
Tertiary	1.70	1.59	1.64	1.64	1.62	1.60	1.54	1.49	1.44	-0.3	-0.1	-0.5	-0.6
Transport	2.84	2.85	2.90	2.92	2.82	2.78	2.69	2.66	2.64	0.2	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.4	7.5	13.0	19.0	21.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.0	5.7	9.0	9.9	10.5				
Gross Electricity generation by source (in GWh)													
			35185	35749	36825	42686	45542	51936	57037		0.5	2.1	2.3
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	5034	4211	2291	2305	2477		-4.9	-7.6	0.8
Oil (including refinery gas)			4243	497	97	97	1	30	78		-31.5	-39.2	61.0
Gas (including derived gases)			8040	13021	15050	20714	21480	22148	24766		6.5	3.6	1.4
Biomass-waste			197	2348	1711	2397	6082	11448	13485		24.2	13.5	8.3
Hydro (pumping excluded)			178	203	190	194	194	197	199		0.6	0.2	0.2
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9757	10376	9794	9630	10455		2.3	0.0	0.7
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7892	8434	7688	7280	7777		2.7	-0.3	0.1
of which cogeneration units			1915	2391	2271	2488	3014	2315	2136		1.7	2.9	-3.4
Solids fired			1683	1592	1521	1142	494	486	380		-1.0	-10.6	-2.6
Gas fired			3516	4572	5668	6447	5650	4557	4938		4.9	0.0	-1.3
Oil fired			762	313	322	241	181	139	88		-8.3	-5.6	-7.0
Biomass-waste fired			76	316	382	604	1363	2097	2371		17.6	13.6	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	40.8	45.0	51.1	59.1	59.8				
Efficiency of gross thermal power generation (%)			29.9	33.0	38.1	45.7	49.8	50.8	51.7				
% of gross electricity from CHP			24.5	28.3	31.0	25.4	28.4	26.9	23.8				
Carbon free gross electricity generation (%)			41.4	45.9	45.2	41.4	47.8	52.9	52.1				
- nuclear			40.3	38.7	39.9	35.1	33.5	29.6	27.0				
- renewable energy forms			1.1	7.2	5.3	6.3	14.3	23.2	25.1				
Transport sector													
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.8	95.0	104.3	113.6	122.4	-0.2	0.8	1.9	1.6
Public road transport	19.3	16.6	18.7	18.2	17.7	16.7	16.0	15.4	14.9	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.8	62.2	71.0	79.5	87.2	-0.1	1.4	2.8	2.1
Rail	13.9	10.9	12.3	12.2	12.1	12.1	12.1	12.2	12.3	-1.2	-0.2	0.0	0.1
Aviation	1.6	1.9	2.4	2.7	3.2	4.1	5.2	6.6	8.1	4.3	2.9	5.0	4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	42.0	47.9	53.2	57.9	61.1	-1.9	4.2	2.4	1.4
Trucks	15.2	13.8	19.1	25.2	30.7	36.0	40.6	44.7	47.5	2.4	4.8	2.8	1.6
Rail	16.8	8.4	8.8	8.6	8.9	9.2	9.6	9.9	10.2	-6.3	0.1	0.8	0.6
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.2	3.4			2.0	1.3
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4674	5139	5476	5760	5868	0.7	3.7	1.6	0.7
Public road transport	160	124	149	167	156	140	126	112	100	-0.7	0.5	-2.1	-2.3
Private cars and motorcycles	1482	1462	1824	2321	2561	2786	2952	3074	3064	2.1	3.5	1.4	0.4
Trucks	938	695	886	1297	1542	1753	1892	2021	2117	-0.6	5.7	2.1	1.1
Rail	271	190	175	159	150	143	136	125	99	-4.3	-1.6	-0.9	-3.1
Aviation	164	182	219	230	264	316	368	427	487	2.9	1.9	3.4	2.8
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1

Source: PRIMES

Hungary: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	9757	10166	11138	-333	-112	881	-3.3	-1.1	8.6
Solids	3948	2893	1748	1112	249	229	-613	-1484	-1511	-35.5	-85.6	-86.8
Oil	2320	1665	1655	1000	1000	800	0	0	0	0.0	0.0	0.0
Natural gas	3812	2475	2331	2000	1900	1700	0	0	0	0.0	0.0	0.0
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	1783	3076	4437	280	1372	2393	18.7	80.5	117.1
Hydro	15	15	17	17	17	17	0	0	0	1.4	1.3	0.0
Biomass & Waste	422	415	1105	1607	2590	3665	230	1056	1880	16.7	68.8	105.3
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	43	356	618	22	282	470	108.1	380.5	318.6
Geothermal	86	86	87	109	96	89	28	34	43	34.2	54.7	94.7
Net Imports	14436	14011	17558	20355	20665	21414	-314	-1409	-1970	-1.5	-6.4	-8.4
Solids	1686	1081	1340	1128	1075	1082	25	-123	-239	2.3	-10.3	-18.1
Oil	6621	5352	5875	7335	7426	7905	-248	-498	-430	-3.3	-6.3	-5.2
- Crude oil and Feedstocks	6475	5866	6167	7377	7464	7933	-237	-475	-410	-3.1	-6.0	-4.9
- Oil products	146	-514	-291	-42	-38	-28	-11	-23	-21	36.9	158.2	294.0
Natural gas	5170	7283	9807	11541	11798	11170	-91	-853	-2371	-0.8	-6.7	-17.5
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	30113	30831	32552	-647	-1521	-1089	-2.1	-4.7	-3.2
Solids	5969	3967	3090	2240	1324	1312	-588	-1607	-1750	-20.8	-54.8	-57.2
Oil	8734	6907	7420	8335	8426	8705	-248	-498	-430	-2.9	-5.6	-4.7
Natural gas	8913	9657	12094	13541	13698	12870	-91	-853	-2371	-0.7	-5.9	-15.6
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	1783	3142	5507	280	1437	3463	18.7	84.3	169.4
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	7.4	4.3	4.0	-1.8	-4.8	-5.1			
Oil	30.5	27.6	26.6	27.7	27.3	26.7	-0.2	-0.3	-0.4			
Natural gas	31.1	38.6	43.3	45.0	44.4	39.5	0.6	-0.5	-5.8			
Nuclear	12.4	14.6	12.8	12.8	12.8	12.2	0.3	0.6	0.4			
Renewable energy forms	1.8	2.1	4.3	5.9	10.2	16.9	1.0	4.9	10.8			
Gross Electricity Generation in GWh_e	28431	35185	35749	42686	45542	57037	-4399	-7166	-3416	-9.3	-13.6	-5.7
Self consumption and grid losses	5478	6295	5979	5568	5597	6655	-725	-1191	-508	-11.5	-17.5	-7.1
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5163	5154	6789	-845	-1450	-517	-14.1	-22.0	-7.1
Solids	2871	2731	1924	1357	496	506	-614	-1514	-1685	-31.2	-75.3	-76.9
Oil (including refinery gas)	440	1052	122	0	0	6	-163	-142	-9	-100.0	-99.9	-59.1
Gas (including derived gases)	1636	2140	3078	3330	3375	3566	-237	-741	-1090	-6.6	-18.0	-23.4
Biomass & Waste	24	62	534	475	1283	2710	169	947	2268	55.4	281.9	512.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	11196	11453	11682	-196	-401	-405	-1.7	-3.4	-3.4
Refineries	8831	7588	8390	9676	9758	9965	-238	-475	-410	-2.4	-4.6	-4.0
Biofuels and hydrogen production	0	0	0	325	550	669	45	135	106	16.1	32.5	18.8
District heating	1145	471	629	519	520	527	-36	-69	-88	-6.5	-11.7	-14.2
Derived gases, cokeries etc.	1704	1168	813	676	625	522	32	9	-13	5.0	1.5	-2.5
Energy Branch Consumption	1402	1162	1581	1683	1699	1812	-40	-92	-31	-2.3	-5.1	-1.7
Non-Energy Uses	1569	1586	2282	2659	2723	2781	-1	-1	-1	0.0	0.0	0.0
Final Energy Demand	19258	15998	18098	20616	21380	22255	-318	-604	-878	-1.5	-2.7	-3.8
by sector												
Industry	6523	3489	3427	3639	3789	4051	-21	-81	-150	-0.6	-2.1	-3.6
- energy intensive industries	4160	2563	2328	2332	2399	2499	-3	-47	-99	-0.1	-1.9	-3.8
- other industrial sectors	2364	926	1099	1308	1390	1552	-18	-34	-51	-1.4	-2.4	-3.2
Residential	6437	5465	6411	7148	7318	7352	-129	-106	-188	-1.8	-1.4	-2.5
Tertiary	3273	3792	4085	4690	4798	4983	-105	-283	-312	-2.2	-5.6	-5.9
Transport	3024	3252	4175	5139	5476	5868	-63	-134	-229	-1.2	-2.4	-3.8
by fuel												
Solids	2502	793	692	560	511	471	6	-16	-40	1.0	-3.0	-7.8
Oil	6009	4173	4792	5523	5658	5913	-88	-260	-399	-1.6	-4.4	-6.3
Gas	5941	6503	7852	8856	8865	7823	226	-157	-1202	2.6	-1.7	-13.3
Electricity	2811	2658	2823	3264	3458	4241	-316	-511	-244	-8.8	-12.9	-5.4
Heat (from CHP and District Heating)	1570	1440	1297	1238	1211	1245	-236	-126	-179	-16.0	-9.4	-12.6
Renewable energy forms	425	430	642	1174	1674	2560	90	467	1186	8.3	38.7	86.3
Other	0	0	0	1	2	2	0	0	0	2.9	4.6	0.0
RES in Gross Final Energy Consumption ^(A)		482	869	1593	2845	4870	312	1381	2988	24.4	94.3	158.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	82.4	79.6	77.5	-4.1	-11.2	-15.0	-4.8	-12.3	-16.2
CO₂ Emissions (energy related)	65.5	53.6	55.0	57.1	53.7	52.5	-3.4	-10.1	-14.0	-5.7	-15.9	-21.0
Power generation/District heating	20.5	21.0	17.3	14.7	11.3	11.9	-3.7	-8.8	-9.8	-20.2	-43.7	-45.2
Energy Branch	2.5	1.5	1.9	2.6	2.5	2.6	0.0	-0.2	0.0	-1.0	-6.7	-0.6
Industry	14.7	6.4	6.3	6.8	6.9	5.4	0.6	-0.1	-1.6	9.2	-1.3	-23.1
Residential	13.7	9.0	10.5	11.2	10.9	9.9	0.0	0.0	-0.6	0.0	0.3	-5.7
Tertiary	5.6	6.2	6.7	7.5	7.4	7.2	0.0	-0.4	-0.9	0.6	-4.9	-10.6
Transport	8.6	9.4	12.2	14.3	14.7	15.5	-0.3	-0.8	-1.1	-2.1	-5.0	-6.6
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.7	4.0	0.0	0.0	-0.1	0.2	-0.6	-1.6
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	21.9	22.2	20.9	-0.7	-1.0	-1.0	-3.1	-4.3	-4.6
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	86.6	83.6	81.4	-4.4	-11.7	-15.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	239.8	209.1	169.9	-5.2	-10.3	-5.7	-2.1	-4.7	-3.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.89	1.74	1.61	-0.07	-0.23	-0.36	-3.7	-11.7	-18.4
Import Dependency %	50.4	56.0	62.9	67.6	67.0	65.8	0.4	-1.2	-3.7			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	20.6	23.3	26.9	0.2	0.6	0.7	1.2	2.5	2.7
as % of GDP		18.2	16.1	16.4	15.8	14.1	0.2	0.4	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.6	0.7						
as % of GDP				0.20	0.39	0.37						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	63.6	58.2	50.2	-0.4	-1.2	-1.9	-0.6	-2.1	-3.6
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	68.3	59.8	46.6	-1.2	-0.9	-1.2	-1.8	-1.4	-2.5
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	70.4	61.4	48.8	-1.6	-3.6	-3.1	-2.2	-5.6	-5.9
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	34.5	33.3	30.0	-0.3	-0.4	-0.6	-0.7	-1.3	-2.0
Freight transport (toe/Mtkm)	34.4	36.4	39.3	38.8	37.6	35.9	-0.3	-0.7	-1.2	-0.8	-1.9	-3.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.24	0.18	0.16	-0.03	-0.10	-0.11	-10.8	-36.1	-41.1
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.93	1.87	1.71	0.04	0.00	-0.12	2.3	-0.2	-6.3
Industry	2.25	1.85	1.84	1.86	1.82	1.33	0.17	0.01	-0.34	9.8	0.8	-20.3
Residential	2.13	1.64	1.64	1.57	1.49	1.35	0.03	0.03	-0.05	1.8	1.8	-3.2
Tertiary	1.70	1.64	1.64	1.60	1.54	1.44	0.04	0.01	-0.08	2.9	0.7	-5.0
Transport	2.84	2.90	2.92	2.78	2.69	2.64	-0.03	-0.07	-0.08	-0.9	-2.6	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	7.5	13.0	21.3	1.6	6.5	13.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.7	9.0	10.5	0.8	2.4	2.1			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	42686	45542	57037	57037	-4399	-7166	-3416	-9.3	-13.6	-5.7
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	4211	2291	2477	2477	-2614	-5787	-7729	-38.3	-71.6	-75.7
Oil (including refinery gas)	4243	497	97	1	78	78	-687	-691	-74	-87.6	-99.9	-48.7
Gas (including derived gases)	8040	13021	20714	21480	24766	24766	-1774	-5053	-6768	-7.9	-19.0	-21.5
Biomass-waste	197	2348	2397	6082	13485	13485	673	4363	11155	39.0	253.8	478.8
Hydro (pumping excluded)	178	203	194	194	199	199	3	2	0	1.4	1.3	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	7789	8587	10376	9794	10455	10455	-197	-139	-589	-1.9	-1.4	-5.3
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8434	7688	7777	7777	-197	-139	-589	-2.3	-1.8	-7.0
of which cogeneration units	1915	2391	2488	3014	2136	2136	-336	233	-416	-11.9	8.4	-16.3
Solids fired	1683	1592	1142	494	380	380	-214	-407	-801	-15.8	-45.2	-67.8
Gas fired	3516	4572	6447	5650	4938	4938	-234	-718	-1394	-3.5	-11.3	-22.0
Oil fired	762	313	241	181	88	88	-13	-39	-176	-5.1	-17.7	-66.7
Biomass-waste fired	76	316	604	1363	2371	2371	264	1025	1782	77.6	302.9	302.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	45.0	51.1	59.8	59.8	-3.6	-6.9	-0.1			
Efficiency of gross thermal power generation (%)	29.9	33.0	45.7	49.8	51.7	51.7	0.1	1.6	-0.4			
% of gross electricity from CHP	24.5	28.3	25.4	28.4	23.8	23.8	-2.0	5.2	-1.8			
Carbon free gross electricity generation (%)	41.4	45.9	41.4	47.8	52.1	52.1	5.3	14.8	21.4			
- nuclear	40.3	38.7	35.1	33.5	27.0	27.0	3.3	4.6	1.5			
- renewable energy forms	1.1	7.2	6.3	14.3	25.1	25.1	2.0	10.2	19.9			
Transport sector												
Passenger transport activity (Gpkm)												
	82.0	80.0	80.3	95.0	104.3	122.4	-0.4	-1.0	-1.7	-0.4	-0.9	-1.4
Public road transport	19.3	18.7	18.2	16.7	16.0	14.9	0.1	0.1	0.1	0.3	0.7	1.0
Private cars and motorcycles	47.3	46.6	47.2	62.2	71.0	87.2	-0.5	-1.0	-1.6	-0.7	-1.4	-1.8
Rail	13.9	12.3	12.2	12.1	12.1	12.3	0.1	0.2	0.1	0.8	1.4	0.7
Aviation	1.6	2.4	2.7	4.1	5.2	8.1	-0.1	-0.2	-0.4	-2.5	-3.6	-4.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	34.0	27.9	35.8	47.9	53.2	61.1	-0.2	-0.4	-0.7	-0.5	-0.8	-1.1
Trucks	15.2	19.1	25.2	36.0	40.6	47.5	-0.3	-0.6	-0.9	-0.9	-1.5	-1.8
Rail	16.8	8.8	8.6	9.2	9.6	10.2	0.1	0.2	0.2	1.1	1.6	1.5
Inland navigation	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.0	0.0	0.3	0.5	0.7
Energy demand in transport (ktoe)												
	3024	3252	4175	5139	5476	5868	-63	-134	-229	-1.2	-2.4	-3.8
Public road transport	160	149	167	140	126	100	0	-1	-2	-0.2	-0.4	-2.1
Private cars and motorcycles	1482	1824	2321	2786	2952	3064	-28	-58	-85	-1.0	-1.9	-2.7
Trucks	938	886	1297	1753	1892	2117	-26	-63	-113	-1.4	-3.2	-5.1
Rail	271	175	159	143	136	99	1	7	12	0.7	5.0	13.3
Aviation	164	219	230	316	368	487	-10	-20	-41	-3.1	-5.1	-7.7
Inland navigation	9	0	1	1	1	2	0	0	0	0.1	0.2	0.2

Source: PRIMES

Ireland: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
Annual % Change													
Primary Production	3353	4020	2175	1650	1957	2376	2796	3275	3548	-4.2	-1.0	3.6	2.4
Solids	1312	1606	959	789	754	667	521	496	501	-3.1	-2.4	-3.6	-0.4
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	478	466	459	442	480	-6.5	-6.7	-0.4	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	726	1243	1816	2337	2567	4.4	10.9	9.6	3.5
Hydro	60	61	73	54	80	81	82	83	83	2.0	0.9	0.3	0.2
Biomass & Waste	108	102	164	250	375	469	587	733	800	4.3	8.6	4.6	3.2
Wind	0	1	21	96	252	553	875	1227	1340		28.2	13.3	4.4
Solar and others	0	0	0	0	19	140	273	293	342	14.8	58.2	30.7	2.3
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.6	5.4	1.6
Net Imports	7074	7604	12234	13620	14928	14905	14462	13671	13571	5.6	2.0	-0.3	-0.6
Solids	2064	1823	1789	1969	2035	1992	1315	628	510	-1.4	1.3	-4.3	-9.0
Oil	5010	5698	7959	8466	9621	9535	9414	9226	8912	4.7	1.9	-0.2	-0.5
- Crude oil and Feedstocks	2018	2260	3002	3297	3341	3300	3254	3197	3119	4.1	1.1	-0.3	-0.4
- Oil products	2992	3438	4957	5168	6280	6234	6160	6028	5793	5.2	2.4	-0.2	-0.6
Natural gas	0	85	2478	3010	3120	3043	2998	2887	3134		2.3	-0.4	0.4
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	10225	10844	14319	15121	16766	17152	17124	16808	16977	3.4	1.6	0.2	-0.1
Solids	3416	2775	2711	2685	2789	2659	1836	1124	1011	-2.3	0.3	-4.1	-5.8
Oil	4768	5571	7906	8390	9501	9407	9280	9087	8771	5.2	1.9	-0.2	-0.6
Natural gas	1873	2334	3436	3470	3598	3509	3458	3329	3614	6.3	0.5	-0.4	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	798	1492	2456	3164	3470	4.4	12.0	11.9	3.5
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	16.6	15.5	10.7	6.7	6.0				
Oil	46.6	51.4	55.2	55.5	56.7	54.8	54.2	54.1	51.7				
Natural gas	18.3	21.5	24.0	22.9	21.5	20.5	20.2	19.8	21.3				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.8	8.7	14.3	18.8	20.4				
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27740	30380	33043	37154	40851	5.2	1.6	1.8	2.1
Self consumption and grid losses	2263	2665	3458	3870	3570	3758	3697	3856	4287	4.3	0.3	0.4	1.5
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4370	4175	3685	3349	3658	4.7	-0.9	-1.7	-0.1
Solids	1839	2028	1925	1903	2191	2129	1403	767	697	0.5	1.3	-4.4	-6.8
Oil (including refinery gas)	339	622	1019	774	147	28	0	1	1	11.6	-17.6		
Gas (including derived gases)	841	1060	1825	2040	1953	1928	1954	2118	2348	8.1	0.7	0.0	1.9
Biomass & Waste	0	0	24	30	79	90	328	463	612		12.8	15.4	6.5
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	1939	2429	3481	3472	3557	3650	3799	3773	3717	6.0	0.2	0.7	-0.2
Refineries	1742	2263	3310	3336	3341	3300	3254	3197	3119	6.6	0.1	-0.3	-0.4
Biofuels and hydrogen production	0	0	0	1	137	290	505	551	581			13.9	1.4
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	197	167	171	135	79	59	40	25	16	-1.4	-7.5	-6.5	-8.7
Energy Branch Consumption	168	185	246	380	339	334	304	282	282	3.9	3.3	-1.1	-0.8
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4
Final Energy Demand	7355	7903	10678	12346	13268	13709	13981	13960	13958	3.8	2.2	0.5	0.0
by sector													
Industry	1744	1851	2344	2484	2717	2825	2915	2971	3084	3.0	1.5	0.7	0.6
- energy intensive industries	869	879	1170	1231	1383	1470	1539	1587	1644	3.0	1.7	1.1	0.7
- other industrial sectors	875	972	1173	1253	1334	1355	1376	1383	1440	3.0	1.3	0.3	0.5
Residential	2404	2208	2509	2923	3034	3116	3132	2990	2917	0.4	1.9	0.3	-0.7
Tertiary	1222	1502	1821	1958	1906	1900	1927	1916	1884	4.1	0.5	0.1	-0.2
Transport	1985	2343	4005	4981	5611	5868	6007	6083	6073	7.3	3.4	0.7	0.1
by fuel													
Solids	1784	933	699	704	582	517	423	349	306	-9.0	-1.8	-3.1	-3.2
Oil	3874	4796	6894	7990	8613	8610	8493	8289	8001	5.9	2.3	-0.1	-0.6
Gas	568	796	1201	1337	1567	1510	1440	1155	1177	7.8	2.7	-0.8	-2.0
Electricity	1020	1277	1744	2094	2144	2362	2605	2954	3244	5.5	2.1	2.0	2.2
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			4.7	3.7
Renewable energy forms	108	102	141	221	360	708	1016	1208	1223	2.7	9.8	10.9	1.9
Other	0	0	0	0	1	1	3	3	4			18.7	2.6
RES in Gross Final Energy Consumption ^(A)			245	382	760	1422	2307	2995	3228		12.0	11.7	3.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.2	71.6	66.9	63.4	62.8	2.1	0.8	-1.2	-0.6
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.5	45.4	41.6	37.9	37.1	3.1	1.0	-1.1	-1.1
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	13.1	10.2	8.1	8.3	3.9	-1.0	-3.0	-2.0
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.6	0.6	0.5	4.0	5.8	-0.3	-0.9
Industry	4.0	3.9	4.8	5.2	5.7	5.7	5.6	5.2	5.4	1.8	1.7	0.0	-0.5
Residential	7.5	6.0	6.1	6.6	6.6	6.3	5.9	5.2	4.6	-2.1	0.9	-1.2	-2.5
Tertiary	2.9	3.4	3.8	3.6	3.5	3.0	2.7	2.2	1.9	2.8	-0.8	-2.5	-3.6
Transport	5.9	6.9	11.9	14.8	16.4	16.8	16.6	16.7	16.5	7.3	3.2	0.1	-0.1
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.7	6.2	6.7	7.2	2.1	5.5	1.9	1.4
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	20.5	19.1	18.8	18.5	0.6	-0.3	-2.1	-0.3
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	134.0	127.6	119.2	112.9	111.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	70.4	59.8	51.2	46.5	-3.6	-3.2	-3.2	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.78	2.65	2.43	2.26	2.19	-0.3	-0.6	-1.3	-1.0
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.3	83.8	80.7	79.3				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	15.8	17.6	18.5	19.0		3.9	2.0	0.8
as % of GDP			7.9	7.4	7.1	6.5	6.2	5.6	5.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	60.0	52.9	47.3	44.7	-4.0	-3.6	-2.7	-1.7
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	72.8	63.6	53.7	47.6	-4.7	-1.9	-2.6	-2.9
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	55.7	48.2	41.5	36.6	-2.4	-4.0	-3.2	-2.7
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.5	49.4	44.8	42.1	-0.2	-0.8	-1.8	-1.6
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	91.7	85.6	82.2	77.9	2.8	-1.5	-1.6	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.43	0.31	0.22	0.20	-1.3	-2.5	-4.7	-4.1
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.42	2.31	2.21	2.10	2.03	-1.0	-0.3	-0.9	-0.8
Industry	2.31	2.09	2.05	2.08	2.08	2.01	1.94	1.75	1.74	-1.2	0.2	-0.7	-1.1
Residential	3.11	2.71	2.42	2.27	2.19	2.02	1.88	1.73	1.56	-2.5	-1.0	-1.5	-1.8
Tertiary	2.34	2.28	2.07	1.83	1.82	1.57	1.40	1.17	0.99	-1.2	-1.3	-2.6	-3.4
Transport	2.96	2.96	2.97	2.98	2.92	2.86	2.76	2.74	2.72	0.1	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.1	16.1	21.0	22.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.9	8.5	9.3	10.0				
Gross Electricity generation by source (in GWh)													
			23669	24992	27740	30380	33043	37154	40851		1.6	1.8	2.1
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10577	10278	6764	3662	3404		1.9	-4.4	-6.6
Oil (including refinery gas)			4516	3390	641	92	0	8	8		-17.7		
Gas (including derived gases)			9231	11197	12309	12217	13034	14544	16003		2.9	0.6	2.1
Biomass-waste			96	125	352	409	1556	2938	3888		13.8	16.0	9.6
Hydro (pumping excluded)			846	631	927	941	954	965	969		0.9	0.3	0.2
Wind			244	1112	2930	6431	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	545	742	956				5.8
Net Generation Capacity in MW_e			4627	6052	8291	8131	10200	12443	13882		6.0	2.1	3.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2629	4141	5482	6096		17.3	9.4	3.9
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2360	3568	4784	5258		28.5	9.5	4.0
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	283	385	496				5.8
<u>Thermal power</u>			4284	5338	6601	5502	6059	6961	7786		4.4	-0.9	2.5
of which cogeneration units			108	561	404	573	556	807	604		14.1	3.2	0.8
Solids fired			1282	1367	1361	1335	1314	1312	1358		0.6	-0.4	0.3
Gas fired			1974	2937	4116	3948	4352	4957	5675		7.6	0.6	2.7
Oil fired			1010	995	1006	92	64	8	8		0.0	-24.1	-18.4
Biomass-waste fired			18	39	118	126	330	684	745		20.6	10.8	8.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.1	40.7	35.8	33.3	32.8				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.4	49.8	54.3	54.8				
% of gross electricity from CHP			1.1	0.9	6.2	6.8	6.5	9.1	8.2				
Carbon free gross electricity generation (%)			5.0	7.5	15.2	25.6	40.1	51.0	52.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	15.2	25.6	40.1	51.0	52.5				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	62.3	70.4	77.7	82.8	5.5	3.7	2.6	1.6
Public road transport	3.9	5.2	6.1	6.7	7.3	7.6	8.1	8.4	8.8	4.7	1.8	1.1	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	36.2	40.8	44.4	46.3	5.3	4.1	2.6	1.3
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.3	4.0	4.6	1.3	5.5	3.5	3.3
Aviation	3.2	5.1	7.9	9.6	11.7	14.2	16.7	19.2	21.5	9.5	4.0	3.6	2.6
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.9	29.5	31.7	33.2	8.5	5.9	2.2	1.2
Trucks	5.1	5.5	12.3	17.9	22.6	25.8	28.2	30.2	31.5	9.2	6.3	2.2	1.1
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.5	-1.8	-3.3	1.8	1.1
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.2	9.3	2.1	2.9	2.3
Energy demand in transport (ktoe)	1985	2343	4005	4981	5611	5868	6007	6083	6073	7.3	3.4	0.7	0.1
Public road transport	58	76	99	101	98	91	88	87	90	5.5	-0.2	-1.0	0.3
Private cars and motorcycles	993	1146	1695	1915	2085	2119	2116	2026	1971	5.5	2.1	0.1	-0.7
Trucks	495	653	1532	2066	2355	2439	2491	2569	2563	12.0	4.4	0.6	0.3
Rail	48	50	42	44	51	51	39	39	27	-1.4	2.1	-2.7	-3.7
Aviation	365	390	613	836	1002	1147	1251	1339	1396	5.3	5.0	2.2	1.1
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.9

Source: PRIMES

Ireland: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2376	2796	3548	134	360	874	6.0	14.8	32.7
Solids	1312	959	789	667	521	501	-76	-208	-171	-10.3	-28.5	-25.5
Oil	0	0	0	0	0	0	0	0	0	-15.2	20848.3	-203.1
Natural gas	1873	958	461	466	459	480	-102	-116	-20	-18.0	-20.2	-4.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	168	258	401	1243	1816	2567	312	683	1065	33.5	60.3	70.9
Hydro	60	73	54	81	82	83	4	2	0	4.7	2.5	0.0
Biomass & Waste	108	164	250	469	587	800	0	0	18	0.0	0.0	2.3
Wind	0	21	96	553	875	1340	204	460	772	58.6	110.7	135.9
Solar and others	0	0	0	140	273	342	104	221	275	292.1	432.3	409.7
Geothermal	0	0	0	0	0	0	0	0	0	39.4	98.2	153.6
Net Imports	7074	12234	13620	14905	14462	13571	-1459	-2424	-3398	-8.9	-14.4	-20.0
Solids	2064	1789	1969	1992	1315	510	-302	-1336	-1638	-13.1	-50.4	-76.2
Oil	5010	7959	8466	9535	9414	8912	-668	-845	-1523	-6.5	-8.2	-14.6
- Crude oil and Feedstocks	2018	3002	3297	3300	3254	3119	-257	-300	-449	-7.2	-8.4	-12.6
- Oil products	2992	4957	5168	6234	6160	5793	-411	-545	-1074	-6.2	-8.1	-15.6
Natural gas	0	2478	3010	3043	2998	3134	-666	-757	-972	-18.0	-20.2	-23.7
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	17152	17124	16977	-1325	-2064	-2523	-7.2	-10.8	-12.9
Solids	3416	2711	2685	2659	1836	1011	-378	-1544	-1809	-12.4	-45.7	-64.1
Oil	4768	7906	8390	9407	9280	8771	-668	-845	-1522	-6.6	-8.3	-14.8
Natural gas	1873	3436	3470	3509	3458	3614	-768	-873	-992	-18.0	-20.2	-21.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1492	2456	3470	489	1197	1800	48.8	95.1	107.8
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	15.5	10.7	6.0	-0.9	-6.9	-8.5			
Oil	46.6	55.2	55.5	54.8	54.2	51.7	0.3	1.4	-1.1			
Natural gas	18.3	24.0	22.9	20.5	20.2	21.3	-2.7	-2.4	-2.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	8.7	14.3	20.4	3.3	7.8	11.9			
Gross Electricity Generation in GWh_e	14226	23669	24992	30380	33043	40851	-3854	-3701	2128	-11.3	-10.1	5.5
Self consumption and grid losses	2263	3458	3870	3758	3697	4287	-531	-883	-244	-12.4	-19.3	-5.4
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4175	3685	3658	-1011	-1693	-1381	-19.5	-31.5	-27.4
Solids	1839	1925	1903	2129	1403	697	-332	-1478	-1750	-13.5	-51.3	-71.5
Oil (including refinery gas)	339	1019	774	28	0	1	-198	-16	1	-87.7	-100.0	93435.9
Gas (including derived gases)	841	1825	2040	1928	1954	2348	-487	-425	-46	-20.2	-17.9	-1.9
Biomass & Waste	0	24	30	90	328	612	7	226	414	7.8	221.5	208.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	1939	3481	3472	3650	3799	3717	-228	-198	-397	-5.9	-4.9	-9.6
Refineries	1742	3310	3336	3300	3254	3119	-257	-300	-449	-7.2	-8.4	-12.6
Biofuels and hydrogen production	0	0	1	290	505	581	36	109	59	14.0	27.6	11.2
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	197	171	135	59	40	16	-6	-7	-6	-9.3	-14.6	-27.9
Energy Branch Consumption	168	246	380	334	304	282	-29	-69	-73	-8.1	-18.5	-20.6
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13709	13981	13958	-782	-1103	-1756	-5.4	-7.3	-11.2
by sector												
Industry	1744	2344	2484	2825	2915	3084	-64	-117	-201	-2.2	-3.9	-6.1
- energy intensive industries	869	1170	1231	1470	1539	1644	-16	-28	-51	-1.1	-1.8	-3.0
- other industrial sectors	875	1173	1253	1355	1376	1440	-48	-89	-150	-3.4	-6.1	-9.5
Residential	2404	2509	2923	3116	3132	2917	-131	-179	-425	-4.0	-5.4	-12.7
Tertiary	1222	1821	1958	1900	1927	1884	-385	-444	-593	-16.8	-18.7	-23.9
Transport	1985	4005	4981	5868	6007	6073	-202	-363	-537	-3.3	-5.7	-8.1
by fuel												
Solids	1784	699	704	517	423	306	-44	-62	-56	-7.9	-12.8	-15.5
Oil	3874	6894	7990	8610	8493	8001	-455	-810	-1470	-5.0	-8.7	-15.5
Gas	568	1201	1337	1510	1440	1177	-265	-427	-952	-14.9	-22.8	-44.7
Electricity	1020	1744	2094	2362	2605	3244	-285	-242	205	-10.8	-8.5	6.8
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	0	1	-6.0	14.4	57.6
Renewable energy forms	108	141	221	708	1016	1223	268	436	516	60.8	75.4	73.0
Other	0	0	0	1	3	4	0	0	0	8.1	5.1	-4.8
RES in Gross Final Energy Consumption ^(A)		245	382	1422	2307	3228	483	1144	1712	51.5	98.4	112.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	71.6	66.9	62.8	-7.6	-13.7	-17.3	-9.6	-17.0	-21.6
CO₂ Emissions (energy related)	30.9	42.1	45.7	45.4	41.6	37.1	-5.3	-10.7	-14.1	-10.4	-20.4	-27.5
Power generation/District heating	10.4	15.2	14.8	13.1	10.2	8.3	-3.1	-6.9	-7.0	-19.1	-40.4	-45.8
Energy Branch	0.2	0.3	0.6	0.6	0.6	0.5	0.0	-0.1	-0.1	-3.8	-9.2	-17.9
Industry	4.0	4.8	5.2	5.7	5.6	5.4	-0.3	-0.6	-1.1	-4.6	-8.9	-17.3
Residential	7.5	6.1	6.6	6.3	5.9	4.6	-0.5	-0.8	-1.9	-7.4	-11.5	-29.3
Tertiary	2.9	3.8	3.6	3.0	2.7	1.9	-0.7	-1.0	-2.0	-19.0	-26.5	-51.4
Transport	5.9	11.9	14.8	16.8	16.6	16.5	-0.7	-1.4	-1.9	-4.0	-7.8	-10.5
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.7	6.2	7.2	0.0	-0.1	-0.1	-0.8	-1.1	-1.5
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	20.5	19.1	18.5	-2.2	-3.0	-3.2	-9.9	-13.5	-14.6
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	127.6	119.2	111.8	-13.5	-24.4	-30.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Ireland: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	70.4	59.8	46.5	-5.4	-7.2	-6.9	-7.2	-10.8	-12.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.65	2.43	2.19	-0.10	-0.29	-0.44	-3.5	-10.8	-16.7
Import Dependency %	69.1	84.5	89.5	86.3	83.8	79.3	-1.7	-3.6	-7.1			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	15.8	17.6	19.0	0.5	1.0	1.1	3.3	6.2	6.3
as % of GDP		7.9	7.4	6.5	6.2	5.2	0.2	0.4	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.1	1.2						
as % of GDP				0.22	0.37	0.33						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	60.0	52.9	44.7	-1.4	-2.1	-2.9	-2.2	-3.9	-6.1
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	72.8	63.6	47.6	-3.1	-3.6	-6.9	-4.0	-5.4	-12.7
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	55.7	48.2	36.6	-11.3	-11.1	-11.5	-16.8	-18.7	-23.9
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.5	49.4	42.1	-0.9	-1.4	-1.7	-1.7	-2.7	-3.9
Freight transport (toe/Mtkm)	89.6	117.7	111.2	91.7	85.6	77.9	-2.3	-4.3	-6.6	-2.5	-4.8	-7.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.43	0.31	0.20	-0.04	-0.16	-0.19	-8.9	-33.7	-48.6
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.21	2.03	-0.03	-0.08	-0.21	-1.1	-3.7	-9.5
Industry	2.31	2.05	2.08	2.01	1.94	1.74	-0.05	-0.11	-0.23	-2.4	-5.3	-11.9
Residential	3.11	2.42	2.27	2.02	1.88	1.56	-0.07	-0.13	-0.37	-3.5	-6.4	-19.0
Tertiary	2.34	2.07	1.83	1.57	1.40	0.99	-0.04	-0.15	-0.56	-2.6	-9.6	-36.1
Transport	2.96	2.97	2.98	2.86	2.76	2.72	-0.02	-0.06	-0.07	-0.7	-2.2	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.1	16.1	22.5	3.8	8.6	13.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.9	8.5	10.0	0.8	2.3	1.9			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	30380	33043	40851	48591	-3854	-3701	2128	-11.3	-10.1	5.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	10278	6764	3404	3404	-1943	-7779	-10079	-15.9	-53.5	-74.8
Oil (including refinery gas)	4516	3390	92	0	8	8	-950	-55	8	-91.2	-100.0	151358.9
Gas (including derived gases)	9231	11197	12217	13034	16003	16003	-3408	-2870	-683	-21.8	-18.0	-4.1
Biomass-waste	96	125	409	1556	3888	3888	29	1090	2946	7.5	234.0	313.0
Hydro (pumping excluded)	846	631	941	954	969	969	42	23	0	4.7	2.5	0.0
Wind	244	1112	6431	10172	15585	15585	2376	5345	8979	58.6	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	545	956	956	0	545	956			
Net Generation Capacity in MW_e												
	4627	6052	8131	10200	13882	13882	-27	1197	3591	-0.3	13.3	34.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2629	4141	6096	6096	814	2001	3244	44.8	93.6	113.7
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2360	3568	5258	5258	814	1719	2748	52.6	92.9	109.4
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	283	496	496	0	283	496			
<u>Thermal power</u>	4284	5338	5502	6059	7786	7786	-840	-805	347	-13.3	-11.7	4.7
of which cogeneration units	108	561	573	556	604	604	-34	31	-305	-5.6	5.9	-33.6
Solids fired	1282	1367	1335	1314	1358	1358	-261	-460	-1117	-16.4	-26.0	-45.1
Gas fired	1974	2937	3948	4352	5675	5675	-591	-530	842	-13.0	-10.9	17.4
Oil fired	1010	995	92	64	8	8	0	-17	1	0.0	-20.7	19.8
Biomass-waste fired	18	39	126	330	745	745	11	202	621	9.7	159.4	501.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	40.7	35.8	32.8	32.8	-4.9	-8.6	-8.5			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.4	49.8	54.8	54.8	-1.2	0.3	1.7			
% of gross electricity from CHP	1.1	0.9	6.8	6.5	8.2	8.2	-0.4	-1.4	0.3			
Carbon free gross electricity generation (%)	5.0	7.5	25.6	40.1	52.5	52.5	10.0	23.1	30.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	25.6	40.1	52.5	52.5	10.0	23.1	30.4			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	62.3	70.4	82.8	-0.7	-1.3	-1.9	-1.1	-1.8	-2.2
Public road transport	3.9	6.1	6.7	7.6	8.1	8.8	0.1	0.2	0.3	1.8	2.6	3.0
Private cars and motorcycles	12.6	21.1	26.0	36.2	40.8	46.3	-0.6	-1.1	-1.5	-1.6	-2.7	-3.2
Rail	1.2	1.4	1.8	2.8	3.3	4.6	0.1	0.1	0.1	1.9	2.9	3.0
Aviation	3.2	7.9	9.6	14.2	16.7	21.5	-0.3	-0.5	-0.7	-2.0	-2.8	-3.3
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.3	0.0	0.2
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.9	29.5	33.2	-0.5	-0.8	-1.1	-1.7	-2.6	-3.2
Trucks	5.1	12.3	17.9	25.8	28.2	31.5	-0.5	-0.9	-1.2	-1.9	-2.9	-3.6
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.0	5.2	6.7	7.6
Inland navigation	0.2	0.6	0.6	0.8	0.9	1.2	0.0	0.0	0.0	2.3	3.3	3.9
Energy demand in transport (ktoe)												
	1985	4005	4981	5868	6007	6073	-202	-363	-537	-3.3	-5.7	-8.1
Public road transport	58	99	101	91	88	90	-1	-2	-5	-0.6	-2.0	-4.8
Private cars and motorcycles	993	1695	1915	2119	2116	1971	-66	-108	-130	-3.0	-4.8	-6.2
Trucks	495	1532	2066	2439	2491	2563	-107	-200	-311	-4.2	-7.4	-10.8
Rail	48	42	44	51	39	27	1	0	-1	1.4	0.4	-2.1
Aviation	365	613	836	1147	1251	1396	-29	-54	-90	-2.5	-4.1	-6.1
Inland navigation	26	25	18	22	24	26	0	0	0	-0.1	-0.1	-0.7

Source: PRIMES

Italy: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	25537	29408	27099	28044	31189	34487	36289	39072	41529	0.6	1.4	1.5	1.4	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5856	5882	5785	5800	5500	0.1	2.0	-0.1	-0.5	
Natural gas	14030	16347	13622	9886	10680	10000	8000	8000	8000	-0.3	-2.4	-2.8	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14654	18605	22504	25272	28029	2.9	5.4	4.4	2.2	
Hydro	2719	3249	3812	3101	3243	3243	3243	3243	3243	3.4	-1.6	0.0	0.0	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9883	10849	7.3	11.8	4.6	2.8	
Wind	0	1	48	202	464	867	1524	2082	2837	73.3	25.4	12.6	6.4	
Solar and others	5	8	12	23	173	2254	3741	4211	5268	9.2	30.3	36.0	3.5	
Geothermal	2971	3167	3103	4791	5516	5668	5782	5852	5831	0.4	5.9	0.5	0.1	
Net Imports	132060	134651	152953	160475	164011	168974	173098	176841	178038	1.5	0.7	0.5	0.3	
Solids	13792	12987	13188	16366	16942	17536	17210	17286	17279	-0.4	2.5	0.2	0.0	
Oil	89885	89684	88458	79421	73849	74165	71563	72051	71887	-0.2	-1.8	-0.3	0.0	
- Crude oil and Feedstocks	84284	82558	90244	94404	89420	89786	88248	88798	88845	0.7	-0.1	-0.1	0.1	
- Oil products	5602	7126	-1786	-14983	-15571	-15622	-16685	-16747	-16958					
Natural gas	25311	28530	47008	59840	65643	66772	68992	69955	69989	6.4	3.4	0.5	0.1	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	191661	199831	205739	212250	215908	1.2	1.1	0.7	0.5	
Solids	14621	12272	12659	16477	16942	17536	17210	17286	17279	-1.4	3.0	0.2	0.0	
Oil	89860	93248	88947	83169	76166	76417	73700	74188	73728	-0.1	-1.5	-0.3	0.0	
Natural gas	39001	44652	57940	70651	76322	76772	76992	77955	77989	4.0	2.8	0.1	0.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	18440	25157	33981	39082	43187	3.3	7.2	6.3	2.4	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.8	8.8	8.4	8.1	8.0					
Oil	58.7	57.8	51.6	44.5	39.7	38.2	35.8	35.0	34.1					
Natural gas	25.5	27.7	33.6	37.8	39.8	38.4	37.4	36.7	36.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	9.6	12.6	16.5	18.4	20.0					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314639	343155	374831	408989	433727	2.4	1.5	1.8	1.5	
Self consumption and grid losses	30076	32312	36552	38396	33256	37103	40720	44924	47469	2.0	-0.9	2.0	1.5	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	49044	51900	54348	57967	58810	1.7	0.3	1.0	0.8	
Solids	7017	5287	5836	10001	10139	10514	10271	10477	10690	-1.8	5.7	0.1	0.4	
Oil (including refinery gas)	21528	25009	18955	9642	2371	2280	1270	459	481	-1.3	-18.8	-6.0	-9.3	
Gas (including derived gases)	8971	10234	19665	26402	29757	30232	29620	31078	31320	8.2	4.2	0.0	0.6	
Biomass & Waste	39	94	419	2270	1464	3446	7692	10415	10779	26.8	13.3	18.0	3.4	
Geothermal heat	2770	2954	2890	4578	5313	5428	5495	5538	5540	0.4	6.3	0.3	0.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	106703	109244	109631	110794	110601	0.3	0.4	0.3	0.1	
Refineries	91545	92283	96749	102214	97387	97827	96209	96689	96360	0.6	0.1	-0.1	0.0	
Biofuels and hydrogen production	0	0	0	162	4065	6040	8112	8987	9415			7.2	1.5	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5251	5378	5310	5118	4826	-2.8	-1.0	0.1	-1.0	
Energy Branch Consumption	7045	7362	7289	8620	7878	7973	7961	8100	8078	0.3	0.8	0.1	0.1	
Non-Energy Uses	9896	13633	10838	11007	11298	11877	12339	12428	12411	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	142266	148330	152582	157008	160279	1.4	1.4	0.7	0.5	
by sector														
Industry	36221	36430	39489	40729	43419	44689	45555	46628	48071	0.9	1.0	0.5	0.5	
- energy intensive industries	25218	24737	24840	25798	27445	28311	28688	29031	29548	-0.2	1.0	0.4	0.3	
- other industrial sectors	11002	11692	14648	14931	15974	16377	16868	17597	18523	2.9	0.9	0.5	0.9	
Residential	26284	26673	28331	31849	34159	36072	37520	37994	38301	0.8	1.9	0.9	0.2	
Tertiary	11252	12970	14171	17898	18771	19844	20740	21135	21305	2.3	2.9	1.0	0.3	
Transport	33404	37636	41263	43604	45917	47725	48767	51251	52602	2.1	1.1	0.6	0.8	
by fuel														
Solids	4209	4012	3681	4220	4695	4902	4853	4776	4667	-1.3	2.5	0.3	-0.4	
Oil	53623	53099	56147	58196	58372	58196	56283	57607	57272	0.5	0.4	-0.4	0.2	
Gas	29813	34652	37984	43747	44723	44697	45727	45907	45558	2.5	1.6	0.2	0.0	
Electricity	18408	20442	23435	25828	27356	29622	31939	34391	36287	2.4	1.6	1.6	1.3	
Heat (from CHP and District Heating)	0	0	0	0	12	13	15	16	16			2.2	0.8	
Renewable energy forms	1107	1505	2007	2089	7105	10893	13753	14298	16465	6.1	13.5	6.8	1.8	
Other	0	0	0	0	3	6	12	14	14			14.8	1.8	
RES in Gross Final Energy Consumption ^(A)			6472	7301	12488	18858	26655	31065	34993		6.8	7.9	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	566.9	562.3	548.4	551.7	550.2	0.7	0.4	-0.3	0.0	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	439.7	442.2	431.3	434.9	433.6	0.9	0.4	-0.2	0.1	
Power generation/District heating	118.9	126.1	130.7	133.8	119.1	121.3	115.7	117.2	118.5	1.0	-0.9	-0.3	0.2	
Energy Branch	16.6	17.0	16.6	20.2	18.2	18.1	16.9	15.0	14.7	0.1	0.9	-0.8	-1.4	
Industry	79.6	75.4	77.5	81.6	85.2	87.1	86.7	86.7	83.1	-0.3	1.0	0.2	-0.4	
Residential	55.6	52.8	54.7	61.3	64.8	64.8	64.3	64.1	63.6	-0.2	1.7	-0.1	-0.1	
Tertiary	19.1	21.2	22.0	27.2	27.8	25.7	24.9	24.1	23.6	1.4	2.4	-1.1	-0.5	
Transport	97.1	108.9	119.7	126.8	124.6	125.2	122.9	127.8	130.2	2.1	0.4	-0.1	0.6	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.5	38.3	38.9	39.7	40.3	-1.6	2.2	0.3	0.4	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	81.7	78.2	77.1	76.2	0.8	-0.2	-1.3	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	111.8	110.9	108.1	108.8	108.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Italy: EC proposal with JI/CDM & without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.3	117.2	110.4	104.9	99.6	-0.4	-0.1	-1.2	-1.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.29	2.21	2.10	2.05	2.01	-0.3	-0.6	-0.9	-0.4	
Import Dependency %	84.8	82.3	87.3	84.4	84.0	83.0	82.7	81.9	81.1					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	172.4	197.0	224.7	245.0	259.3		2.4	2.7	1.4	
as % of GDP			9.9	10.3	11.2	11.6	12.1	12.1	12.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.8	100.0	92.5	86.2	82.2	-0.3	0.8	-1.5	-1.2	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.7	104.5	99.9	93.7	88.5	-0.9	0.8	-0.8	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.9	110.6	105.5	99.0	93.1	0.4	1.5	-0.9	-1.2	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	31.2	31.5	32.6	32.9	-0.5	-0.1	0.2	0.4	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	53.9	52.3	52.0	51.5	-1.1	1.5	-0.4	-0.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.35	0.31	0.29	0.27	-1.4	-2.4	-2.0	-1.2	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.13	2.04	1.96	1.93	1.87	-0.5	-0.4	-0.8	-0.4	
Industry	2.20	2.07	1.96	2.00	1.96	1.95	1.90	1.86	1.73	-1.1	0.0	-0.3	-1.0	
Residential	2.11	1.98	1.93	1.93	1.90	1.80	1.71	1.69	1.66	-0.9	-0.2	-1.0	-0.3	
Tertiary	1.70	1.63	1.55	1.52	1.48	1.30	1.20	1.14	1.11	-0.9	-0.5	-2.1	-0.8	
Transport	2.91	2.89	2.90	2.91	2.71	2.62	2.52	2.49	2.47	0.0	-0.7	-0.7	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	8.6	12.4	17.1	19.3	21.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	8.3	12.1	16.3	17.4	18.0					
Gross Electricity generation by source (in GWh)														
			270016	296786	314639	343155	374831	408989	433727		1.5	1.8	1.5	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	48870	55161	54071	57075	58387		6.6	1.0	0.8	
Oil (including refinery gas)			82354	43300	11187	10871	5934	2398	2744		-18.1	-6.1	-7.4	
Gas (including derived gases)			109707	154992	196699	204300	210636	216347	213382		6.0	0.7	0.1	
Biomass-waste			2685	7485	6129	15857	36229	55531	64498		8.6	19.4	5.9	
Hydro (pumping excluded)			44328	36061	37714	37714	37714	37714	37714		-1.6	0.0	0.0	
Wind			563	2344	5398	10083	17719	24212	32993		25.4	12.6	6.4	
Solar			18	31	84	386	3417	6548	15136		16.6	44.9	16.0	
Geothermal and other renewables			4682	7417	8559	8784	9111	9163	8872		6.2	0.6	-0.3	
Net Generation Capacity in MW_e			69851	76966	100381	92963	98936	104641	118178		3.7	-0.1	1.8	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17234	20054	26141	33040	46195		1.7	4.3	5.9	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3005	5519	9473	14253	21627		21.5	12.2	8.6	
Solar			26	38	93	349	2353	4471	10191		13.6	38.2	15.8	
Other renewables (tidal etc.)			0	0	0	47	176	177	238				3.1	
<u>Thermal power</u>			55264	61156	83147	72909	72795	71601	71982		4.2	-1.3	-0.1	
of which cogeneration units			9682	10847	11298	11889	14197	15167	15999		1.6	2.3	1.2	
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8	
Gas fired			27466	33995	53563	50038	48507	46283	47360		6.9	-1.0	-0.2	
Oil fired			16795	15253	15327	8124	6024	3765	1129		-0.9	-8.9	-15.4	
Biomass-waste fired			597	1223	1392	4046	7849	11866	13799		8.8	18.9	5.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	1014	1039	1054	1064	1092		2.6	0.4	0.4	
Avg. Load factor of net power capacity (%)			41.7	41.7	34.5	40.6	41.7	42.9	40.4					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.6	48.9	49.9	50.5	50.8					
% of gross electricity from CHP			11.6	8.1	17.6	18.6	21.9	22.2	21.2					
Carbon free gross electricity generation (%)			19.4	18.0	18.4	21.2	27.8	32.6	36.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	18.4	21.2	27.8	32.6	36.7					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	1021.2	1046.5	1077.1	1104.0	3.0	0.3	0.5	0.5	
Public road transport	84.0	87.1	93.6	101.3	107.1	109.9	113.4	115.0	115.5	1.1	1.4	0.6	0.2	
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	790.0	798.1	813.8	828.7	3.3	0.0	0.2	0.4	
Rail	48.9	49.1	52.7	52.3	51.8	52.9	56.2	60.6	64.9	0.8	-0.2	0.8	1.5	
Aviation	21.3	27.9	38.2	43.1	51.3	62.5	72.8	81.5	88.7	6.0	3.0	3.6	2.0	
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.9	6.0	6.1	6.3	-0.8	-0.1	0.3	0.4	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	294.6	302.2	310.3	315.4	2.5	1.6	0.8	0.4	
Trucks	130.9	174.4	184.7	211.8	229.4	242.7	246.8	251.9	254.4	3.5	2.2	0.7	0.3	
Rail	19.4	21.7	22.8	20.1	21.3	23.3	25.4	27.5	29.3	1.7	-0.7	1.8	1.4	
Inland navigation	35.8	35.4	30.2	28.1	28.2	28.6	30.0	30.9	31.6	-1.7	-0.7	0.6	0.5	
Energy demand in transport (ktoe)	33404	37636	41263	43604	45917	47725	48767	51251	52602	2.1	1.1	0.6	0.8	
Public road transport	684	599	656	701	752	769	780	761	731	-0.4	1.4	0.4	-0.7	
Private cars and motorcycles	20584	23615	25521	24557	25011	25424	25910	27504	28393	2.2	-0.2	0.4	0.9	
Trucks	9137	9737	10559	13327	14506	15108	14995	15307	15420	1.5	3.2	0.3	0.3	
Rail	738	819	834	907	919	919	921	947	956	1.2	1.0	0.0	0.4	
Aviation	1872	2418	3491	3863	4481	5257	5909	6476	6846	6.4	2.5	2.8	1.5	
Inland navigation	389	448	202	248	247	247	252	256	257	-6.3	2.0	0.2	0.2	

Source: PRIMES

Italy: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	34487	36289	41529	2440	4451	7169	7.6	14.0	20.9
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	5882	5785	5500	-465	-215	0	-7.3	-3.6	0.0
Natural gas	14030	13622	9886	10000	8000	8000	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	18605	22504	28029	2905	4666	7169	18.5	26.2	34.4
Hydro	2719	3812	3101	3243	3243	3243	97	143	175	3.1	4.6	5.7
Biomass & Waste	849	1716	3505	6571	8214	10849	356	610	1207	5.7	8.0	12.5
Wind	0	48	202	867	1524	2837	9	325	1657	1.0	27.1	140.4
Solar and others	5	12	23	2254	3741	5268	1709	2796	3947	313.3	295.9	298.9
Geothermal	2971	3103	4791	5668	5782	5831	734	792	183	14.9	15.9	3.2
Net Imports	132060	152953	160475	168974	173098	178038	-13143	-19915	-22889	-7.2	-10.3	-11.4
Solids	13792	13188	16366	17536	17210	17279	-2274	-3533	-3879	-11.5	-17.0	-18.3
Oil	89885	88458	79421	74165	71563	71887	-10195	-14629	-14425	-12.1	-17.0	-16.7
- Crude oil and Feedstocks	84284	90244	94404	89786	88248	88845	-7252	-10743	-10559	-7.5	-10.9	-10.6
- Oil products	5602	-1786	-14983	-15622	-16685	-16958	-2943	-3886	-3867	23.2	30.4	29.5
Natural gas	25311	47008	59840	66772	68992	69989	-6125	-11882	-18036	-8.4	-14.7	-20.5
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	199831	205739	215908	-10688	-15432	-15676	-5.1	-7.0	-6.8
Solids	14621	12659	16477	17536	17210	17279	-2274	-3533	-3879	-11.5	-17.0	-18.3
Oil	89860	88947	83169	76417	73700	73728	-10646	-14812	-14381	-12.2	-16.7	-16.3
Natural gas	39001	57940	70651	76772	76992	77989	-6125	-11882	-18036	-7.4	-13.4	-18.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	25157	33981	43187	8356	14796	20619	49.7	77.1	91.4
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.8	8.4	8.0	-0.6	-1.0	-1.1			
Oil	58.7	51.6	44.5	38.2	35.8	34.1	-3.1	-4.2	-3.9			
Natural gas	25.5	33.6	37.8	38.4	37.4	36.1	-1.0	-2.8	-5.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	12.6	16.5	20.0	4.6	7.8	10.3			
Gross Electricity Generation in GWh_e	213400	270016	296786	343155	374831	433727	-50245	-62927	-62473	-12.8	-14.4	-12.6
Self consumption and grid losses	30076	36552	38396	37103	40720	47469	-5471	-6472	-5717	-12.8	-13.7	-10.7
Fuel Inputs to Thermal Power Generation	40325	47764	52894	51900	54348	58810	-8246	-11098	-11950	-13.7	-17.0	-16.9
Solids	7017	5836	10001	10514	10271	10690	-2467	-3408	-3622	-19.0	-24.9	-25.3
Oil (including refinery gas)	21528	18955	9642	2280	1270	481	-4596	-4949	-4597	-66.8	-79.6	-90.5
Gas (including derived gases)	8971	19665	26402	30232	29620	31320	-2602	-7973	-10141	-7.9	-21.2	-24.5
Biomass & Waste	39	419	2270	3446	7692	10779	754	4577	6411	28.0	146.9	146.8
Geothermal heat	2770	2890	4578	5428	5495	5540	664	655	0	13.9	13.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	109244	109631	110601	-3835	-6486	-6211	-3.4	-5.6	-5.3
Refineries	91545	96749	102214	97827	96209	96360	-7727	-10971	-10572	-7.3	-10.2	-9.9
Biofuels and hydrogen production	0	0	162	6040	8112	9415	3393	4199	4139	128.2	107.3	78.4
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5378	5310	4826	499	286	221	10.2	5.7	4.8
Energy Branch Consumption	7045	7289	8620	7973	7961	8078	-481	-710	-605	-5.7	-8.2	-7.0
Non-Energy Uses	9896	10838	11007	11877	12339	12411	-38	-47	-54	-0.3	-0.4	-0.4
Final Energy Demand	107160	123254	134080	146330	152582	160279	-6744	-10049	-11694	-4.3	-6.2	-6.8
by sector												
Industry	36221	39489	40729	44689	45555	48071	-213	-1190	-2189	-0.5	-2.5	-4.4
- energy intensive industries	25218	24840	25798	28311	28688	29548	252	-408	-999	0.9	-1.4	-3.3
- other industrial sectors	11002	14648	14931	16377	16868	18523	-465	-782	-1190	-2.8	-4.4	-6.0
Residential	26284	28331	31849	36072	37520	38301	-1276	-1271	-1497	-3.4	-3.3	-3.8
Tertiary	11252	14171	17898	19844	20740	21305	-3088	-3707	-4537	-13.5	-15.2	-17.6
Transport	33404	41263	43604	47725	48767	52602	-2167	-3882	-3470	-4.3	-7.4	-6.2
by fuel												
Solids	4209	3681	4220	4902	4853	4667	206	-77	-203	4.4	-1.6	-4.2
Oil	53623	56147	58196	58196	56283	57272	-5736	-9347	-9313	-9.0	-14.2	-14.0
Gas	29813	37984	43747	44697	45727	45558	-3436	-3405	-6513	-7.1	-6.9	-12.5
Electricity	18408	23435	25828	29622	31939	36287	-3839	-4828	-4852	-11.5	-13.1	-11.8
Heat (from CHP and District Heating)	0	0	0	13	15	16	-10	-10	-11	-43.0	-39.6	-39.5
Renewable energy forms	1107	2007	2089	10893	13753	16465	6070	7616	9204	125.9	124.1	126.8
Other	0	0	0	6	12	14	1	1	-6	13.4	12.5	-29.8
RES in Gross Final Energy Consumption ^(A)		6472	7301	18858	26655	34993	7101	13030	19124	60.4	95.6	120.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	562.3	548.4	550.2	-62.1	-96.2	-111.1	-9.9	-14.9	-16.8
CO₂ Emissions (energy related)	386.9	421.3	451.0	442.2	431.3	433.6	-55.9	-87.1	-101.6	-11.2	-16.8	-19.0
Power generation/District heating	118.9	130.7	133.8	121.3	115.7	118.5	-30.5	-47.9	-52.7	-20.1	-29.3	-30.8
Energy Branch	16.6	16.6	20.2	18.1	16.9	14.7	-1.1	-2.6	-4.4	-5.6	-13.4	-22.9
Industry	79.6	77.5	81.6	87.1	86.7	83.1	0.1	-2.6	-9.5	0.1	-2.9	-10.3
Residential	55.6	54.7	61.3	64.8	64.3	63.6	-5.4	-7.1	-8.2	-7.7	-10.0	-11.4
Tertiary	19.1	22.0	27.2	25.7	24.9	23.6	-4.4	-4.9	-5.3	-14.6	-16.5	-18.4
Transport	97.1	119.7	126.8	125.2	122.9	130.2	-14.5	-22.0	-21.5	-10.4	-15.2	-14.2
CO₂ Emissions (non energy related)	35.5	30.2	36.1	38.3	38.9	40.3	-0.1	-0.7	-0.9	-0.3	-1.7	-2.2
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	81.7	78.2	76.2	-6.1	-8.4	-8.6	-6.9	-9.7	-10.1
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	110.9	108.1	108.5	-12.2	-19.0	-21.9			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Italy: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	117.2	110.4	99.6	-6.3	-8.3	-7.2	-5.1	-7.0	-6.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.21	2.10	2.01	-0.15	-0.25	-0.30	-6.5	-10.6	-13.1
Import Dependency %	84.8	87.3	84.4	83.0	82.7	81.1	-2.0	-3.2	-4.3			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	197.0	224.7	259.3	7.7	14.2	24.8	4.1	6.8	10.6
as % of GDP		9.9	10.3	11.6	12.1	12.0	0.5	0.8	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				7.8	14.4	24.9						
as % of GDP				0.46	0.77	1.15						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	100.0	92.5	82.2	-0.5	-2.4	-3.7	-0.5	-2.5	-4.4
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	104.5	99.9	88.5	-3.7	-3.4	-3.5	-3.4	-3.3	-3.8
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	110.6	105.5	93.1	-17.2	-18.8	-19.8	-13.5	-15.2	-17.6
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	31.2	31.5	32.9	-0.5	-0.8	0.6	-1.6	-2.5	1.9
Freight transport (toe/Mtkm)	53.0	47.3	54.0	53.9	52.3	51.5	-2.3	-4.4	-6.0	-4.1	-7.7	-10.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.35	0.31	0.27	-0.03	-0.07	-0.07	-8.4	-17.4	-20.8
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.04	1.96	1.87	-0.07	-0.10	-0.13	-3.2	-5.1	-6.6
Industry	2.20	1.96	2.00	1.95	1.90	1.73	0.01	-0.01	-0.11	0.6	-0.4	-6.2
Residential	2.11	1.93	1.93	1.80	1.71	1.66	-0.08	-0.13	-0.14	-4.5	-6.9	-8.0
Tertiary	1.70	1.55	1.52	1.30	1.20	1.11	-0.02	-0.02	-0.01	-1.4	-1.5	-1.0
Transport	2.91	2.90	2.91	2.62	2.52	2.47	-0.18	-0.23	-0.23	-6.3	-8.4	-8.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	12.4	17.1	21.3	5.0	8.9	12.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	12.1	16.3	18.0	6.9	9.0	8.6			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	343155	374831	433727	433727	-50245	-62927	-62473	-12.8	-14.4	-12.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	55161	54071	58387	58387	-10903	-15581	-20349	-16.5	-22.4	-25.8
Oil (including refinery gas)	82354	43300	10871	5934	2744	2744	-23053	-24176	-27073	-68.0	-80.3	-90.8
Gas (including derived gases)	109707	154992	204300	210636	213382	213382	-21774	-54008	-92537	-9.6	-20.4	-30.2
Biomass-waste	2685	7485	15857	36229	64498	64498	3215	21615	42646	25.4	147.9	195.2
Hydro (pumping excluded)	44328	36061	37714	37714	37714	37714	1131	1666	2036	3.1	4.6	5.7
Wind	563	2344	10083	17719	32993	32993	103	3776	19267	1.0	27.1	140.4
Solar	18	31	386	3417	15136	15136	8	2609	13224	2.2	322.9	691.3
Geothermal and other renewables	4682	7417	8784	9111	8872	8872	1028	1172	312	13.3	14.8	3.7
Net Generation Capacity in MW_e												
Total	69851	76966	92963	98936	118178	118178	-5532	-4818	-284	-5.6	-4.6	-0.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	14588	15810	20054	26141	46195	46195	52	3807	23049	0.3	17.0	99.6
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5519	9473	21627	21627	-1	2004	14416	0.0	26.8	199.9
Solar	26	38	349	2353	10191	10191	5	1656	8471	1.5	237.6	492.3
Other renewables (tidal etc.)	0	0	47	176	238	238	47	146	162		488.2	212.8
<u>Thermal power</u>	55264	61156	72909	72795	71982	71982	-5584	-8624	-23333	-7.1	-10.6	-24.5
of which cogeneration units	9682	10847	11889	14197	15999	15999	-3024	-3187	-2754	-20.3	-18.3	-14.7
Solids fired	9621	9715	9662	9361	8602	8602	-269	-533	-1215	-2.7	-5.4	-12.4
Gas fired	27466	33995	50038	48507	47360	47360	-6875	-13283	-27569	-12.1	-21.5	-36.8
Oil fired	16795	15253	8124	6024	1129	1129	234	172	-4803	3.0	2.9	-81.0
Biomass-waste fired	597	1223	4046	7849	13799	13799	1258	4937	10266	45.1	169.5	290.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	1039	1054	1092	1092	69	84	-13	7.1	8.6	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	40.6	41.7	40.4	40.4	-3.3	-4.8	-5.9			
Efficiency of gross thermal power generation (%)	40.5	42.0	48.9	49.9	50.8	50.8	-0.7	-0.9	-3.2			
% of gross electricity from CHP	11.6	8.1	18.6	21.9	21.2	21.2	-2.2	-1.5	-2.1			
Carbon free gross electricity generation (%)	19.4	18.0	21.2	27.8	36.7	36.7	4.1	11.0	20.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	21.2	27.8	36.7	36.7	4.1	11.0	20.2			
Transport sector												
Passenger transport activity (Gpkm)												
Total	722.2	969.5	980.5	1021.2	1046.5	1104.0	-17.3	-31.8	-42.2	-1.7	-3.0	-3.7
Public road transport	84.0	93.6	101.3	109.9	113.4	115.5	1.7	3.0	3.8	1.5	2.7	3.4
Private cars and motorcycles	561.6	779.1	777.9	790.0	798.1	828.7	-18.9	-34.7	-45.8	-2.3	-4.2	-5.2
Rail	48.9	52.7	52.3	52.9	56.2	64.9	0.9	1.3	1.6	1.7	2.3	2.5
Aviation	21.3	38.2	43.1	62.5	72.8	88.7	-0.9	-1.3	-1.8	-1.5	-1.8	-1.9
Inland navigation	6.4	5.9	5.8	5.9	6.0	6.3	0.0	0.0	0.0	-0.8	-0.3	0.0
Freight transport activity (Gtkm)												
Total	186.1	237.6	260.0	294.6	302.2	315.4	-7.4	-12.3	-15.6	-2.5	-3.9	-4.7
Trucks	130.9	184.7	211.8	242.7	246.8	254.4	-8.9	-14.6	-18.6	-3.5	-5.6	-6.8
Rail	19.4	22.8	20.1	23.3	25.4	29.3	1.0	1.5	2.0	4.7	6.3	7.2
Inland navigation	35.8	30.2	28.1	28.6	30.0	31.6	0.5	0.8	1.0	1.6	2.7	3.3
Energy demand in transport (ktoe)												
Total	33404	41263	43604	47725	48767	52602	-2167	-3882	-3470	-4.3	-7.4	-6.2
Public road transport	684	656	701	769	780	731	-7	-16	-47	-1.0	-2.0	-6.0
Private cars and motorcycles	20584	25521	24557	25424	25910	28393	-931	-1619	-149	-3.5	-5.9	-0.5
Trucks	9137	10559	13327	15108	14995	15420	-1116	-2065	-2902	-6.9	-12.1	-15.8
Rail	738	834	907	919	921	956	-2	23	88	-0.2	2.5	10.2
Aviation	1872	3491	3863	5257	5909	6846	-111	-204	-460	-2.1	-3.3	-6.3
Inland navigation	389	202	248	247	252	257	-1	0	-2	-0.2	0.0	-0.6

Source: PRIMES

Latvia: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
													Annual % Change		
Primary Production	1245	1639	1576	2304	2597	2959	3537	3601	3849	2.4	5.1	3.1	0.8		
Solids	182	234	49	6	4	3	3	0	0	-12.3	-22.6	-2.9			
Oil	1	0	0	7	0	0	0	0	0						
Natural gas	0	0	0	0	0	0	0	0	0						
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	1062	1405	1527	2291	2594	2956	3535	3601	3849	3.7	5.4	3.1	0.9		
Hydro	387	253	242	286	261	247	261	262	260	-4.6	0.7	0.0	0.0		
Biomass & Waste	675	1153	1284	2001	2302	2638	3160	3192	3420	6.6	6.0	3.2	0.8		
Wind	0	0	0	4	30	69	108	139	157		56.5	13.5	3.8		
Solar and others	0	0	0	0	0	2	5	8	11			26.8	8.1		
Geothermal	0	0	0	0	0	0	0	0	0			3.4	0.5		
Net Imports	7440	3358	2253	2783	3068	3467	3453	3868	3964	-11.3	3.1	1.2	1.4		
Solids	627	170	62	76	76	64	66	74	76	-20.7	2.1	-1.4	1.4		
Oil	3944	2086	1096	1662	1969	2281	2327	2531	2582	-12.0	6.0	1.7	1.0		
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.6	2.3	0.5		
- Oil products	3942	2084	1003	1658	1968	2279	2325	2529	2581	-12.8	7.0	1.7	1.0		
Natural gas	2561	999	1113	1434	1511	1696	1740	1869	1976	-8.0	3.1	1.4	1.3		
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3		
Gross Inland Consumption	8059	4854	4007	4720	5341	6034	6541	6969	7277	-6.7	2.9	2.0	1.1		
Solids	867	456	252	83	80	68	69	74	76	-11.6	-10.9	-1.4	0.9		
Oil	3458	1885	1155	1376	1645	1888	1877	2031	2047	-10.4	3.6	1.3	0.9		
Natural gas	2380	1010	1092	1358	1511	1696	1740	1869	1976	-7.5	3.3	1.4	1.3		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3		
Renewable energy forms	1045	1309	1354	1718	1934	2200	2629	2687	2869	2.6	3.6	3.1	0.9		
as % in Gross Inland Consumption															
Solids	10.8	9.4	6.3	1.8	1.5	1.1	1.1	1.1	1.0						
Oil	42.9	38.8	28.8	29.2	30.8	31.3	28.7	29.1	28.1						
Natural gas	29.5	20.8	27.3	28.8	28.3	28.1	26.6	26.8	27.2						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	13.0	27.0	33.8	36.4	36.2	36.5	40.2	38.6	39.4						
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6351	7772	8917	9815	11354	-4.6	4.4	3.5	2.4		
Self consumption and grid losses	1248	732	720	783	480	580	668	781	916	-5.4	-4.0	3.4	3.2		
Fuel Inputs to Thermal Power Generation	926	722	607	591	559	782	868	955	1169	-4.1	-0.8	4.5	3.0		
Solids	59	194	142	0	0	0	0	0	0	9.2					
Oil (including refinery gas)	177	242	77	13	0	42	0	0	0	-8.0					
Gas (including derived gases)	690	286	388	541	526	698	771	787	894	-5.6	3.1	3.9	1.5		
Biomass & Waste	0	0	0	37	34	42	97	168	275			11.1	11.0		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	2601	941	645	591	673	709	807	815	827	-13.0	0.4	1.8	0.3		
Refineries	1	1	1	1	1	2	2	2	2	0.0	1.9	2.3	0.5		
Biofuels and hydrogen production	0	0	0	3	51	87	159	186	204			12.0	2.5		
District heating	2573	930	643	587	621	621	646	628	622	-12.9	-0.3	0.4	-0.4		
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3					
Energy Branch Consumption	130	149	151	102	102	114	119	125	129	1.5	-3.8	1.5	0.8		
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1		
Final Energy Demand	6445	3880	3332	4046	4794	5346	5798	6180	6401	-6.4	3.7	1.9	1.0		
by sector															
Industry	1972	701	614	827	1137	1330	1507	1712	1872	-11.0	6.4	2.9	2.2		
- energy intensive industries	707	305	219	282	452	531	560	592	611	-11.1	7.5	2.2	0.9		
- other industrial sectors	1265	396	396	545	685	799	947	1120	1260	-11.0	5.6	3.3	2.9		
Residential	1632	1663	1368	1476	1545	1593	1682	1739	1764	-1.7	1.2	0.9	0.5		
Tertiary	1747	804	606	744	856	947	993	1024	1025	-10.0	3.5	1.5	0.3		
Transport	1094	712	744	999	1255	1476	1616	1705	1740	-3.8	5.4	2.6	0.7		
by fuel															
Solids	330	126	58	73	75	63	64	73	75	-16.0	2.7	-1.6	1.6		
Oil	2047	1119	1003	1220	1436	1632	1698	1889	1901	-6.9	3.6	1.7	1.1		
Gas	672	366	329	508	575	677	715	915	924	-6.9	5.7	2.2	2.6		
Electricity	768	470	443	537	674	797	932	1083	1205	-5.3	4.3	3.3	2.6		
Heat (from CHP and District Heating)	2013	905	590	598	567	578	621	625	647	-11.5	-0.4	0.9	0.4		
Renewable energy forms	616	894	909	1111	1467	1598	1768	1595	1648	4.0	4.9	1.9	-0.7		
Other	0	0	0	0	0	0	1	1	1			18.4	4.4		
RES in Gross Final Energy Consumption ^(A)			1305	1787	1886	2119	2495	2507	2658		3.8	2.8	0.6		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	13.3	14.4	14.7	14.9	14.9	-9.3	2.7	1.0	0.1		
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.5	9.5	9.6	10.3	10.6	-9.7	2.0	1.3	1.1		
Power generation/District heating	10.0	4.5	2.8	2.1	2.5	2.8	2.5	2.2	2.4	-12.0	-1.2	0.2	-0.5		
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	5.0	-10.7	0.3	0.5		
Industry	2.5	1.3	0.9	1.0	1.2	1.4	1.4	2.3	2.3	-9.7	2.9	1.4	5.3		
Residential	1.2	0.5	0.3	0.5	0.6	0.6	0.7	0.8	0.9	-13.7	6.9	2.1	2.5		
Tertiary	2.1	0.8	0.5	0.6	0.6	0.6	0.6	0.6	0.5	-12.8	0.8	-0.1	-0.8		
Transport	3.2	2.1	2.2	2.9	3.6	4.1	4.3	4.5	4.4	-3.7	5.1	2.0	0.2		
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	1.0	1.2	1.4	1.5	-8.5	11.4	5.4	2.5		
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.8	4.0	3.2	2.8	-8.3	3.0	-0.5	-3.5		
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	49.1	53.0	54.3	55.1	55.1						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	282.9	237.5	205.6	182.2	167.9	-3.4	-4.8	-3.1	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.58	1.58	1.46	1.48	1.46	-3.1	-0.9	-0.8	0.0
Import Dependency %	87.3	67.1	56.1	55.9	54.2	53.9	49.4	51.8	50.7				
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.2	5.1	5.7	6.1		6.6	4.1	2.0
as % of GDP			20.5	18.8	17.9	16.6	15.9	14.8	14.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.6	71.8	64.0	60.1	58.0	-3.7	-1.7	-2.7	-1.0
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.0	39.4	33.4	28.9	26.0	1.7	-6.5	-4.1	-2.5
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	64.9	53.2	44.5	38.1	33.5	-10.7	-4.2	-3.7	-2.8
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.6	29.7	27.8	26.4	1.4	-0.5	-1.1	-1.2
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	17.4	17.2	16.8	16.3	-2.5	-0.1	0.1	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.17	0.17	0.14	0.12	0.12	-3.0	-2.2	-2.0	-1.7
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.25	1.21	1.31	1.28	-1.8	0.5	-0.2	0.6
Industry	1.28	1.88	1.48	1.26	1.07	1.03	0.92	1.34	1.24	1.5	-3.2	-1.4	3.0
Residential	0.75	0.31	0.21	0.33	0.36	0.38	0.40	0.45	0.49	-12.1	5.6	1.2	2.0
Tertiary	1.21	1.02	0.89	0.85	0.68	0.62	0.58	0.54	0.52	-3.0	-2.6	-1.6	-1.1
Transport	2.90	2.89	2.92	2.94	2.85	2.81	2.69	2.62	2.56	0.1	-0.2	-0.6	-0.5
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	38.2	38.6	42.0	39.7	40.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.4	9.1	10.2	11.2				
Gross Electricity generation by source (in GWh)													
			4135	4904	6351	7772	8917	9815	11354		4.4	3.5	2.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			91	0	0	0	0	0	0				
Oil (including refinery gas)			117	0	0	161	0	0	0				
Gas (including derived gases)			1104	1490	2817	3760	4160	4329	5179		9.8	4.0	2.2
Biomass-waste			0	43	144	184	457	820	1321			12.3	11.2
Hydro (pumping excluded)			2818	3324	3036	2869	3040	3042	3026		0.7	0.0	0.0
Wind			4	47	353	797	1256	1619	1822		56.5	13.5	3.8
Solar			0	0	0	2	3	5	7			21.7	7.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2062	2144	2770	2989	3199	3136	3423		3.0	1.4	0.7
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1519	1578	1732	1938	2179	2345	2446		1.3	2.3	1.2
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0
Wind			2	24	172	372	606	764	858		56.1	13.4	3.5
Solar			0	0	1	4	7	11	14			21.4	7.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			543	565	1038	1051	1019	791	977		6.7	-0.2	-0.4
of which cogeneration units			542	564	433	571	555	612	629		-2.2	2.5	1.3
Solids fired			29	2	2	2	2	0	0		-23.3	1.1	
Gas fired			414	502	949	957	886	659	772		8.7	-0.7	-1.4
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0
Biomass-waste fired			2	16	27	31	70	116	189		27.8	9.9	10.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			20.4	23.5	25.7	29.1	31.3	35.1	37.2				
Efficiency of gross thermal power generation (%)			18.6	22.3	45.5	45.1	45.7	46.3	47.8				
% of gross electricity from CHP			24.0	11.8	43.5	42.2	39.8	37.0	32.9				
Carbon free gross electricity generation (%)			68.3	69.6	55.6	49.6	53.3	55.9	54.4				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			68.3	69.6	55.6	49.6	53.3	55.9	54.4				
Transport sector													
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.6	25.0	27.2	28.7	-3.6	4.7	2.5	1.4
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.3	3.3	-8.7	2.7	0.6	0.2
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	17.3	19.3	21.2	22.4	4.2	5.4	2.8	1.5
Rail	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.3	-15.5	3.2	2.8	1.6
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.8	2.4
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4			
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	43.6	50.6	56.5	60.2	-3.1	7.0	3.6	1.8
Trucks	5.9	1.8	4.8	8.4	11.8	15.9	19.6	23.3	26.2	-2.0	9.5	5.2	2.9
Rail	18.5	9.8	13.3	17.9	23.7	27.7	31.0	33.2	34.0	-3.3	5.9	2.7	0.9
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1094	712	744	999	1255	1476	1616	1705	1740	-3.8	5.4	2.6	0.7
Public road transport	111	41	23	25	26	25	25	22	21	-14.6	1.3	-0.5	-1.4
Private cars and motorcycles	317	284	373	451	539	595	620	632	633	1.7	3.7	1.4	0.2
Trucks	370	240	241	371	495	631	741	851	927	-4.2	7.5	4.1	2.3
Rail	188	90	75	93	118	134	134	102	59	-8.7	4.6	1.3	-7.8
Aviation	73	26	27	59	77	91	96	99	99	-9.6	11.1	2.2	0.3
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7			

Source: PRIMES

Latvia: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	2959	3537	3849	101	400	474	3.5	12.7	14.0
Solids	182	49	6	3	3	0	0	-1	-3	-7.7	-20.5	-100.0
Oil	1	0	7	0	0	0	0	0	0	9.7	0.5	42.4
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1062	1527	2291	2956	3535	3849	101	400	477	3.5	12.8	14.1
Hydro	387	242	286	247	261	260	3	0	0	1.1	0.0	0.1
Biomass & Waste	675	1284	2001	2638	3160	3420	99	383	437	3.9	13.8	14.7
Wind	0	0	4	69	108	157	-1	16	35	-1.9	17.0	28.5
Solar and others	0	0	0	2	5	11	0	2	4	27.7	49.4	62.6
Geothermal	0	0	0	0	0	0	0	0	0	15.1	19.8	23.2
Net Imports	7440	2253	2783	3467	3453	3964	-411	-824	-997	-10.6	-19.3	-20.1
Solids	627	62	76	64	66	76	-8	-17	-12	-10.4	-20.0	-13.4
Oil	3944	1096	1662	2281	2327	2582	-162	-330	-449	-6.6	-12.4	-14.8
- Crude oil and Feedstocks	1	93	4	2	2	2	0	0	0	-5.1	-10.7	-14.5
- Oil products	3942	1003	1658	2279	2325	2581	-162	-329	-449	-6.6	-12.4	-14.8
Natural gas	2561	1113	1434	1696	1740	1976	-213	-368	-411	-11.1	-17.5	-17.2
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	6034	6541	7277	-310	-424	-522	-4.9	-6.1	-6.7
Solids	867	252	83	68	69	76	-8	-17	-15	-10.3	-20.1	-16.2
Oil	3458	1155	1376	1888	1877	2047	-162	-329	-448	-7.9	-14.9	-18.0
Natural gas	2380	1092	1358	1696	1740	1976	-213	-368	-411	-11.1	-17.5	-17.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2200	2629	2869	72	291	352	3.4	12.4	14.0
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.1	1.1	1.0	-0.1	-0.2	-0.1			
Oil	42.9	28.8	29.2	31.3	28.7	28.1	-1.0	-3.0	-3.9			
Natural gas	29.5	27.3	28.8	28.1	26.6	27.2	-2.0	-3.7	-3.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	36.5	40.2	39.4	2.9	6.6	7.1			
Gross Electricity Generation in GWh_e	6647	4135	4904	7772	8917	11354	-463	-315	345	-5.6	-3.4	3.1
Self consumption and grid losses	1248	720	783	580	668	916	-57	-72	4	-9.0	-9.7	0.5
Fuel Inputs to Thermal Power Generation	926	607	591	782	868	1169	-95	-113	-11	-10.9	-11.5	-0.9
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	42	0	0	0	-41	0	0.0	-100.0	
Gas (including derived gases)	690	388	541	698	771	894	-47	-85	-128	-6.3	-10.0	-12.5
Biomass & Waste	0	0	37	42	97	275	-48	14	117	-53.5	16.9	74.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	709	807	827	-58	-18	-76	-7.5	-2.2	-8.4
Refineries	1	1	1	2	2	2	0	0	0	-5.1	-10.7	-14.5
Biofuels and hydrogen production	0	0	3	87	159	204	10	33	14	13.3	25.8	7.4
District heating	2573	643	587	621	646	622	-68	-50	-90	-9.9	-7.2	-12.6
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	114	119	129	-15	-22	-26	-11.7	-15.5	-16.6
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5346	5798	6401	-243	-353	-509	-4.4	-5.7	-7.4
by sector												
Industry	1972	614	827	1330	1507	1872	-20	-57	-60	-1.5	-3.6	-3.1
- energy intensive industries	707	219	282	531	560	611	-2	-8	-6	-0.4	-1.4	-0.9
- other industrial sectors	1265	396	545	799	947	1260	-18	-49	-55	-2.2	-4.9	-4.1
Residential	1632	1368	1476	1593	1682	1764	-84	-70	-82	-5.0	-4.0	-4.4
Tertiary	1747	606	744	947	993	1025	-65	-82	-124	-6.4	-7.6	-10.8
Transport	1094	744	999	1476	1616	1740	-74	-145	-243	-4.8	-8.2	-12.3
by fuel												
Solids	330	58	73	63	64	75	-8	-10	-7	-10.8	-13.9	-9.0
Oil	2047	1003	1220	1632	1698	1901	-136	-229	-381	-7.7	-11.9	-16.7
Gas	672	329	508	677	715	924	-52	-92	-138	-7.1	-11.4	-13.0
Electricity	768	443	537	797	932	1205	-35	-21	30	-4.2	-2.2	2.5
Heat (from CHP and District Heating)	2013	590	598	578	621	647	-115	-114	-153	-16.6	-15.5	-19.1
Renewable energy forms	616	909	1111	1598	1768	1648	102	113	140	6.8	6.8	9.3
Other	0	0	0	0	1	1	0	0	0	6.5	1.2	-3.9
RES in Gross Final Energy Consumption ^(A)		1305	1787	2119	2495	2658	92	265	324	4.5	11.9	13.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	14.4	14.7	14.9	-1.7	-3.0	-3.3	-10.7	-16.9	-18.0
CO₂ Emissions (energy related)	19.2	6.9	7.3	9.5	9.6	10.6	-1.0	-1.9	-2.4	-9.7	-16.9	-18.4
Power generation/District heating	10.0	2.8	2.1	2.8	2.5	2.4	-0.3	-0.8	-0.7	-9.2	-24.0	-21.4
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.1	-0.2	-0.2	-0.2	-68.6	-71.8	-73.7
Industry	2.5	0.9	1.0	1.4	1.4	2.3	-0.2	-0.3	-0.5	-12.6	-16.5	-17.8
Residential	1.2	0.3	0.5	0.6	0.7	0.9	-0.1	-0.1	-0.1	-9.3	-10.5	-10.3
Tertiary	2.1	0.5	0.6	0.6	0.6	0.5	-0.1	-0.1	-0.1	-8.9	-10.7	-15.1
Transport	3.2	2.2	2.9	4.1	4.3	4.4	-0.3	-0.5	-0.8	-5.7	-10.9	-15.6
CO₂ Emissions (non energy related)	0.6	0.2	0.2	1.0	1.2	1.5	0.0	0.0	0.0	-0.4	-1.1	-1.4
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.8	4.0	2.8	-0.7	-1.0	-0.8	-15.0	-20.7	-23.4
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	53.0	54.3	55.1	-6.3	-11.1	-12.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Latvia: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	237.5	205.6	167.9	-12.2	-13.3	-12.0	-4.9	-6.1	-6.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.58	1.46	1.46	-0.08	-0.19	-0.21	-5.1	-11.5	-12.5
Import Dependency %	87.3	56.1	55.9	53.9	49.4	50.7	-3.6	-8.3	-8.8			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.2	5.1	6.1	0.2	0.3	0.3	3.7	5.4	5.5
as % of GDP		20.5	18.8	16.6	15.9	14.2	0.6	0.8	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.3						
as % of GDP				0.63	0.86	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	71.8	64.0	58.0	-1.1	-2.4	-1.9	-1.5	-3.6	-3.1
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	39.4	33.4	26.0	-2.1	-1.4	-1.2	-5.0	-4.0	-4.4
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	53.2	44.5	33.5	-3.7	-3.7	-4.1	-6.4	-7.6	-10.8
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.6	29.7	26.4	-0.7	-1.1	-1.4	-2.0	-3.5	-4.9
Freight transport (toe/Mtkm)	22.3	17.3	17.5	17.4	17.2	16.3	-0.9	-1.6	-2.5	-5.1	-8.6	-13.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.17	0.14	0.12	0.00	-0.03	-0.03	-1.4	-19.0	-17.7
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.25	1.21	1.28	-0.05	-0.09	-0.13	-3.6	-6.7	-8.9
Industry	1.28	1.48	1.26	1.03	0.92	1.24	-0.13	-0.14	-0.22	-11.3	-13.4	-15.1
Residential	0.75	0.21	0.33	0.38	0.40	0.49	-0.02	-0.03	-0.03	-4.6	-6.8	-6.1
Tertiary	1.21	0.89	0.85	0.62	0.58	0.52	-0.02	-0.02	-0.03	-2.7	-3.4	-4.9
Transport	2.90	2.92	2.94	2.81	2.69	2.56	-0.03	-0.08	-0.10	-1.0	-2.9	-3.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	38.6	42.0	40.7	40.7	3.3	6.6	7.6			
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.4	9.1	11.2	11.2	0.9	2.5	2.2			
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7772	8917	11354	11354	-463	-315	345	-5.6	-3.4	3.1
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	161	0	0	0	0	-159	0	0.0	-100.0	
Gas (including derived gases)	1104	1490	3760	4160	5179	5179	-223	-383	-612	-5.6	-8.4	-10.6
Biomass-waste	0	43	184	457	1321	1321	-255	43	550	-58.2	10.4	71.4
Hydro (pumping excluded)	2818	3324	2869	3040	3026	3026	30	1	3	1.1	0.0	0.1
Wind	4	47	797	1256	1822	1822	-15	182	404	-1.9	17.0	28.5
Solar	0	0	2	3	7	7	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2062	2144	2989	3199	3423	3423	-63	109	202	-2.1	3.5	6.3
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1519	1578	1938	2179	2446	2446	-33	90	193	-1.7	4.3	8.6
Hydro (pumping excluded)	1517	1554	1563	1567	1574	1574	0	0	0	0.0	0.0	0.0
Wind	2	24	372	606	858	858	-33	90	193	-8.1	17.5	29.0
Solar	0	0	4	7	14	14	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	543	565	1051	1019	977	977	-30	19	9	-2.8	1.9	0.9
of which cogeneration units	542	564	571	555	629	629	7	-203	-115	1.3	-26.8	-15.4
Solids fired	29	2	2	2	0	0	0	0	0	0.0	0.0	
Gas fired	414	502	957	886	772	772	0	10	-81	0.0	1.2	-9.4
Oil fired	98	45	61	62	15	15	0	0	0	0.0	0.0	0.0
Biomass-waste fired	2	16	31	70	189	189	-30	8	90	-49.5	13.4	90.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	29.1	31.3	37.2	37.2	-1.0	-2.1	-1.1			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.1	45.7	47.8	47.8	0.2	0.9	0.0			
% of gross electricity from CHP	24.0	11.8	42.2	39.8	32.9	32.9	0.0	2.0	-8.1			
Carbon free gross electricity generation (%)	68.3	69.6	49.6	53.3	54.4	54.4	-0.1	4.3	7.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	49.6	53.3	54.4	54.4	-0.1	4.3	7.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	12.3	15.8	22.6	25.0	28.7	-0.3	-0.5	-0.7	-1.1	-1.9	-2.5
Private cars and motorcycles	5.9	2.3	2.8	3.2	3.3	3.3	0.1	0.1	0.1	1.7	2.6	3.1
Rail	5.8	8.7	11.6	17.3	19.3	22.4	-0.3	-0.6	-0.9	-1.8	-3.0	-3.7
Aviation	5.8	1.1	1.3	1.7	1.9	2.3	0.0	0.0	0.1	1.8	2.6	3.2
Inland navigation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-2.3	-3.2	-3.6
Freight transport activity (Gtkm)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	24.8	18.1	26.3	43.6	50.6	60.2	-0.6	-1.1	-1.8	-1.3	-2.1	-2.9
Rail	5.9	4.8	8.4	15.9	19.6	26.2	-0.8	-1.4	-2.3	-5.0	-6.9	-8.0
Inland navigation	18.5	13.3	17.9	27.7	31.0	34.0	0.2	0.4	0.5	0.9	1.2	1.4
Energy demand in transport (ktoe)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1094	744	999	1476	1616	1740	-74	-145	-243	-4.8	-8.2	-12.3
Private cars and motorcycles	111	23	25	25	25	21	0	0	-2	-0.4	-1.4	-9.4
Trucks	317	373	451	595	620	633	-19	-34	-45	-3.1	-5.1	-6.7
Rail	370	241	371	631	741	927	-52	-102	-180	-7.5	-12.1	-16.3
Aviation	188	75	93	134	134	59	0	0	-4	0.0	-0.4	-6.5
Inland navigation	73	27	59	91	96	99	-4	-8	-11	-4.0	-7.5	-10.2
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	4768	3724	3210	3721	1176	1423	4662	4976	5509	-3.9	-9.6	14.8	1.7
Solids	42	43	35	39	9	7	5	3	3	-1.7	-12.4	-6.7	-4.1
Oil	12	130	347	239	235	261	266	268	271	40.0	-3.8	1.2	0.2
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Renewable energy sources	321	501	656	777	931	1155	1592	1859	2344	7.4	3.6	5.5	3.9
Hydro	36	32	29	39	34	36	36	36	37	-2.0	1.5	0.6	0.3
Biomass & Waste	285	469	627	735	880	1077	1498	1744	2189	8.2	3.5	5.5	3.9
Wind	0	0	0	0	17	41	55	73	109			12.6	7.1
Solar and others	0	0	0	0	1	1	3	6	8			20.9	9.1
Geothermal	0	0	0	3	0	0	0	0	0			2.8	1.2
Net Imports	11666	5643	4327	5096	6750	7596	6298	6635	6774	-9.4	4.5	-0.7	0.7
Solids	758	157	84	190	285	275	256	260	268	-19.8	13.0	-1.1	0.4
Oil	7260	3686	2299	2677	2833	3117	3160	3180	3213	-10.9	2.1	1.1	0.2
- Crude oil and Feedstocks	9531	3609	4827	9054	9930	10957	11143	11234	11357	-6.6	7.5	1.2	0.2
- Oil products	-2271	77	-2528	-6377	-7097	-7840	-7983	-8054	-8144				
Natural gas	4678	2029	2065	2492	3631	4302	3339	3653	3769	-7.9	5.8	-0.8	1.2
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Gross Inland Consumption	16071	8706	7080	8606	7757	8828	10756	11398	12070	-7.9	0.9	3.3	1.2
Solids	831	285	121	215	295	282	261	264	271	-17.5	9.3	-1.2	0.4
Oil	6878	3080	2190	2746	2900	3187	3221	3235	3271	-10.8	2.8	1.1	0.2
Natural gas	4678	2029	2064	2476	3631	4302	3339	3653	3769	-7.9	5.8	-0.8	1.2
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Renewable energy forms	320	493	649	758	908	1127	1553	1814	2286	7.3	3.4	5.5	3.9
as % in Gross Inland Consumption													
Solids	5.2	3.3	1.7	2.5	3.8	3.2	2.4	2.3	2.2				
Oil	42.8	35.4	30.9	31.9	37.4	36.1	29.9	28.4	27.1				
Natural gas	29.1	23.3	29.1	28.8	46.8	48.7	31.0	32.0	31.2				
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	26.0	25.0	24.0				
Renewable energy forms	2.0	5.7	9.2	8.8	11.7	12.8	14.4	15.9	18.9				
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11459	14435	21289	23209	25364	-9.0	0.3	6.4	1.8
Self consumption and grid losses	3486	2241	1906	1788	871	1075	1664	1854	2110	-5.9	-7.5	6.7	2.4
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2273	2765	1665	1955	2254	-10.0	9.6	-3.1	3.1
Solids	0	0	0	0	104	104	90	95	100			-1.4	1.0
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.1	
Gas (including derived gases)	1543	433	716	1044	2129	2611	1467	1673	1784	-7.4	11.5	-3.7	2.0
Biomass & Waste	0	0	0	5	39	51	108	187	370			10.6	13.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11408	4490	5755	9951	10557	11673	12118	12115	12137	-6.6	6.3	1.4	0.0
Refineries	9561	3392	5086	9418	10098	11179	11388	11491	11622	-6.1	7.1	1.2	0.2
Biofuels and hydrogen production	0	0	0	3	14	57	170	192	201			28.3	1.7
District heating	1823	1079	657	522	441	435	559	430	312	-9.7	-3.9	2.4	-5.7
Derived gases, cokeries etc.	24	18	12	8	4	2	2	1	1	-7.0	-10.2	-8.8	-2.8
Energy Branch Consumption	991	601	655	915	776	870	959	997	1036	-4.1	1.7	2.1	0.8
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0
Final Energy Demand	9696	4728	3820	4527	5128	5734	6181	6597	7019	-8.9	3.0	1.9	1.3
by sector													
Industry	3334	1025	782	996	1129	1315	1465	1651	1863	-13.5	3.7	2.6	2.4
- energy intensive industries	1678	482	362	436	530	618	688	773	866	-14.2	3.9	2.6	2.3
- other industrial sectors	1656	543	420	560	599	697	777	878	997	-12.8	3.6	2.6	2.5
Residential	1854	1733	1402	1437	1519	1662	1804	1944	2098	-2.8	0.8	1.7	1.5
Tertiary	2518	933	589	697	788	854	932	979	1014	-13.5	2.9	1.7	0.8
Transport	1990	1037	1048	1397	1692	1903	1979	2023	2044	-6.2	4.9	1.6	0.3
by fuel													
Solids	760	241	96	197	177	168	163	164	166	-18.7	6.4	-0.9	0.2
Oil	4055	1666	1348	1599	1967	2152	2148	2186	2218	-10.4	3.8	0.9	0.3
Gas	1483	510	363	503	576	592	597	536	580	-13.1	4.7	0.3	-0.3
Electricity	1048	670	606	749	861	998	1164	1314	1470	-5.3	3.6	3.1	2.4
Heat (from CHP and District Heating)	2078	1193	828	905	948	998	1005	1022	1040	-8.8	1.4	0.6	0.3
Renewable energy forms	272	448	579	574	597	825	1103	1373	1545	7.9	0.3	6.3	3.4
Other	0	0	0	0	0	0	1	1	1			16.4	1.8
RES in Gross Final Energy Consumption ^(A)			671	726	876	1092	1485	1745	2088		2.7	5.4	3.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	22.1	23.9	21.8	20.5	19.6	-9.1	2.5	-0.1	-1.1
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	15.6	17.6	15.0	15.5	15.5	-10.8	4.2	-0.4	0.3
Power generation/District heating	12.0	5.6	3.9	4.0	5.9	7.2	4.6	5.0	5.1	-10.5	4.1	-2.5	1.1
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	2.1	2.1	1.8	-3.3	4.3	1.1	-1.1
Industry	6.1	1.7	1.1	1.3	1.7	1.6	1.6	1.4	1.5	-15.9	4.5	-0.5	-0.6
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.8	2.3	2.8
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	2.4	-0.3	-0.5
Transport	5.8	3.0	3.1	4.1	4.9	5.5	5.4	5.4	5.4	-6.2	4.9	0.9	0.1
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.3	6.8	5.1	4.1	-5.7	-0.6	0.5	-5.0
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	49.2	53.2	48.6	45.7	43.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	276.1	245.0	240.8	209.4	186.7	-5.1	-5.7	-1.4	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	2.01	1.99	1.40	1.36	1.28	-3.2	3.2	-3.6	-0.8
Import Dependency %	72.2	63.8	60.3	58.3	85.2	84.2	57.5	57.1	55.1				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.4	5.5	6.6	7.5	8.3		5.1	4.0	2.3
as % of GDP			19.0	15.2	15.8	15.3	14.7	13.8	12.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.5	56.0	49.5	45.9	43.6	-9.4	-4.4	-2.5	-1.3
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.2	46.9	41.5	37.1	34.0	0.0	-5.9	-2.6	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	75.4	64.5	57.0	48.8	42.5	-13.8	-2.8	-2.8	-2.9
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.2	25.1	24.4	24.1	0.4	-2.6	-0.7	-0.4
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.3	16.4	15.6	15.3	-7.6	-2.1	-0.6	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.23	0.25	0.13	0.14	0.13	-2.7	3.8	-5.7	0.0
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.53	1.47	1.35	1.27	1.22	-3.5	1.2	-1.2	-1.1
Industry	1.83	1.70	1.38	1.35	1.48	1.25	1.09	0.86	0.80	-2.8	0.7	-3.0	-3.0
Residential	1.26	0.47	0.41	0.46	0.41	0.41	0.43	0.46	0.49	-10.8	0.0	0.6	1.2
Tertiary	1.80	1.66	0.85	0.83	0.81	0.73	0.66	0.62	0.58	-7.2	-0.5	-2.0	-1.3
Transport	2.93	2.91	2.93	2.92	2.91	2.87	2.72	2.68	2.66	0.0	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	16.3	18.3	23.0	25.5	28.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.8	3.1	8.9	9.9	10.4				
Gross Electricity generation by source (in GWh)													
			11118	14410	11459	14435	21289	23209	25364		0.3	6.4	1.8
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3
Solids			0	0	557	557	493	515	538			-1.2	0.9
Oil (including refinery gas)			603	379	3	0	0	0	0		-40.3	-30.7	
Gas (including derived gases)			1759	3226	10128	12751	6821	7903	8564		19.1	-3.9	2.3
Biomass-waste			0	19	181	237	519	915	1752			11.1	12.9
Hydro (pumping excluded)			339	451	393	416	418	424	431		1.5	0.6	0.3
Wind			0	0	196	474	640	849	1270			12.6	7.1
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3614	3844	5499	5024	4839		-2.9	4.3	-1.3
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0
<u>Renewable energy</u>			98	115	240	488	588	686	1060		9.4	9.4	6.1
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	124	368	439	525	892			13.5	7.3
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3374	3355	3397	2822	2264		3.2	0.1	-4.0
of which cogeneration units			2442	2498	2427	2069	2455	2186	1970		-0.1	0.1	-2.2
Solids fired			0	0	65	65	65	65	65			0.0	0.0
Gas fired			1838	1877	2660	2650	2650	2335	1935		3.8	0.0	-3.1
Oil fired			613	631	622	606	607	293	0		0.1	-0.2	-64.8
Biomass-waste fired			0	5	26	34	74	129	264			10.8	13.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	35.1	41.5	42.3	50.5	57.3				
Efficiency of gross thermal power generation (%)			22.3	25.6	41.1	42.1	40.5	41.1	41.4				
% of gross electricity from CHP			18.5	22.7	67.0	62.3	33.2	35.2	36.0				
Carbon free gross electricity generation (%)			78.8	75.0	6.7	7.8	65.6	63.7	64.1				
- nuclear			75.7	71.7	0.0	0.0	58.2	54.3	50.5				
- renewable energy forms			3.0	3.3	6.7	7.8	7.4	9.4	13.6				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.4	44.9	46.9	48.7	-0.8	7.0	1.5	0.8
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.9	5.0	5.1	-10.0	4.7	1.2	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.5	36.6	38.7	40.2	41.6	5.6	7.6	1.4	0.7
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.8
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.9	5.4	5.2	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.4	45.9	52.0	56.1	56.9	-4.6	8.4	3.3	0.9
Trucks	7.3	5.2	7.8	15.9	21.3	26.3	29.7	32.1	32.5	0.6	10.6	3.4	0.9
Rail	19.3	7.2	8.9	12.5	16.1	19.6	22.3	24.0	24.4	-7.4	6.1	3.3	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1990	1037	1048	1397	1692	1903	1979	2023	2044	-6.2	4.9	1.6	0.3
Public road transport	164	50	25	30	34	35	35	34	34	-17.1	3.0	0.4	-0.3
Private cars and motorcycles	396	485	630	823	938	995	999	1007	1028	4.8	4.1	0.6	0.3
Trucks	1159	374	288	414	555	675	732	763	766	-13.0	6.8	2.8	0.5
Rail	132	86	75	79	100	119	123	116	106	-5.5	2.9	2.1	-1.4
Aviation	135	41	27	46	60	73	85	96	103	-14.9	8.4	3.6	2.0
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6

Source: PRIMES

Lithuania: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1423	4662	5509	112	337	427	8.5	7.8	8.4
Solids	42	35	39	7	5	3	0	-1	-1	-3.3	-13.2	-18.7
Oil	12	347	239	261	266	271	-2	-14	-13	-0.9	-5.0	-4.7
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1155	1592	2344	115	352	442	11.0	28.4	23.2
Hydro	36	29	39	36	36	37	0	0	0	0.6	0.5	0.0
Biomass & Waste	285	627	735	1077	1498	2189	98	322	376	10.0	27.4	20.8
Wind	0	0	0	41	55	109	17	28	62	68.3	106.0	130.9
Solar and others	0	0	0	1	3	8	0	1	3	27.9	41.3	70.3
Geothermal	0	0	3	0	0	0	0	0	0	17.9	21.1	23.2
Net Imports	11666	4327	5096	7596	6298	6774	-212	-521	-690	-2.7	-7.6	-9.2
Solids	758	84	190	275	256	268	-64	-52	-50	-18.8	-16.8	-15.7
Oil	7260	2299	2677	3117	3160	3213	-30	-172	-168	-1.0	-5.2	-5.0
- Crude oil and Feedstocks	9531	4827	9054	10957	11143	11357	-101	-576	-561	-0.9	-4.9	-4.7
- Oil products	-2271	-2528	-6377	-7840	-7983	-8144	71	404	393	-0.9	-4.8	-4.6
Natural gas	4678	2065	2492	4302	3339	3769	-116	-289	-462	-2.6	-8.0	-10.9
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8828	10756	12070	-100	-183	-262	-1.1	-1.7	-2.1
Solids	831	121	215	282	261	271	-64	-52	-51	-18.5	-16.7	-15.8
Oil	6878	2190	2746	3187	3221	3271	-33	-185	-181	-1.0	-5.4	-5.2
Natural gas	4678	2064	2476	4302	3339	3769	-116	-289	-462	-2.6	-8.0	-10.9
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1127	1553	2286	112	344	432	11.0	28.4	23.3
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	3.2	2.4	2.2	-0.7	-0.4	-0.4			
Oil	42.8	30.9	31.9	36.1	29.9	27.1	0.0	-1.2	-0.9			
Natural gas	29.1	29.1	28.8	48.7	31.0	31.2	-0.8	-2.1	-3.1			
Nuclear	27.3	30.7	31.0	0.0	26.0	24.0	0.0	0.4	0.5			
Renewable energy forms	2.0	9.2	8.8	12.8	14.4	18.9	1.4	3.4	3.9			
Gross Electricity Generation in GWh_e	28400	11118	14410	14435	21289	25364	-693	-384	106	-4.6	-1.8	0.4
Self consumption and grid losses	3486	1906	1788	1075	1664	2110	-79	-59	6	-6.9	-3.4	0.3
Fuel Inputs to Thermal Power Generation	2610	911	1218	2765	1665	2254	-203	-149	-80	-6.8	-8.2	-3.4
Solids	0	0	0	104	90	100	-64	-47	-43	-38.1	-34.3	-30.2
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-88.3	196.4	38484.6
Gas (including derived gases)	1543	716	1044	2611	1467	1784	-152	-168	-241	-5.5	-10.3	-11.9
Biomass & Waste	0	0	5	51	108	370	13	66	205	35.4	160.1	123.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11673	12118	12137	-20	-575	-631	-0.2	-4.5	-4.9
Refineries	9561	5086	9418	11179	11388	11622	-104	-590	-574	-0.9	-4.9	-4.7
Biofuels and hydrogen production	0	0	3	57	170	201	8	42	32	16.8	32.8	18.9
District heating	1823	657	522	435	559	312	75	-27	-88	20.9	-4.6	-22.1
Derived gases, cokeries etc.	24	12	8	2	2	1	0	0	0	-2.0	-13.5	-25.3
Energy Branch Consumption	991	655	915	870	959	1036	-9	-14	-29	-1.0	-1.4	-2.7
Non-Energy Uses	852	648	775	1112	1239	1509	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5734	6181	7019	-71	-116	-196	-1.2	-1.8	-2.7
by sector												
Industry	3334	782	996	1315	1465	1863	-23	-43	-54	-1.7	-2.8	-2.8
- energy intensive industries	1678	362	436	618	688	866	-9	-15	-13	-1.4	-2.1	-1.5
- other industrial sectors	1656	420	560	697	777	997	-14	-28	-40	-1.9	-3.4	-3.9
Residential	1854	1402	1437	1662	1804	2098	-13	-16	-23	-0.8	-0.9	-1.1
Tertiary	2518	589	697	854	932	1014	-19	-14	-44	-2.2	-1.5	-4.2
Transport	1990	1048	1397	1903	1979	2044	-17	-43	-75	-0.9	-2.1	-3.5
by fuel												
Solids	760	96	197	168	163	166	1	-4	-6	0.4	-2.2	-3.6
Oil	4055	1348	1599	2152	2148	2218	-22	-96	-128	-1.0	-4.3	-5.5
Gas	1483	363	503	592	597	580	0	-90	-50	0.0	-13.1	-7.9
Electricity	1048	606	749	998	1164	1470	-52	-27	11	-5.0	-2.2	0.8
Heat (from CHP and District Heating)	2078	828	905	998	1005	1040	-34	-61	-76	-3.3	-5.7	-6.8
Renewable energy forms	272	579	574	825	1103	1545	36	161	53	4.6	17.1	3.6
Other	0	0	0	0	1	1	0	0	0	2.1	2.0	-0.6
RES in Gross Final Energy Consumption ^(A)		671	726	1092	1485	2088	104	320	364	10.6	27.4	21.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	23.9	21.8	19.6	-0.8	-1.7	-2.0	-3.2	-7.0	-9.2
CO₂ Emissions (energy related)	32.5	10.4	12.6	17.6	15.0	15.5	-0.6	-1.4	-1.8	-3.4	-8.6	-10.5
Power generation/District heating	12.0	3.9	4.0	7.2	4.6	5.1	-0.5	-0.8	-1.1	-7.0	-15.4	-18.1
Energy Branch	1.7	1.2	2.0	2.0	2.1	1.8	0.0	-0.1	-0.2	-0.8	-3.1	-7.7
Industry	6.1	1.1	1.3	1.6	1.6	1.5	0.0	-0.3	-0.2	-2.3	-16.7	-11.7
Residential	2.3	0.6	0.7	0.7	0.8	1.0	0.0	0.0	0.0	1.4	1.2	-0.3
Tertiary	4.5	0.5	0.6	0.6	0.6	0.6	0.0	0.0	0.0	6.1	5.9	-0.4
Transport	5.8	3.1	4.1	5.5	5.4	5.4	-0.1	-0.2	-0.3	-1.3	-4.3	-5.7
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	-2.7	-4.8
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	6.3	6.8	4.1	-0.2	-0.2	-0.2	-2.5	-3.3	-4.0
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	53.2	48.6	43.6	-1.7	-3.7	-4.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	245.0	240.8	186.7	-2.8	-4.1	-4.1	-1.1	-1.7	-2.1
Carbon Intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.99	1.40	1.28	-0.05	-0.11	-0.12	-2.3	-7.1	-8.5
Import Dependency %	72.2	60.3	58.3	84.2	57.5	55.1	-1.4	-3.7	-4.3			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.5	6.6	8.3	0.0	0.1	0.2	-0.1	1.5	2.4
as % of GDP		19.0	15.2	15.3	14.7	12.8	0.0	0.2	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.1	0.2						
as % of GDP				-0.01	0.22	0.31						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	56.0	49.5	43.6	-1.0	-1.4	-1.3	-1.7	-2.8	-2.8
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	46.9	41.5	34.0	-0.4	-0.4	-0.4	-0.8	-0.9	-1.1
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	64.5	57.0	42.5	-1.4	-0.9	-1.9	-2.2	-1.5	-4.2
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	26.2	25.1	24.1	-0.1	-0.2	-0.4	-0.4	-0.7	-1.6
Freight transport (toe/Mtkm)	47.8	21.6	17.3	17.3	16.4	15.3	-0.1	-0.4	-0.6	-0.8	-2.2	-3.7
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.25	0.13	0.13	-0.01	-0.02	-0.03	-3.3	-12.5	-16.2
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.47	1.35	1.22	0.01	-0.06	-0.04	0.4	-4.1	-3.2
Industry	1.83	1.38	1.35	1.25	1.09	0.80	-0.01	-0.18	-0.08	-0.6	-14.3	-9.2
Residential	1.26	0.41	0.46	0.41	0.43	0.49	0.01	0.01	0.00	2.1	2.1	0.8
Tertiary	1.80	0.85	0.83	0.73	0.66	0.58	0.06	0.05	0.02	8.5	7.5	3.9
Transport	2.93	2.93	2.92	2.87	2.72	2.66	-0.01	-0.06	-0.06	-0.4	-2.2	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	18.3	23.0	28.7	2.0	5.3	5.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.1	8.9	10.4	0.5	2.4	2.1			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	14435	21289	25364	25364	-693	-384	106	-4.6	-1.8	0.4
Nuclear energy	8417	10335	0	12399	12808	12808	0	0	0	0.0	0.0	0.0
Solids	0	0	557	493	538	538	-329	-249	-229	-37.1	-33.5	-29.9
Oil (including refinery gas)	603	379	0	0	0	0	0	0	0	-82.0	181.3	30928.8
Gas (including derived gases)	1759	3226	12751	6821	8564	8564	-622	-792	-1322	-4.6	-10.4	-13.4
Biomass-waste	0	19	237	519	1752	1752	63	326	938	36.6	168.7	115.2
Hydro (pumping excluded)	339	451	416	418	431	431	2	2	0	0.6	0.5	0.0
Wind	0	0	474	640	1270	1270	193	329	720	68.3	106.0	130.9
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	4839	3827	3844	5499	4839	4839	101	189	535	2.7	3.6	12.4
<u>Nuclear energy</u>	2291	1200	0	1515	1515	1515	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	98	115	488	588	1060	1060	164	214	566	50.4	57.5	114.4
Hydro (pumping excluded)	98	108	117	141	152	152	0	0	0	0.0	0.0	0.0
Wind	0	6	368	439	892	892	164	214	566	80.2	95.4	173.3
Solar	0	0	4	7	16	16	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2451	2512	3355	3397	2264	2264	-62	-26	-31	-1.8	-0.8	-1.3
of which cogeneration units	2442	2498	2069	2455	1970	1970	-151	-21	-10	-6.8	-0.9	-0.5
Solids fired	0	0	65	65	65	65	-38	-38	-38	-36.9	-36.9	-36.9
Gas fired	1838	1877	2650	2650	1935	1935	-52	-52	-142	-1.9	-1.9	-6.8
Oil fired	613	631	606	607	0	0	18	18	0	3.1	3.1	148.7
Biomass-waste fired	0	5	34	74	264	264	9	45	149	35.4	160.0	130.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	23.0	39.4	41.5	42.3	57.3	57.3	-3.1	-2.2	-6.8			
Efficiency of gross thermal power generation (%)	22.3	25.6	42.1	40.5	41.4	41.4	0.3	-0.1	-0.8			
% of gross electricity from CHP	18.5	22.7	62.3	33.2	36.0	36.0	-4.3	-1.5	-2.4			
Carbon free gross electricity generation (%)	78.8	75.0	7.8	65.6	64.1	64.1	2.1	4.2	6.3			
- nuclear	75.7	71.7	0.0	58.2	50.5	50.5	0.0	1.0	-0.2			
- renewable energy forms	3.0	3.3	7.8	7.4	13.6	13.6	2.1	3.2	6.5			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	42.4	44.9	48.7	-0.1	-0.4	-0.6	-0.3	-0.9	-1.1
Public road transport	7.9	2.8	3.8	4.7	4.9	5.1	0.0	0.0	0.1	0.5	1.0	1.2
Private cars and motorcycles	9.3	16.1	29.3	36.6	38.7	41.6	-0.2	-0.4	-0.6	-0.4	-1.1	-1.4
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	0.5	1.1	1.5
Aviation	0.2	0.2	0.3	0.5	0.6	1.0	0.0	0.0	0.0	-2.1	-3.1	-3.5
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.5
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.9	52.0	56.9	-0.2	-0.4	-0.6	-0.3	-0.8	-1.1
Trucks	7.3	7.8	15.9	26.3	29.7	32.5	-0.3	-0.6	-0.9	-1.0	-2.1	-2.7
Rail	19.3	8.9	12.5	19.6	22.3	24.4	0.1	0.2	0.3	0.5	1.0	1.2
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1	0.0
Energy demand in transport (ktoe)												
	1990	1048	1397	1903	1979	2044	-17	-43	-75	-0.9	-2.1	-3.5
Public road transport	164	25	30	35	35	34	0	0	-1	0.1	0.0	-2.0
Private cars and motorcycles	396	630	823	995	999	1028	-6	-13	-21	-0.6	-1.3	-2.0
Trucks	1159	288	414	675	732	766	-10	-26	-44	-1.4	-3.5	-5.4
Rail	132	75	79	119	123	106	0	1	1	0.3	0.6	0.9
Aviation	135	27	46	73	85	103	-2	-4	-11	-2.9	-4.9	-9.4
Inland navigation	5	3	5	6	6	7	0	0	0	-0.1	0.2	0.1

Source: PRIMES

Luxembourg: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	47	47	57	74	171	219	261	275	281	1.9	11.7	4.3	0.7	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	171	219	261	275	281	1.9	11.7	4.3	0.7	
Hydro	6	7	10	8	10	10	10	10	10	5.8	-0.7	0.0	0.0	
Biomass & Waste	41	39	44	59	89	111	139	150	158	0.7	7.3	4.6	1.3	
Wind	0	0	2	5	15	15	21	22	18		20.3	3.7	-1.9	
Solar and others	0	0	0	2	58	83	91	94	95			4.6	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			11.0	2.3	
Net Imports	3520	3257	3620	4606	4832	4967	4882	4876	4959	0.3	2.9	0.1	0.2	
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8	
Oil	1620	1756	2332	3066	3178	3136	2912	2782	2743	3.7	3.1	-0.9	-0.6	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3178	3136	2912	2782	2743	3.7	3.1	-0.9	-0.6	
Natural gas	430	557	670	1179	1090	1196	1240	1314	1386	4.6	5.0	1.3	1.1	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	5003	5186	5143	5151	5239	0.2	3.3	0.3	0.2	
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8	
Oil	1609	1788	2283	3084	3178	3136	2912	2782	2743	3.6	3.4	-0.9	-0.6	
Natural gas	430	557	670	1179	1090	1196	1240	1314	1386	4.6	5.0	1.3	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	329	462	616	658	683	1.9	19.2	6.5	1.0	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.9	0.7	0.5					
Oil	45.2	53.6	62.9	65.6	63.5	60.5	56.6	54.0	52.4					
Natural gas	12.1	16.7	18.5	25.1	21.8	23.1	24.1	25.5	26.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	6.6	8.9	12.0	12.8	13.0					
Gross Electricity Generation in GWh_e	627	498	433	3344	2572	3172	3780	4593	5270	-3.6	19.5	3.9	3.4	
Self consumption and grid losses	410	497	439	448	179	206	238	302	364	0.7	-8.6	2.9	4.3	
Fuel Inputs to Thermal Power Generation	190	132	75	568	429	519	591	706	806	-8.8	19.0	3.3	3.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	378	462	499	591	680	-11.6	23.1	2.8	3.1	
Biomass & Waste	25	24	28	43	50	56	92	115	126	1.0	6.0	6.2	3.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	179	278	382	402	424			7.9	1.1	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	179	278	382	402	424			7.9	1.1	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	6	7	9	11	12	-1.8	-13.4	3.8	3.2	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4767	4893	4805	4760	4801	0.6	3.0	0.1	0.0	
by sector														
Industry	1729	1196	958	937	980	1050	1098	1149	1200	-5.7	0.2	1.1	0.9	
- energy intensive industries	1525	900	501	470	477	500	499	503	500	-10.5	-0.5	0.4	0.0	
- other industrial sectors	204	296	457	467	502	551	599	646	700	8.4	1.0	1.8	1.6	
Residential	519	563	596	649	674	674	668	649	619	1.4	1.2	-0.1	-0.8	
Tertiary	74	99	118	130	133	140	127	130	131	4.7	1.2	-0.4	0.4	
Transport	1007	1307	1877	2708	2980	3029	2912	2833	2850	6.4	4.7	-0.2	-0.2	
by fuel														
Solids	756	369	125	82	53	49	45	34	27	-16.5	-8.1	-1.7	-4.8	
Oil	1581	1752	2266	3065	3152	3107	2881	2750	2708	3.7	3.4	-0.9	-0.6	
Gas	622	585	623	678	711	733	740	721	704	0.0	1.3	0.4	-0.5	
Electricity	355	430	491	529	559	598	636	732	822	3.3	1.3	1.3	2.6	
Heat (from CHP and District Heating)	0	14	27	55	72	77	80	85	86		10.4	1.1	0.7	
Renewable energy forms	15	15	16	16	219	328	421	436	450	0.4	30.0	6.7	0.7	
Other	0	0	0	0	0	1	1	2	3			15.6	7.2	
RES in Gross Final Energy Consumption ^(A)			34	48	288	403	533	569	588		23.7	6.3	1.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	13.8	13.8	13.2	12.9	13.0	-2.1	2.9	-0.4	-0.2	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.3	12.4	11.8	11.5	11.5	-1.8	3.3	-0.4	-0.2	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.1	1.2	1.4	1.6	-17.0	23.2	2.8	3.1	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.7	0.1	
Residential	1.3	1.3	1.4	1.4	1.3	1.2	1.2	1.0	0.8	1.1	-0.7	-1.3	-3.4	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.9	0.2	-1.3	
Transport	3.0	3.9	5.6	8.1	8.5	8.4	7.8	7.5	7.5	6.5	4.3	-0.9	-0.4	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-7.6	-0.6	0.0	-0.3	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.8	0.8	0.8	2.4	0.6	-0.8	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	107.4	107.9	103.0	101.0	101.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.8	118.4	100.4	87.5	79.2	-5.9	-0.5	-3.0	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.45	2.39	2.29	2.23	2.20	-2.0	0.1	-0.7	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	96.6	95.8	94.9	94.7	94.6				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.3	4.8	5.4	5.7	6.1		5.0	2.3	1.3
as % of GDP			10.4	11.4	11.7	11.0	10.5	9.7	9.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	79.1	71.7	65.9	62.0	-9.0	-1.4	-1.9	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.9	70.6	61.4	52.9	45.5	-2.2	-2.0	-2.8	-2.9
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.3	68.3	52.8	47.1	42.6	-0.5	-2.5	-3.7	-2.1
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	158.0	143.1	126.6	119.7	1.8	1.0	-1.5	-1.8
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	132.1	120.9	114.4	109.8	0.0	4.3	-1.6	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.25	0.26	0.24	0.24	0.25	-18.4	5.5	-0.4	0.3
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.39	2.31	2.21	2.13	2.07	-1.9	-0.3	-0.8	-0.6
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.46	1.40	1.35	-6.1	-1.4	-0.4	-0.8
Residential	2.45	2.39	2.37	2.21	1.95	1.82	1.73	1.52	1.31	-0.3	-1.9	-1.2	-2.7
Tertiary	0.21	0.34	0.65	0.48	0.48	0.47	0.51	0.46	0.43	12.0	-3.0	0.7	-1.6
Transport	2.95	2.96	2.97	3.00	2.86	2.78	2.68	2.64	2.61	0.1	-0.4	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	6.0	8.2	11.0	11.9	12.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	5.9	9.1	13.2	14.1	14.8				
Gross Electricity generation by source (in GWh)													
			433	3344	2572	3172	3780	4593	5270		19.5	3.9	3.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	3	0	0	0	0		10.5		
Gas (including derived gases)			222	3083	2082	2636	3016	3723	4391		25.1	3.8	3.8
Biomass-waste			63	97	184	227	383	483	535		11.3	7.6	3.4
Hydro (pumping excluded)			120	93	112	112	112	112	112		-0.7	0.0	0.0
Wind			27	53	172	175	247	250	204		20.3	3.7	-1.9
Solar			0	18	20	21	23	25	29			1.7	2.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	898	971	1098	1265	1354		12.5	2.0	2.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	289	295	327	332	314		5.6	1.2	-0.4
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	109	112	142	145	122		26.9	2.7	-1.5
Solar			2	23	25	28	30	33	37		29.0	1.7	1.9
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	609	676	771	933	1040		18.9	2.4	3.0
of which cogeneration units			61	112	221	233	250	236	242		13.7	1.2	-0.3
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	496	562	651	795	898		19.0	2.7	3.3
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	105	109	116	134	138		21.7	0.9	1.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	31.9	36.4	38.3	40.3	43.3				
Efficiency of gross thermal power generation (%)			32.7	48.1	45.5	47.5	49.4	51.2	52.6				
% of gross electricity from CHP			53.7	11.8	28.9	27.4	27.3	22.6	19.6				
Carbon free gross electricity generation (%)			48.5	7.8	18.9	16.9	20.2	18.9	16.7				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	18.9	16.9	20.2	18.9	16.7				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.6	9.9	10.3	10.7	3.5	2.0	0.9	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.7	0.9
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.2	7.3	7.6	7.8	3.4	1.8	0.6	0.7
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	0.9	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.3	1.4	5.8	3.7	2.7	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.5	12.4	13.4	14.3	8.0	2.4	1.7	1.5
Trucks	3.2	5.5	7.6	8.8	10.1	11.2	12.1	13.1	14.1	9.0	2.8	1.9	1.5
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-2.7	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	3029	2912	2833	2850	6.4	4.7	-0.2	-0.2
Public road transport	18	18	24	29	32	30	28	27	26	2.9	2.9	-1.1	-0.8
Private cars and motorcycles	500	609	760	916	968	947	854	785	767	4.3	2.5	-1.2	-1.1
Trucks	345	482	757	1323	1474	1513	1491	1528	1569	8.2	6.9	0.1	0.5
Rail	13	9	15	9	8	7	6	6	5	2.0	-5.9	-3.0	-1.5
Aviation	131	189	320	431	498	531	532	488	483	9.3	4.5	0.7	-1.0
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Luxembourg: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	219	261	281	41	39	8	22.7	17.6	2.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	219	261	281	41	39	8	22.7	17.6	2.8
Hydro	6	10	8	10	10	10	0	0	0	3.6	2.4	0.0
Biomass & Waste	41	44	59	111	139	158	0	0	-26	0.0	0.0	-14.0
Wind	0	2	5	15	21	18	3	4	4	30.2	20.1	25.4
Solar and others	0	0	2	83	91	95	37	35	30	78.8	63.4	45.2
Geothermal	0	0	0	0	0	0	0	0	0	82.1	237.6	314.0
Net Imports	3520	3620	4606	4967	4882	4959	-315	-529	-548	-6.0	-9.8	-9.9
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1620	2332	3066	3136	2912	2743	-339	-564	-704	-9.8	-16.2	-20.4
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	3136	2912	2743	-339	-564	-704	-9.8	-16.2	-20.4
Natural gas	430	670	1179	1196	1240	1386	-116	-165	-42	-8.9	-11.8	-3.0
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	5186	5143	5239	-274	-490	-540	-5.0	-8.7	-9.3
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1609	2283	3084	3136	2912	2743	-339	-564	-704	-9.8	-16.2	-20.4
Natural gas	430	670	1179	1196	1240	1386	-116	-165	-42	-8.9	-11.8	-3.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	462	616	683	182	241	209	65.2	64.5	44.2
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	0.9	0.9	0.5	0.0	0.0	0.0			
Oil	45.2	62.9	65.6	60.5	56.6	52.4	-3.2	-5.1	-7.3			
Natural gas	12.1	18.5	25.1	23.1	24.1	26.4	-1.0	-0.8	1.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	8.9	12.0	13.0	3.8	5.3	4.8			
Gross Electricity Generation in GWh_e	627	433	3344	3172	3780	5270	-392	-329	1333	-11.0	-8.0	33.9
Self consumption and grid losses	410	439	448	206	238	364	-32	-8	97	-13.4	-3.4	36.1
Fuel Inputs to Thermal Power Generation	190	75	568	519	591	806	-69	-61	178	-11.7	-9.4	28.3
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	6106.3		
Gas (including derived gases)	162	47	525	462	499	680	-80	-109	115	-14.8	-17.9	20.3
Biomass & Waste	25	28	43	56	92	126	11	47	63	25.2	104.8	101.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	278	382	424	126	149	113	82.7	64.2	36.5
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	278	382	424	126	149	113	82.7	64.2	36.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	9	12	-2	0	4	-20.4	0.8	41.5
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4893	4805	4801	-268	-494	-655	-5.2	-9.3	-12.0
by sector												
Industry	1729	958	937	1050	1098	1200	-20	-30	-44	-1.9	-2.6	-3.6
- energy intensive industries	1525	501	470	500	499	500	-5	-8	-7	-0.9	-1.6	-1.4
- other industrial sectors	204	457	467	551	599	700	-16	-22	-37	-2.8	-3.5	-5.1
Residential	519	596	649	674	668	619	-33	-45	-103	-4.6	-6.3	-14.3
Tertiary	74	118	130	140	127	131	-15	-38	-40	-9.4	-22.9	-23.4
Transport	1007	1877	2708	3029	2912	2850	-200	-382	-468	-6.2	-11.6	-14.1
by fuel												
Solids	756	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1581	2266	3065	3107	2881	2708	-339	-564	-704	-9.8	-16.4	-20.6
Gas	622	623	678	733	740	704	-36	-57	-157	-4.7	-7.1	-18.2
Electricity	355	491	529	598	636	822	-31	-28	106	-4.9	-4.2	14.9
Heat (from CHP and District Heating)	0	27	55	77	80	86	-4	-7	-20	-4.9	-8.1	-18.4
Renewable energy forms	15	16	16	328	421	450	144	163	121	77.9	63.2	36.9
Other	0	0	0	1	1	3	0	0	0	19.1	14.2	8.1
RES in Gross Final Energy Consumption ^(A)	34	48	403	533	588	158	208	180	64.5	63.9	44.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	13.8	13.2	13.0	-1.4	-2.2	-2.3	-9.0	-14.2	-15.3
CO₂ Emissions (energy related)	10.6	8.8	12.4	12.4	11.8	11.5	-1.3	-2.1	-2.3	-9.6	-15.2	-16.4
Power generation/District heating	0.7	0.1	1.2	1.1	1.2	1.6	-0.2	-0.3	0.3	-14.7	-17.9	20.3
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	0.0	-0.1	-1.1	-2.3	-7.7
Residential	1.3	1.4	1.4	1.2	1.2	0.8	-0.2	-0.2	-0.6	-12.1	-16.8	-40.8
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-8.4	-21.6	-30.9
Transport	3.0	5.6	8.1	8.4	7.8	7.5	-0.9	-1.6	-1.8	-9.9	-16.7	-19.5
CO ₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	-0.4	-1.3	-1.9
Non-CO ₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.8	0.8	-0.1	-0.1	-0.1	-6.3	-8.7	-8.5
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	107.9	103.0	101.1	-10.6	-17.1	-18.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	118.4	100.4	79.2	-6.3	-9.6	-8.2	-5.0	-8.7	-9.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.39	2.29	2.20	-0.12	-0.18	-0.18	-4.8	-7.1	-7.7
Import Dependency %	99.0	99.8	98.0	95.8	94.9	94.6	-1.0	-1.1	-0.6			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	4.8	5.4	6.1	0.3	0.4	0.7	7.3	9.1	12.2
as % of GDP		10.4	11.4	11.0	10.5	9.2	0.7	0.9	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.5	0.7						
as % of GDP				0.75	0.88	1.00						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	79.1	71.7	62.0	-1.5	-1.9	-2.3	-1.9	-2.6	-3.6
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	70.6	61.4	45.5	-3.4	-4.1	-7.6	-4.6	-6.3	-14.3
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	68.3	52.8	42.6	-7.1	-15.7	-13.0	-9.4	-22.9	-23.4
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	158.0	143.1	119.7	-3.1	-9.3	-9.9	-1.9	-6.1	-7.6
Freight transport (toe/Mtkm)	93.1	93.3	144.6	132.1	120.9	109.8	-9.0	-13.8	-14.7	-6.4	-10.3	-11.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.24	0.25	-0.02	-0.03	0.00	-5.8	-10.6	-0.5
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.31	2.21	2.07	-0.10	-0.14	-0.21	-4.1	-6.1	-9.4
Industry	3.28	1.74	1.63	1.50	1.46	1.35	0.01	0.00	-0.06	0.8	0.3	-4.3
Residential	2.45	2.37	2.21	1.82	1.73	1.31	-0.15	-0.22	-0.59	-7.8	-11.3	-31.0
Tertiary	0.21	0.65	0.48	0.47	0.51	0.43	0.01	0.01	-0.05	1.2	1.7	-9.8
Transport	2.95	2.97	3.00	2.78	2.68	2.61	-0.12	-0.16	-0.17	-4.0	-5.8	-6.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	8.2	11.0	12.2	3.5	4.9	4.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	9.1	13.2	14.8	4.4	6.2	5.7			
Gross Electricity generation by source (in GWh_e)												
	433	3344	3172	3780	5270	5270	-392	-329	1333	-11.0	-8.0	33.9
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2636	3016	4391	4391	-477	-569	1014	-15.3	-15.9	30.0
Biomass-waste	63	97	227	383	535	535	41	196	274	21.7	104.5	105.3
Hydro (pumping excluded)	120	93	112	112	112	112	4	3	0	3.6	2.4	0.0
Wind	27	53	175	247	204	204	41	41	41	30.2	20.1	25.4
Solar	0	18	21	23	29	29	0	0	3	0.0	0.0	11.7
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	971	1098	1354	1354	7	13	261	0.7	1.2	23.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	295	327	314	314	37	38	41	14.5	13.1	15.0
Hydro (pumping excluded)	155	155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind	10	35	112	142	122	122	37	38	38	50.0	36.4	44.7
Solar	2	23	28	30	37	37	0	0	3	0.0	0.0	9.4
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	676	771	1040	1040	-31	-25	220	-4.3	-3.1	26.9
of which cogeneration units	61	112	233	250	242	242	-21	-39	-53	-8.2	-13.5	-17.9
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	562	651	898	898	-55	-72	156	-8.9	-10.0	21.0
Oil fired	6	7	6	4	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	109	116	138	138	24	48	64	28.7	70.6	87.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	36.4	38.3	43.3	43.3	-4.8	-4.0	3.2			
Efficiency of gross thermal power generation (%)	32.7	48.1	47.5	49.4	52.6	52.6	-0.8	-0.3	2.8			
% of gross electricity from CHP	53.7	11.8	27.4	27.3	19.6	19.6	-2.2	-1.7	-15.5			
Carbon free gross electricity generation (%)	48.5	7.8	16.9	20.2	16.7	16.7	4.2	7.4	2.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	16.9	20.2	16.7	16.7	4.2	7.4	2.4			
Transport sector												
Passenger transport activity (Gpkm)												
	5.2	7.4	8.3	9.6	9.9	10.7	-0.2	-0.3	-0.4	-1.8	-3.1	-3.8
Public road transport	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.0	2.0	2.5
Private cars and motorcycles	4.2	5.8	6.4	7.2	7.3	7.8	-0.2	-0.3	-0.4	-2.3	-4.1	-5.2
Rail	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	2.2	3.5	4.8
Aviation	0.4	0.7	0.8	1.1	1.3	1.4	0.0	0.0	0.0	-1.7	-2.1	-2.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	3.8	8.2	9.2	11.5	12.4	14.3	-0.3	-0.5	-0.8	-2.3	-4.1	-5.2
Trucks	3.2	7.6	8.8	11.2	12.1	14.1	-0.3	-0.5	-0.8	-2.6	-4.3	-5.5
Rail	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	5.9	8.5	10.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1007	1877	2708	3029	2912	2850	-200	-382	-468	-6.2	-11.6	-14.1
Public road transport	18	24	29	30	28	26	-1	-2	-2	-2.2	-6.6	-8.7
Private cars and motorcycles	500	760	916	947	854	767	-38	-99	-95	-3.9	-10.4	-11.0
Trucks	345	757	1323	1513	1491	1569	-143	-243	-309	-8.6	-14.0	-16.4
Rail	13	15	9	7	6	5	0	0	1	1.5	4.9	11.7
Aviation	131	320	431	531	532	483	-19	-39	-62	-3.4	-6.9	-11.4
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: EC proposal with JI/CDM & without RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	0	0	0	0	10	24	44	53	59				16.5	3.0
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	0	0	0	0	10	24	44	53	59				16.5	3.0
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	0	0	0	0	0	0	0	0	0					
Wind	0	0	0	0	0	3	14	19	22					4.6
Solar and others	0	0	0	0	10	21	30	35	37				12.2	2.1
Geothermal	0	0	0	0	0	0	0	0	0				2.2	-1.4
Net Imports	611	890	818	953	916	807	816	774	789	3.0	1.1	-1.1	-0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil	611	890	818	953	856	659	633	463	453	3.0	0.5	-3.0	-3.3	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	611	890	818	953	856	659	633	463	453	3.0	0.5	-3.0	-3.3	
Natural gas	0	0	0	0	43	48	64	179	191				4.1	11.5
Electricity	0	0	0	0	0	73	85	95	108					2.4
Gross Inland Consumption	581	808	769	953	925	831	860	827	848	2.8	1.9	-0.7	-0.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	581	808	769	953	856	659	633	463	453	2.8	1.1	-3.0	-3.3	
Natural gas	0	0	0	0	43	48	64	179	191				4.1	11.5
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	73	85	95	108					2.4
Renewable energy forms	0	0	0	0	26	51	78	91	95				11.4	2.0
as % in Gross Inland Consumption														
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Oil	100.0	100.0	100.0	100.0	92.5	79.3	73.6	55.9	53.5					
Natural gas	0.0	0.0	0.0	0.0	4.6	5.7	7.5	21.6	22.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.0	0.0	0.0	0.0	2.9	6.2	9.1	11.0	11.2					
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	1828	1169	1323	1572	1702	5.7	-0.5	-3.2	2.5	
Self consumption and grid losses	190	373	350	438	152	109	122	136	152	6.3	-8.0	-2.2	2.2	
Fuel Inputs to Thermal Power Generation	321	463	494	580	459	252	244	200	211	4.4	-0.7	-6.1	-1.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	321	463	494	580	416	204	179	20	19	4.4	-1.7	-8.1	-19.9	
Gas (including derived gases)	0	0	0	0	43	48	64	179	191				4.1	11.5
Biomass & Waste	0	0	0	0	0	0	0	1	1					5.8
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	0	0	0	0	17	27	34	37	36				7.2	0.5
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	0	17	27	34	37	36				7.3	0.5
District heating	0	0	0	0	0	0	0	0	0				-13.9	1.5
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	8	19	10	12	7	3	3	2	2	2.5	-2.9	-9.9	-1.1	
Non-Energy Uses	6	0	0	0	0	0	0	0	0					
Final Energy Demand	332	451	408	528	607	662	698	722	737	2.1	4.0	1.4	0.5	
by sector														
Industry	0	42	43	46	50	54	60	67	73		1.4	2.0	1.9	
- energy intensive industries	0	0	0	0	0	0	0	0	0					
- other industrial sectors	0	42	43	46	50	54	60	67	73		1.4	2.0	1.9	
Residential	55	73	76	89	109	121	127	127	128	3.2	3.7	1.5	0.1	
Tertiary	56	32	52	66	73	83	86	90	93	-0.7	3.5	1.6	0.8	
Transport	221	304	237	328	376	404	425	438	444	0.7	4.7	1.3	0.4	
by fuel														
Solids	0	0	0	0	0	0	0	0	0					
Oil	254	342	274	373	440	455	454	442	434	0.8	4.9	0.3	-0.4	
Gas	0	0	0	0	0	0	0	0	0				2.6	-0.4
Electricity	78	108	135	155	144	164	188	218	241	5.6	0.7	2.7	2.5	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0				-13.9	1.5
Renewable energy forms	0	0	0	0	23	42	56	61	62				9.3	1.1
Other	0	0	0	0	0	0	0	0	0				15.3	2.3
RES in Gross Final Energy Consumption ^(A)			0	0	23	46	71	83	87				11.9	2.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.2	2.6	2.5	2.3	2.3	2.9	1.4	-2.3	-0.9	
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.7	2.1	2.1	1.8	1.8	3.0	1.4	-2.7	-1.4	
Power generation/District heating	1.0	1.5	1.6	1.9	1.4	0.8	0.7	0.5	0.5	4.4	-0.9	-6.6	-3.5	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residential	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	-1.8	7.1	-2.3	-9.3	
Tertiary	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0		10.5	-5.2	-9.4	
Transport	0.7	0.9	0.7	1.0	1.1	1.1	1.2	1.2	1.2	0.7	4.4	0.9	0.4	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	0.2	1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	152.7	124.3	121.3	109.9	111.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	179.4	136.2	116.1	95.7	86.9	-1.9	0.5	-4.3	-2.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	2.97	2.55	2.42	2.18	2.13	0.1	-0.4	-2.0	-1.3
Import Dependency %	100.0	104.5	100.8	100.0	99.0	97.1	94.9	93.5	93.1				
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.9	1.0	1.0		6.1	2.5	1.8
as % of GDP			8.3	12.2	13.0	12.1	11.6	11.2	10.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.8	83.2	78.1	74.2	71.6		-1.3	-1.2	-0.9
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	122.8	114.7	98.4	84.7	75.4	-1.6	2.1	-2.2	-2.6
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	129.1	121.9	102.5	92.1	83.6	-5.9	2.6	-2.3	-2.0
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.2	57.2	56.2	54.4	52.3	-3.8	2.3	-0.3	-0.7
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	167.3	165.1	157.1	149.4	144.1	2.5	4.8	-0.6	-0.9
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.78	0.65	0.55	0.30	0.30	-1.3	-0.5	-3.5	-5.9
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.05	1.94	1.83	1.76	-1.3	0.9	-1.1	-1.0
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Residential	1.66	1.47	1.01	1.10	1.40	1.22	0.95	0.61	0.36	-4.9	3.4	-3.8	-9.4
Tertiary	0.00	0.00	0.50	0.49	0.97	0.76	0.49	0.28	0.17		6.8	-6.7	-10.1
Transport	2.97	2.96	2.98	3.00	2.89	2.84	2.80	2.79	2.79	0.0	-0.3	-0.3	0.0
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	3.7	6.8	10.0	11.3	11.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.9	7.5	9.0	9.5	9.1				
Gross Electricity generation by source (in GWh)													
			1917	2240	1828	1169	1323	1572	1702		-0.5	-3.2	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1917	2240	1545	814	715	112	108		-2.1	-7.4	-17.2
Gas (including derived gases)			0	0	284	315	432	1209	1302			4.3	11.7
Biomass-waste			0	0	0	0	2	4	4				5.8
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	0	40	160	217	252				4.6
Solar			0	0	0	0	13	31	36				10.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			472	483	526	551	549	661	742		1.1	0.4	3.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			0	0	0	17	72	107	126				5.7
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	0	17	64	87	102				4.8
Solar			0	0	0	0	9	20	23				10.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			472	483	526	535	477	554	617		1.1	-1.0	2.6
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	38	42	211	262	325			18.7	4.5
Oil fired			472	483	488	493	266	291	291		0.3	-5.9	0.9
Biomass-waste fired			0	0	0	0	0	0	0				5.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			43.6	49.5	37.8	23.6	26.9	26.7	25.7				
Efficiency of gross thermal power generation (%)			33.4	33.2	34.3	38.6	40.6	57.1	57.5				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	0.0	3.4	13.3	16.0	17.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	0.0	3.4	13.3	16.0	17.1				
Transport sector													
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.2	6.7	7.1	5.2	2.3	2.1	1.4
Public road transport	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	5.9	1.7	1.5	1.3
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.1	4.4	2.4	1.0	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.5	3.9	4.2	5.6	2.4	2.8	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.0	0.1	0.0
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.0	0.1	0.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	221	304	237	328	376	404	425	438	444	0.7	4.7	1.3	0.4
Public road transport	5	11	10	12	14	15	16	16	16	5.8	3.9	1.4	-0.3
Private cars and motorcycles	87	160	89	142	175	188	203	216	222	0.2	7.0	1.5	0.9
Trucks	57	59	52	84	84	84	80	76	73	-0.8	4.9	-0.5	-0.9
Rail	0	0	0	0	0	0	0	0	0				
Aviation	72	74	86	90	103	117	126	130	133	1.8	1.8	2.1	0.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Malta: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	24	44	59	17	28	34	224.6	169.4	135.0
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	24	44	59	17	28	34	224.6	169.4	135.0
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	3	14	22	3	12	17		510.2	362.1
Solar and others	0	0	0	21	30	37	13	16	17	178.9	114.6	82.6
Geothermal	0	0	0	0	0	0	0	0	0	202.9	158.4	165.9
Net Imports	611	818	953	807	816	789	-103	-88	-70	-11.3	-9.8	-8.1
Solids	0	0	0	0	0	0	0	0	0	23.9	-11.2	-62.4
Oil	611	818	953	659	633	453	-117	-70	-59	-15.1	-9.9	-11.6
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	659	633	453	-117	-70	-59	-15.1	-9.9	-11.6
Natural gas	0	0	0	48	64	191	-9	-42	-29	-16.1	-39.6	-13.2
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	831	860	848	-86	-61	-36	-9.4	-6.6	-4.1
Solids	0	0	0	0	0	0	0	0	0	23.9	-11.2	-62.4
Oil	581	769	953	659	633	453	-117	-70	-59	-15.1	-9.9	-11.6
Natural gas	0	0	0	48	64	191	-9	-42	-29	-16.1	-39.6	-13.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	51	78	95	40	51	53	351.4	187.3	122.8
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	79.3	73.6	53.5	-5.3	-2.7	-4.6			
Natural gas	0.0	0.0	0.0	5.7	7.5	22.6	-0.5	-4.1	-2.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	6.2	9.1	11.2	4.9	6.1	6.4			
Gross Electricity Generation in GWh_e	1100	1917	2240	1169	1323	1702	-405	-315	-12	-25.7	-19.2	-0.7
Self consumption and grid losses	190	350	438	109	122	152	-40	-27	-9	-26.8	-18.0	-5.4
Fuel Inputs to Thermal Power Generation	321	494	580	252	244	211	-121	-84	-40	-32.5	-25.7	-15.8
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	204	179	19	-111	-36	0	-35.3	-16.7	-0.2
Gas (including derived gases)	0	0	0	48	64	191	-9	-42	-29	-16.1	-39.6	-13.2
Biomass & Waste	0	0	0	0	0	1	-1	-7	-11	-100.0	-94.6	-94.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	27	34	36	24	30	29	853.0	746.1	455.0
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	27	34	36	24	30	29	870.8	753.5	457.0
District heating	0	0	0	0	0	0	0	0	0	11.5	-54.4	-27.7
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	3	2	-2	-1	-1	-42.9	-30.7	-25.3
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	662	698	737	-5	-20	-23	-0.7	-2.8	-3.0
by sector												
Industry	0	43	46	54	60	73	-1	-1	-1	-1.3	-2.2	-2.0
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	54	60	73	-1	-1	-1	-1.3	-2.2	-2.0
Residential	55	76	89	121	127	128	6	2	-5	5.5	1.7	-4.1
Tertiary	56	52	66	83	86	93	-4	-7	-8	-5.1	-8.0	-7.8
Transport	221	237	328	404	425	444	-6	-13	-8	-1.5	-3.0	-1.8
by fuel												
Solids	0	0	0	0	0	0	0	0	0	23.9	-11.2	-62.4
Oil	254	274	373	455	454	434	-6	-34	-59	-1.3	-6.9	-12.0
Gas	0	0	0	0	0	0	0	0	0	20.4	10.0	-18.8
Electricity	78	135	155	164	188	241	-31	-25	0	-16.0	-11.6	-0.1
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	11.4	-54.4	-27.8
Renewable energy forms	0	0	0	42	56	62	33	39	37	334.3	224.0	144.1
Other	0	0	0	0	0	0	0	0	0	7.2	11.9	3.9
RES in Gross Final Energy Consumption ^(A)	0	0	0	46	71	87	36	49	52	347.8	215.9	149.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.5	2.3	-0.4	-0.3	-0.3	-13.4	-11.3	-9.9
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.1	2.1	1.8	-0.4	-0.3	-0.2	-15.8	-13.2	-11.9
Power generation/District heating	1.0	1.6	1.9	0.8	0.7	0.5	-0.4	-0.2	-0.1	-33.1	-22.7	-11.8
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-17.5	-17.1	-12.5
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	31.8	7.0	-53.1
Tertiary	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	47.7	6.4	-61.4
Transport	0.7	0.7	1.0	1.1	1.2	1.2	-0.1	-0.1	-0.1	-6.2	-8.6	-7.5
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.0
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	124.3	121.3	111.1	-19.3	-15.5	-12.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	136.2	116.1	86.9	-14.2	-8.2	-3.7	-9.4	-6.6	-4.1
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.55	2.42	2.13	-0.19	-0.18	-0.19	-7.1	-7.1	-8.2
Import Dependency %	100.0	100.8	100.0	97.1	94.9	93.1	-2.1	-3.3	-4.1			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.9	1.0	0.0	0.0	0.1	2.2	4.2	7.0
as % of GDP		8.3	12.2	12.1	11.6	10.5	0.3	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.1						
as % of GDP				0.26	0.46	0.69						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	83.2	78.1	71.6	-1.1	-1.8	-1.4	-1.3	-2.2	-2.0
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	114.7	98.4	75.4	6.0	1.6	-3.2	5.5	1.7	-4.1
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	121.9	102.5	83.6	-6.6	-8.9	-7.1	-5.1	-8.0	-7.8
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	57.2	56.2	52.3	-0.1	-0.5	0.8	-0.2	-0.9	1.5
Freight transport (toe/Mtkm)	81.8	104.3	167.6	165.1	157.1	144.1	-1.1	-3.9	-6.9	-0.7	-2.4	-4.6
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.65	0.55	0.30	-0.07	-0.02	-0.04	-9.9	-4.3	-11.2
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.05	1.94	1.76	-0.02	-0.09	-0.18	-0.8	-4.4	-9.3
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-16.5	-15.2	-10.7
Residential	1.66	1.01	1.10	1.22	0.95	0.36	0.24	0.05	-0.37	24.9	5.2	-51.1
Tertiary	0.00	0.50	0.49	0.76	0.49	0.17	0.27	0.07	-0.23	55.7	15.7	-58.1
Transport	2.97	2.98	3.00	2.84	2.80	2.79	-0.14	-0.17	-0.17	-4.8	-5.8	-5.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	0.0	0.0	6.8	10.0	11.6	5.3	6.9	7.1				
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	7.5	9.0	9.1	6.7	8.0	7.5				
Gross Electricity generation by source (in GWh_e)												
	1917	2240	1169	1323	1702	-405	-315	-12		-25.7	-19.2	-0.7
Nuclear energy	0	0	0	0	0	0	0	0				
Solids	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	1917	2240	814	715	108	-379	-143	0		-31.7	-16.7	-0.2
Gas (including derived gases)	0	0	315	432	1302	-60	-284	-188		-16.1	-39.6	-12.6
Biomass-waste	0	0	0	2	4	-6	-36	-58		-100.0	-94.6	-94.2
Hydro (pumping excluded)	0	0	0	0	0	0	0	0				
Wind	0	0	40	160	252	40	134	198		510.2	362.1	
Solar	0	0	0	13	36	0	13	36				
Geothermal and other renewables	0	0	0	0	0	0	0	0				
Net Generation Capacity in MW_e												
	472	483	551	549	742	8	-5	103		1.5	-1.0	16.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	0	0	17	72	126	17	62	105		623.8	504.7	
Hydro (pumping excluded)	0	0	0	0	0	0	0	0				
Wind	0	0	17	64	102	17	54	81		537.1	392.3	
Solar	0	0	0	9	23	0	9	23				
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
<u>Thermal power</u>	472	483	535	477	617	-9	-68	-1		-1.6	-12.4	-0.2
of which cogeneration units	0	0	0	0	0	0	0	0				
Solids fired	0	0	0	0	0	0	0	0				
Gas fired	0	0	42	211	325	-9	-63	8		-18.3	-23.1	2.5
Oil fired	472	483	493	266	291	1	0	-2		0.3	0.0	-0.8
Biomass-waste fired	0	0	0	0	0	-1	-4	-7		-100.0	-94.6	-94.2
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	43.6	49.5	23.6	26.9	25.7	-8.4	-6.0	-4.2				
Efficiency of gross thermal power generation (%)	33.4	33.2	38.6	40.6	57.5	2.3	-1.7	0.7				
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)	0.0	0.0	3.4	13.3	17.1	3.0	9.4	10.4				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	0.0	0.0	3.4	13.3	17.1	3.0	9.4	10.4				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	2.4	4.0	4.4	5.6	6.2	7.1	-0.1	-0.1	-0.1	-1.1	-1.7	-2.1
Private cars and motorcycles	0.3	0.5	0.5	0.6	0.6	0.7	0.0	0.0	0.0	0.4	0.8	1.0
Rail	0.9	1.4	1.6	1.9	2.0	2.1	0.0	0.0	-0.1	-1.1	-2.2	-2.7
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	1.2	2.1	2.3	3.1	3.5	4.2	0.0	-0.1	-0.1	-1.3	-1.9	-2.2
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.4	-2.4	-2.9
Rail	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.4	-2.4	-2.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	221	237	328	404	425	444	-6	-13	-8	-1.5	-3.0	-1.8
Private cars and motorcycles	5	10	12	15	16	16	0	0	-1	-0.6	-1.4	-4.8
Trucks	87	89	142	188	203	222	-3	-5	4	-1.3	-2.6	2.0
Rail	57	52	84	84	80	73	-2	-4	-6	-2.0	-4.7	-7.3
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	72	86	90	117	126	133	-2	-4	-6	-1.4	-2.8	-4.2
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	60478	65988	57172	61834	57313	57633	55960	49512	42804	-0.6	0.0	-0.2	-2.6
Solids	0	0	0	0	0	0	0	0	0				
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0			
Natural gas	54613	60456	51904	56265	53300	51883	47872	40100	32670	-0.5	0.3	-1.1	-3.7
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Renewable energy sources	956	933	1831	2242	2991	4727	7063	8378	9089	6.7	5.0	9.0	2.6
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0
Biomass & Waste	942	894	1739	2035	2379	3225	4749	5508	5944	6.3	3.2	7.2	2.3
Wind	5	27	71	178	440	720	1191	1656	1758	30.9	20.0	10.5	4.0
Solar and others	2	4	9	22	163	773	1114	1204	1377	15.5	33.7	21.2	2.1
Geothermal	0	0	0	0	0	0	0	0	0			7.1	5.6
Net Imports	17443	16359	34331	36912	39911	42773	44408	51447	59287	7.0	1.5	1.1	2.9
Solids	9574	8921	8222	8313	4863	7152	7048	5636	5548	-1.5	-5.1	3.8	-2.4
Oil	30876	32829	41673	47392	49911	50395	50580	51056	51704	3.0	1.8	0.1	0.2
- Crude oil and Feedstocks	47956	59277	60955	61302	65878	66397	66725	67229	67914	2.4	0.8	0.1	0.2
- Oil products	-17080	-26448	-19282	-13910	-15967	-16002	-16145	-16173	-16210				
Natural gas	-23799	-26370	-17191	-20941	-16873	-16425	-15155	-7557	-221				
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Gross Inland Consumption	67059	73374	75712	80963	79619	82079	81314	81222	81804	1.2	0.5	0.2	0.1
Solids	9206	9098	8035	8190	4863	7152	7048	5636	5548	-1.4	-4.9	3.8	-2.4
Oil	24415	27242	28496	32027	32306	32068	31525	31319	31418	1.6	1.3	-0.2	0.0
Natural gas	30810	34085	34711	35324	36427	35458	32717	32543	32449	1.2	0.5	-1.1	-0.1
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Renewable energy forms	956	933	1831	2817	3664	5638	8405	9934	10768	6.7	7.2	8.7	2.5
as % in Gross Inland Consumption													
Solids	13.7	12.4	10.6	10.1	6.1	8.7	8.7	6.9	6.8				
Oil	36.4	37.1	37.6	39.6	40.6	39.1	38.8	38.6	38.4				
Natural gas	45.9	46.5	45.8	43.6	45.8	43.2	40.2	40.1	39.7				
Nuclear	1.3	1.4	1.3	1.3	1.3	1.2	1.3	1.3	1.3				
Renewable energy forms	1.4	1.3	2.4	3.5	4.6	6.9	10.3	12.2	13.2				
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	105785	121098	121835	129897	140329	2.2	1.7	1.4	1.4
Self consumption and grid losses	5554	6853	7752	8521	8563	10136	10029	10821	11526	3.4	1.0	1.6	1.4
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16637	18509	17888	17606	18656	2.2	-0.9	0.7	0.4
Solids	5698	5900	5114	4958	1597	3887	3925	2641	2639	-1.1	-11.0	9.4	-3.9
Oil (including refinery gas)	702	876	618	640	0	1	0	2	0	-1.3			-0.7
Gas (including derived gases)	7651	9466	11071	11913	12994	11972	9976	10121	10720	3.8	1.6	-2.6	0.7
Biomass & Waste	570	601	1430	2052	2046	2649	3987	4841	5297	9.6	3.6	6.9	2.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	72281	83698	85058	89914	88104	88714	88870	88996	89259	1.6	0.4	0.1	0.0
Refineries	68767	80009	82188	86416	84180	84418	84182	84367	84613	1.8	0.2	0.0	0.1
Biofuels and hydrogen production	0	0	0	0	326	801	1404	1520	1632			15.7	1.5
District heating	0	0	0	436	545	487	459	430	402			-1.7	-1.3
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3008	2824	2679	2612	-2.0	0.6	-0.8	-0.8
Energy Branch Consumption	5410	6247	5484	6580	6453	6529	6465	6420	6438	0.1	1.6	0.0	0.0
Non-Energy Uses	9495	9406	9579	12301	13233	13705	13786	13830	13805	0.1	3.3	0.4	0.0
Final Energy Demand	42924	47670	50125	51588	52186	53339	53127	53405	53982	1.6	0.4	0.2	0.2
by sector													
Industry	12643	12714	13812	14597	15387	16076	16188	16333	16479	0.9	1.1	0.5	0.2
- energy intensive industries	9577	8701	9885	10367	10968	11536	11610	11711	11775	0.3	1.0	0.6	0.1
- other industrial sectors	3066	4012	3927	4231	4419	4540	4578	4622	4704	2.5	1.2	0.4	0.3
Residential	9932	11124	10286	10335	9926	10089	9737	9831	10045	0.4	-0.4	-0.2	0.3
Tertiary	9993	11429	12207	11587	11087	10907	10749	10556	10306	2.0	-1.0	-0.3	-0.4
Transport	10356	12404	13820	15068	15786	16266	16453	16685	17152	2.9	1.3	0.4	0.4
by fuel													
Solids	1755	1461	1352	1515	1516	1556	1536	1500	1448	-2.6	1.2	0.1	-0.6
Oil	12790	14685	16469	17366	17860	17974	17616	17622	17887	2.6	0.8	-0.1	0.2
Gas	21244	22515	21008	20335	19904	19176	18144	17574	16726	-0.1	-0.5	-0.9	-0.8
Electricity	6322	7143	8421	8986	9219	9796	9722	10508	11167	2.9	0.9	0.5	1.4
Heat (from CHP and District Heating)	439	1568	2558	2981	2846	3022	3453	3373	3692	19.3	1.1	2.0	0.7
Renewable energy forms	374	298	317	405	839	1812	2650	2824	3059	-1.6	10.2	12.2	1.4
Other	0	0	0	0	1	2	4	5	5			13.6	2.4
RES in Gross Final Energy Consumption ^(A)			940	1828	3135	5138	7645	9036	9787	12.8	9.3	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.0	207.2	198.8	188.3	186.2	0.1	-0.2	-0.7	-0.7
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.5	164.6	156.2	149.7	149.7	0.9	-0.4	-0.2	-0.4
Power generation/District heating	43.3	49.1	48.9	51.1	38.7	45.2	40.6	35.8	37.2	1.2	-2.3	0.5	-0.9
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.3	14.1	14.0	14.0	-0.4	1.0	-0.2	-0.1
Industry	27.0	25.1	24.8	25.4	26.9	27.6	26.2	25.8	24.8	-0.8	0.8	-0.3	-0.5
Residential	19.2	20.6	18.9	17.8	16.4	15.5	15.0	14.7	14.4	-0.2	-1.4	-0.9	-0.3
Tertiary	18.9	20.7	19.5	18.1	17.3	16.0	15.3	14.1	12.9	0.3	-1.2	-1.2	-1.6
Transport	30.1	36.2	40.5	44.4	45.7	46.0	45.0	45.3	46.3	3.0	1.2	-0.2	0.3
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.4	11.8	11.9	12.1	12.2	-1.5	2.1	0.5	0.3
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	30.8	30.7	26.5	24.3	-2.2	-0.2	-3.1	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.4	95.7	91.8	87.0	86.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.3	127.3	115.7	106.8	100.8	-2.0	-1.4	-1.7	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.00	2.00	1.92	1.84	1.83	-0.4	-0.9	-0.4	-0.5
Import Dependency %	22.4	19.3	38.6	37.8	41.1	42.6	44.2	51.0	58.1				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	66.9	72.9	77.5	81.1		3.3	1.8	1.1
as % of GDP			9.2	10.4	10.5	10.4	10.4	10.2	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	96.6	91.5	87.0	83.6	-1.1	0.1	-0.9	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.5	75.0	66.9	62.8	60.6	-2.9	-2.0	-2.0	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	63.6	57.6	52.3	47.8	-1.5	-3.2	-2.2	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.7	43.0	40.3	38.8	1.7	0.3	-1.2	-1.0
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	36.2	34.0	32.7	31.5	0.8	-0.3	-1.2	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.27	0.24	0.20	0.20	-3.4	-4.0	-0.9	-1.9
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	1.97	1.91	1.87	1.82	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.72	1.62	1.58	1.51	-1.7	-0.3	-0.8	-0.7
Residential	1.93	1.85	1.84	1.72	1.65	1.53	1.54	1.50	1.44	-0.5	-1.1	-0.7	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.47	1.42	1.33	1.25	-1.7	-0.2	-0.9	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.72	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.9	9.4	14.0	16.5	17.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.1	11.0	11.6				
Gross Electricity generation by source (in GWh)													
			89599	100202	105785	121098	121835	129897	140329		1.7	1.4	1.4
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5655	19068	19239	15127	15120		-12.7	13.0	-2.4
Oil (including refinery gas)			3769	1651	1231	355	375	176	110		-10.6	-11.2	-11.6
Gas (including derived gases)			55039	64687	82386	76923	65626	68146	75041		4.1	-2.2	1.3
Biomass-waste			3772	6720	7159	11749	17962	21516	23670		6.6	9.6	2.8
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8369	13849	19261	20447		20.0	10.5	4.0
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	82	374	374	374	374				16.4
Net Generation Capacity in MW_e			20113	19871	25652	27664	28752	32766	35056		2.5	1.1	2.0
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3356	3712	5908	8175	8836		21.1	5.8	4.1
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3180	5154	7156	7474		21.5	5.1	3.8
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	42	194	194	194	194				16.4
<u>Thermal power</u>			19116	17718	21790	23440	22330	24050	25673		1.3	0.2	1.4
of which cogeneration units			9089	9231	9653	10334	11092	11225	12398		0.6	1.4	1.1
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15314	14502	13104	14963	17644		1.2	-1.5	3.0
Oil fired			839	825	809	588	574	434	387		-0.4	-3.4	-3.9
Biomass-waste fired			533	1022	1493	2425	3324	4087	4449		10.8	8.3	3.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.4	47.9	46.4	43.5	44.0				
Efficiency of gross thermal power generation (%)			39.9	41.3	49.8	50.2	49.6	51.3	52.5				
% of gross electricity from CHP			32.0	37.6	42.7	40.6	45.7	44.6	47.5				
Carbon free gross electricity generation (%)			9.7	12.9	15.6	20.4	30.0	35.8	35.7				
- nuclear			4.4	4.0	3.7	3.3	3.3	3.6	3.4				
- renewable energy forms			5.3	8.9	11.9	17.2	26.8	32.1	32.3				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	175.3	177.6	189.5	198.2	213.9	232.4	249.7	269.0	288.8	0.8	1.2	1.6	1.5
Private cars and motorcycles	13.0	12.0	11.3	11.7	12.3	12.6	13.0	13.2	13.4	-1.4	0.9	0.6	0.3
Rail	138.7	133.2	143.4	149.5	160.2	171.7	181.9	193.2	204.2	0.3	1.1	1.3	1.2
Aviation	12.3	17.7	16.1	16.3	17.5	19.5	21.7	24.2	27.0	2.7	0.8	2.2	2.2
Inland navigation	9.8	13.5	17.8	19.7	23.1	27.7	32.0	37.2	43.1	6.2	2.6	3.3	3.0
Freight transport activity (Gtkm)	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.1	1.1
Trucks	94.8	105.7	125.4	131.6	142.1	155.6	168.1	178.8	188.7	2.8	1.3	1.7	1.2
Rail	56.1	67.1	79.6	84.2	90.8	99.0	106.7	114.7	121.4	3.6	1.3	1.6	1.3
Inland navigation	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.7	3.9	3.0	2.2	1.4
Energy demand in transport (ktoe)	35.7	35.5	41.3	42.2	45.2	49.7	53.7	55.9	58.6	1.5	0.9	1.7	0.9
Public road transport	10356	12404	13820	15068	15786	16266	16453	16685	17152	2.9	1.3	0.4	0.4
Private cars and motorcycles	104	105	95	91	90	87	84	82	80	-0.9	-0.5	-0.7	-0.5
Trucks	5043	5525	5286	5999	6179	6179	6112	6012	6093	0.5	1.6	-0.1	0.0
Rail	2899	3325	4254	4933	5140	5308	5382	5517	5622	3.9	1.9	0.5	0.4
Aviation	147	162	176	172	183	190	183	166	149	1.8	0.4	0.0	-2.0
Inland navigation	1608	2589	3343	3670	3976	4268	4443	4652	4942	7.6	1.8	1.1	1.1
	556	697	667	204	217	235	249	256	266	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	57633	55960	42804	1427	1992	4141	2.5	3.7	10.7
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	51883	47872	32670	-97	-1308	0	-0.2	-2.7	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4727	7063	9089	1524	3300	4141	47.6	87.7	83.7
Hydro	7	12	8	9	9	9	0	0	0	0.3	0.2	0.0
Biomass & Waste	942	1739	2035	3225	4749	5944	841	1904	2205	35.3	66.9	59.0
Wind	5	71	178	720	1191	1758	94	550	946	15.0	85.7	116.5
Solar and others	2	9	22	773	1114	1377	589	846	990	320.4	315.7	255.7
Geothermal	0	0	0	0	0	0	0	0	0	66.5	144.4	320.2
Net Imports	17443	34331	36912	42773	44408	59287	-6708	-10244	-14029	-13.6	-18.7	-19.1
Solids	9574	8222	8313	7152	7048	5548	-3102	-4583	-7089	-30.3	-39.4	-56.1
Oil	30876	41673	47392	50395	50580	51704	-823	-1596	-2324	-1.6	-3.1	-4.3
- Crude oil and Feedstocks	47956	60955	61302	66397	66725	67914	-769	-1466	-2313	-1.1	-2.1	-3.3
- Oil products	-17080	-19282	-13910	-16002	-16145	-16210	-54	-131	-11	0.3	0.8	0.1
Natural gas	-23799	-17191	-20941	-16425	-15155	-221	-3020	-4603	-5240	22.5	43.6	-104.4
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	82079	81314	81804	-5272	-8227	-9847	-6.0	-9.2	-10.7
Solids	9206	8035	8190	7152	7048	5548	-3102	-4583	-7089	-30.3	-39.4	-56.1
Oil	24415	28496	32027	32068	31525	31418	-815	-1571	-2282	-2.5	-4.7	-6.8
Natural gas	30810	34711	35324	35458	32717	32449	-3117	-5911	-5240	-8.1	-15.3	-13.9
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5638	8405	10768	1762	3838	4764	45.5	84.0	79.3
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	8.7	8.7	6.8	-3.0	-4.3	-7.0			
Oil	36.4	37.6	39.6	39.1	38.8	38.4	1.4	1.8	1.6			
Natural gas	45.9	45.8	43.6	43.2	40.2	39.7	-1.0	-2.9	-1.5			
Nuclear	1.3	1.3	1.3	1.2	1.3	1.3	0.1	0.1	0.1			
Renewable energy forms	1.4	2.4	3.5	6.9	10.3	13.2	2.4	5.2	6.6			
Gross Electricity Generation in GWh_e	71824	89599	100202	121098	121835	140329	-17373	-29700	-27781	-12.5	-19.6	-16.5
Self consumption and grid losses	5554	7752	8521	10136	10029	11526	-1414	-2500	-3909	-12.2	-20.0	-25.3
Fuel Inputs to Thermal Power Generation	14621	18233	19563	18509	17888	18656	-3675	-6521	-6661	-16.6	-26.7	-26.3
Solids	5698	5114	4958	3887	3925	2639	-3135	-4581	-7087	-44.6	-53.9	-72.9
Oil (including refinery gas)	702	618	640	1	0	0	1	0	0	11839.8	102.3	107.3
Gas (including derived gases)	7651	11071	11913	11972	9976	10720	-1509	-3924	-2102	-11.2	-28.2	-16.4
Biomass & Waste	570	1430	2052	2649	3987	5297	968	1984	2527	57.6	99.1	91.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88714	88870	89259	-684	-1157	-2152	-0.8	-1.3	-2.4
Refineries	68767	82188	86416	84418	84182	84613	-786	-1484	-2331	-0.9	-1.7	-2.7
Biofuels and hydrogen production	0	0	0	801	1404	1632	86	275	152	12.0	24.4	10.3
District heating	0	0	436	487	459	402	-31	-2	-33	-6.0	-0.5	-7.6
Derived gases, cokeries etc.	3514	2870	3062	3008	2824	2612	47	55	61	1.6	2.0	2.4
Energy Branch Consumption	5410	5484	6580	6529	6465	6438	-172	-297	-463	-2.6	-4.4	-6.7
Non-Energy Uses	9495	9579	12301	13705	13786	13805	-11	-13	-13	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	53339	53127	53982	-2950	-4495	-5650	-5.2	-7.8	-9.5
by sector												
Industry	12643	13812	14597	16076	16188	16479	-338	-530	-792	-2.1	-3.2	-4.6
- energy intensive industries	9577	9885	10367	11536	11610	11775	-186	-337	-513	-1.6	-2.8	-4.2
- other industrial sectors	3066	3927	4231	4540	4578	4704	-152	-193	-279	-3.2	-4.0	-5.6
Residential	9932	10286	10335	10089	9737	10045	-534	-1058	-1016	-5.0	-9.8	-9.2
Tertiary	9993	12207	11587	10907	10749	10306	-1387	-1680	-2215	-11.3	-13.5	-17.7
Transport	10356	13820	15068	16266	16453	17152	-691	-1227	-1657	-4.1	-6.9	-8.8
by fuel												
Solids	1755	1352	1515	1556	1536	1448	5	-44	-48	0.3	-2.8	-3.2
Oil	12790	16469	17366	17974	17616	17887	-766	-1478	-2149	-4.1	-7.7	-10.7
Gas	21244	21008	20335	19176	18144	16726	-1467	-1667	-2824	-7.1	-8.4	-14.4
Electricity	6322	8421	8986	9796	9722	11167	-1370	-2331	-2041	-12.3	-19.3	-15.5
Heat (from CHP and District Heating)	439	2558	2981	3022	3453	3692	1	-51	259	0.0	-1.5	7.5
Renewable energy forms	374	317	405	1812	2650	3059	646	1076	1125	55.4	68.4	58.2
Other	0	0	0	2	4	5	0	0	-2	6.9	5.7	-30.6
RES in Gross Final Energy Consumption ^(A)		940	1828	5138	7645	9787	1686	3544	4416	48.9	86.4	82.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	207.2	198.8	186.2	-26.2	-42.7	-52.7	-11.2	-17.7	-22.1
CO₂ Emissions (energy related)	152.2	165.8	171.6	164.6	156.2	149.7	-21.9	-36.6	-47.0	-11.8	-19.0	-23.9
Power generation/District heating	43.3	48.9	51.1	45.2	40.6	37.2	-16.0	-27.6	-33.2	-26.1	-40.4	-47.2
Energy Branch	13.7	13.1	14.8	14.3	14.1	14.0	-0.3	-0.5	-0.6	-1.9	-3.5	-4.1
Industry	27.0	24.8	25.4	27.6	26.2	24.8	0.1	0.0	-1.7	0.3	-0.2	-6.3
Residential	19.2	18.9	17.8	15.5	15.0	14.4	-1.8	-1.9	-2.1	-10.2	-11.5	-12.7
Tertiary	18.9	19.5	18.1	16.0	15.3	12.9	-1.7	-2.1	-3.7	-9.7	-11.9	-22.4
Transport	30.1	40.5	44.4	46.0	45.0	46.3	-2.3	-4.5	-5.7	-4.8	-9.0	-10.9
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.8	11.9	12.2	0.1	0.0	-0.1	0.7	0.0	-0.9
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	30.8	30.7	24.3	-4.3	-6.1	-5.6	-12.2	-16.5	-18.9
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	95.7	91.8	86.0	-12.1	-19.7	-24.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Netherlands: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	127.3	115.7	100.8	-8.2	-11.7	-12.1	-6.0	-9.2	-10.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.00	1.92	1.83	-0.13	-0.23	-0.32	-6.1	-10.8	-14.7
Import Dependency %	22.4	38.6	37.8	42.6	44.2	58.1	-4.2	-6.1	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	66.9	72.9	81.1	1.3	1.1	1.5	1.9	1.6	1.9
as % of GDP		9.2	10.4	10.4	10.4	10.0	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				1.3	1.2	1.6						
as % of GDP				0.21	0.17	0.19						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	96.6	91.5	83.6	-2.0	-3.0	-4.0	-2.1	-3.2	-4.6
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	75.0	66.9	60.6	-4.0	-7.3	-6.1	-5.0	-9.8	-9.2
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	63.6	57.6	47.8	-8.1	-9.0	-10.3	-11.3	-13.5	-17.7
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.7	43.0	38.8	-0.9	-1.6	-2.3	-2.0	-3.5	-5.5
Freight transport (toe/Mtkm)	36.4	39.5	39.6	36.2	34.0	31.5	-1.5	-2.7	-2.7	-4.1	-7.3	-7.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.27	0.24	0.20	-0.06	-0.10	-0.13	-18.5	-29.8	-40.4
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	1.97	1.91	1.82	0.00	0.00	-0.05	0.1	0.1	-2.5
Industry	2.14	1.80	1.74	1.72	1.62	1.51	0.04	0.05	-0.03	2.4	3.1	-1.8
Residential	1.93	1.84	1.72	1.53	1.54	1.44	-0.09	-0.03	-0.06	-5.5	-1.8	-3.9
Tertiary	1.89	1.60	1.56	1.47	1.42	1.25	0.03	0.03	-0.08	1.8	1.9	-5.7
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.06	-0.06	-0.7	-2.3	-2.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	9.4	14.0	17.7	3.4	7.1	8.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.1	11.6	0.8	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	121098	121835	140329	140329	-17373	-29700	-27781	-12.5	-19.6	-16.5
Nuclear energy	3925	3996	3967	3971	4733	4733	0	0	0	0.0	0.0	0.0
Solids	22115	20959	19068	19239	15120	15120	-13855	-20245	-40832	-42.1	-51.3	-73.0
Oil (including refinery gas)	3769	1651	355	375	110	110	-34	0	-1	-8.6	0.0	-1.3
Gas (including derived gases)	55039	64687	76923	65626	75041	75041	-9760	-25299	-10065	-11.3	-27.8	-11.8
Biomass-waste	3772	6720	11749	17962	23670	23670	4807	9077	11742	69.3	102.2	98.4
Hydro (pumping excluded)	142	88	99	99	99	99	0	0	0	0.3	0.2	0.0
Wind	829	2067	8369	13849	20447	20447	1095	6392	11002	15.0	85.7	116.5
Solar	8	34	195	340	735	735	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	374	374	374	374	374	374	374			
Net Generation Capacity in MW_e												
	20113	19871	27664	28752	35056	35056	-1969	-3281	-872	-6.6	-10.2	-2.4
<u>Nuclear energy</u>	501	501	512	514	547	547	11	13	0	2.2	2.7	0.0
<u>Renewable energy</u>	495	1653	3712	5908	8836	8836	515	2476	4229	16.1	72.2	91.8
Hydro (pumping excluded)	37	37	37	37	37	37	0	0	0	0.0	0.0	0.0
Wind	446	1565	3180	5154	7474	7474	321	2282	4035	11.2	79.5	117.3
Solar	12	51	300	523	1131	1131	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	194	194	194	194	194	194	194			
<u>Thermal power</u>	19116	17718	23440	22330	25673	25673	-2495	-5770	-5101	-9.6	-20.5	-16.6
of which cogeneration units	9089	9231	10334	11092	12398	12398	-464	-1059	561	-4.3	-8.7	4.7
Solids fired	4171	4171	5926	5327	3194	3194	3	3	-4279	0.1	0.0	-57.3
Gas fired	13574	11700	14502	13104	17644	17644	-3313	-7200	-2972	-18.6	-35.5	-14.4
Oil fired	839	825	588	574	387	387	-106	-89	-295	-15.3	-13.4	-43.3
Biomass-waste fired	533	1022	2425	3324	4449	4449	921	1516	2444	61.3	83.8	121.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	47.9	46.4	44.0	44.0	-3.3	-5.5	-7.0			
Efficiency of gross thermal power generation (%)	39.9	41.3	50.2	49.6	52.5	52.5	1.0	0.4	0.5			
% of gross electricity from CHP	32.0	37.6	40.6	45.7	47.5	47.5	4.3	5.2	9.6			
Carbon free gross electricity generation (%)	9.7	12.9	20.4	30.0	35.7	35.7	7.1	16.3	19.6			
- nuclear	4.4	4.0	3.3	3.3	3.4	3.4	0.4	0.6	0.6			
- renewable energy forms	5.3	8.9	17.2	26.8	32.3	32.3	6.7	15.7	19.1			
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	232.4	249.7	288.8	-2.9	-5.2	-7.4	-1.2	-2.0	-2.5
Public road transport	13.0	11.3	11.7	12.6	13.0	13.4	0.2	0.3	0.4	1.7	2.6	3.0
Private cars and motorcycles	138.7	143.4	149.5	171.7	181.9	204.2	-2.8	-4.8	-6.6	-1.6	-2.6	-3.1
Rail	12.3	16.1	16.3	19.5	21.7	27.0	0.2	0.3	0.4	1.1	1.2	1.5
Aviation	9.8	17.8	19.7	27.7	32.0	43.1	-0.6	-1.0	-1.6	-2.1	-3.0	-3.5
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.6	-0.3	-0.3
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	155.6	168.1	188.7	-2.6	-4.1	-5.6	-1.7	-2.4	-2.9
Trucks	56.1	79.6	84.2	99.0	106.7	121.4	-3.1	-4.9	-6.7	-3.1	-4.4	-5.2
Rail	3.1	4.5	5.2	6.9	7.6	8.7	0.2	0.2	0.3	2.9	3.4	3.9
Inland navigation	35.7	41.3	42.2	49.7	53.7	58.6	0.3	0.6	0.7	0.7	1.1	1.3
Energy demand in transport (ktoe)												
	10356	13820	15068	16266	16453	17152	-691	-1227	-1657	-4.1	-6.9	-8.8
Public road transport	104	95	91	87	84	80	-1	-1	-4	-0.6	-1.7	-4.9
Private cars and motorcycles	5043	5286	5999	6179	6112	6093	-192	-297	-418	-3.0	-4.6	-6.4
Trucks	2899	4254	4933	5308	5382	5622	-338	-604	-696	-6.0	-10.1	-11.0
Rail	147	176	172	190	183	149	-2	-5	-9	-1.0	-2.9	-5.8
Aviation	1608	3343	3670	4268	4443	4942	-158	-318	-526	-3.6	-6.7	-9.6
Inland navigation	556	667	204	235	249	266	0	-1	-3	-0.1	-0.3	-1.1

Source: PRIMES

Poland: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68535	67281	67851	69494	71075	-2.1	-1.6	-0.1	0.5	
Solids	94459	91104	71298	68876	57053	53686	51443	46564	42410	-2.8	-2.2	-1.0	-1.9	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	4448	9047					
Renewable energy sources	2369	4763	4256	5016	7531	9795	12708	15032	16318	6.0	5.9	5.4	2.5	
Hydro	139	162	181	189	237	254	272	283	299	2.7	2.7	1.4	0.9	
Biomass & Waste	2230	4600	4072	4806	6883	9011	11264	13221	13979	6.2	5.4	5.0	2.2	
Wind	0	0	0	12	395	480	843	975	1423		97.9	7.9	5.4	
Solar and others	0	0	0	0	5	36	309	529	589			51.3	6.7	
Geothermal	0	0	3	9	11	15	20	25	27		14.4	5.6	3.3	
Net Imports	2238	-152	10131	16954	30053	39771	45758	50606	52900	16.3	11.5	4.3	1.5	
Solids	-18913	-21202	-16309	-12482	-6505	-3677	-3046	-1824	-3150					
Oil	14468	15481	20381	21929	26383	30200	32342	34239	35282	3.5	2.6	2.1	0.9	
- Crude oil and Feedstocks	13085	13984	18827	18169	21880	24865	26503	27949	28726	3.7	1.5	1.9	0.8	
- Oil products	1383	1498	1554	3760	4503	5335	5840	6290	6557	1.2	11.2	2.6	1.2	
Natural gas	6773	5810	6607	8531	11123	13691	16350	18251	20858	-0.2	5.3	3.9	2.5	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	98219	106641	113169	119636	123496	-1.0	0.8	1.4	0.9	
Solids	75405	70500	56358	55184	50549	50008	48397	44741	39259	-2.9	-1.1	-0.4	-2.1	
Oil	13399	16003	20759	22525	26764	30489	32602	34425	35404	4.5	2.6	2.0	0.8	
Natural gas	8938	8995	9960	12235	14323	16791	19350	21051	23558	1.1	3.7	3.1	2.0	
Nuclear	0	0	0	0	0	0	0	4448	9047					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7442	9920	13330	15761	17089	6.0	5.8	6.0	2.5	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	51.5	46.9	42.8	37.4	31.8					
Oil	13.4	16.0	22.9	24.0	27.2	28.6	28.8	28.8	28.7					
Natural gas	8.9	9.0	11.0	13.0	14.6	15.7	17.1	17.6	19.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	7.3					
Renewable energy forms	2.4	4.8	4.7	5.3	7.6	9.3	11.8	13.2	13.8					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	155423	167712	181691	197939	222760	0.6	0.8	1.6	2.1	
Self consumption and grid losses	21063	28189	27977	28574	26804	28964	30237	31195	39362	2.9	-0.4	1.2	2.7	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	34908	35645	36245	33816	30262	-1.9	-0.3	0.4	-1.8	
Solids	41138	35842	34793	35942	32980	33164	32132	28508	24077	-1.7	-0.5	-0.3	-2.8	
Oil (including refinery gas)	1236	405	228	179	25	24	270	21	29	-15.6	-19.7	26.7	-19.9	
Gas (including derived gases)	673	488	783	1483	1096	1348	1639	1483	2210	1.5	3.4	4.1	3.0	
Biomass & Waste	372	114	157	546	807	1109	2205	3805	3946	-8.3	17.8	10.6	6.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32966	35870	38059	40051	40635	-1.1	-0.3	1.4	0.7	
Refineries	13160	14929	19949	19591	22890	25866	27524	28932	29657	4.2	1.4	1.9	0.7	
Biofuels and hydrogen production	0	0	0	55	455	982	1904	2296	2454			15.4	2.6	
District heating	9949	5985	4320	3639	3300	3334	3547	3955	4112	-8.0	-2.7	0.7	1.5	
Derived gases, cokeries etc.	14746	12045	9635	8541	6320	5688	5084	4867	4412	-4.2	-4.1	-2.2	-1.4	
Energy Branch Consumption	6809	7655	7401	7680	9513	10191	10531	10948	11623	0.8	2.5	1.0	1.0	
Non-Energy Uses	4193	3646	4218	4354	5145	6272	7257	8185	8944	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	63650	71042	77093	81771	85218	-0.7	1.3	1.9	1.0	
by sector														
Industry	25252	22720	18883	16373	17702	19993	22037	23835	25166	-2.9	-0.6	2.2	1.3	
- energy intensive industries	16252	15428	13374	11149	11581	12696	13652	14579	15383	-1.9	-1.4	1.7	1.2	
- other industrial sectors	9000	7292	5509	5225	6121	7297	8386	9256	9784	-4.8	1.1	3.2	1.6	
Residential	18126	23284	17516	18375	19557	20618	21684	22174	22711	-0.3	1.1	1.0	0.5	
Tertiary	8867	9229	10136	10334	11501	12813	13907	14860	15897	1.3	1.3	1.9	1.3	
Transport	7338	8256	9185	12087	14890	17618	19465	20902	21444	2.3	4.9	2.7	1.0	
by fuel														
Solids	17066	23299	13728	11262	11449	11155	10872	10875	10454	-2.2	-1.8	-0.5	-0.4	
Oil	9104	11582	15452	17798	21000	24189	25634	27038	27214	5.4	3.1	2.0	0.6	
Gas	7987	7735	7447	8400	10979	12449	13903	15168	16232	-0.7	4.0	2.4	1.6	
Electricity	8233	7703	8317	8498	8766	9952	11146	12209	13602	0.1	0.5	2.4	2.0	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6597	6965	7662	8139	8465	-7.8	-0.4	1.5	1.0	
Renewable energy forms	1631	4408	3889	4156	4858	6329	7871	8335	9244	9.1	2.2	4.9	1.6	
Other	0	0	0	0	1	3	5	7	7			16.6	2.9	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6753	9001	11795	14337	15557		5.0	5.7	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	370.7	386.8	394.9	383.4	341.1	-1.4	-0.1	0.6	-1.5	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	293.2	305.4	309.4	301.9	261.4	-1.3	0.1	0.5	-1.7	
Power generation/District heating	209.3	169.9	158.8	162.1	147.2	147.8	145.3	130.6	88.8	-2.7	-0.8	-0.1	-4.8	
Energy Branch	5.8	12.7	11.4	10.6	11.9	11.8	12.0	12.1	12.4	6.9	0.4	0.1	0.3	
Industry	44.0	59.9	46.3	33.2	38.0	41.2	44.4	48.5	48.8	0.5	-1.9	1.6	0.9	
Residential	33.1	44.4	27.9	30.2	32.1	32.1	31.6	30.8	30.1	-1.7	1.4	-0.1	-0.5	
Tertiary	19.4	20.7	20.1	20.4	22.5	24.3	25.0	25.5	26.2	0.4	1.1	1.1	0.5	
Transport	20.5	23.1	25.8	34.3	41.5	48.1	51.1	54.3	55.2	2.3	4.9	2.1	0.8	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.5	17.7	20.3	22.7	4.2	-1.0	4.4	2.5	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	86.2	90.0	91.9	89.2	79.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: EC proposal with JI/CDM & without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1	
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3	
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	326.0	276.8	239.7	211.5	188.7	-4.6	-2.8	-3.0	-2.4	
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.98	2.86	2.73	2.52	2.12	-0.4	-0.7	-0.9	-2.5	
Import Dependency %	2.2	-0.2	11.1	18.0	30.5	37.2	40.3	42.1	42.7					
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	48.4	60.2	71.6	81.4	89.7		3.6	4.0	2.3	
as % of GDP			16.1	15.8	16.1	15.6	15.2	14.4	13.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.6	51.1	45.2	41.3	39.1	-6.9	-5.0	-2.7	-1.4	
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.7	54.5	47.3	40.5	35.7	-5.8	-4.3	-3.1	-2.8	
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	81.4	71.7	63.7	56.3	51.2	-2.1	-2.0	-2.4	-2.2	
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.9	20.9	2.9	-0.2	-0.5	-1.4	
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.4	40.1	38.6	37.0	35.7	0.3	3.9	-0.4	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.58	0.54	0.49	0.40	0.25	0.8	-1.5	-1.7	-6.3	
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.11	2.05	1.97	1.95	1.88	0.9	-0.2	-0.7	-0.5	
Industry	1.74	2.64	2.45	2.02	2.15	2.06	2.01	2.03	1.94	3.5	-1.3	-0.6	-0.4	
Residential	1.83	1.90	1.59	1.64	1.64	1.56	1.46	1.39	1.33	-1.4	0.3	-1.2	-1.0	
Tertiary	2.19	2.25	1.98	1.97	1.96	1.90	1.80	1.72	1.65	-1.0	-0.1	-0.8	-0.9	
Transport	2.80	2.80	2.81	2.84	2.78	2.73	2.63	2.60	2.58	0.0	-0.1	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.2	12.3	14.8	17.0	17.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.1	5.8	10.2	11.6	12.2					
Gross Electricity generation by source (in GWh)														
			143147	155331	155423	167712	181691	197939	222760		0.8	1.6	2.1	
Nuclear energy			0	0	0	0	0	20141	41080					
Solids			134042	141361	133158	139120	139207	128412	123015		-0.1	0.4	-1.2	
Oil (including refinery gas)			2936	2964	1188	696	1141	813	855		-8.7	-0.4	-2.8	
Gas (including derived gases)			2979	5603	7908	9819	12828	12511	17564		10.3	5.0	3.2	
Biomass-waste			1080	3068	5816	9546	15544	21422	20179		18.3	10.3	2.6	
Hydro (pumping excluded)			2105	2201	2756	2948	3164	3285	3478		2.7	1.4	0.9	
Wind			5	135	4597	5583	9804	11341	16552		97.9	7.9	5.4	
Solar			0	0	0	0	3	14	37			25.7	29.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			30194	31711	34632	38819	41894	45474	50443		1.4	1.9	1.9	
<u>Nuclear energy</u>			0	0	0	0	0	2325	4742					
<u>Renewable energy</u>			640	1038	3539	4102	6112	6902	9004		18.6	5.6	4.0	
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7	
Wind			5	124	2561	3030	4952	5652	7728		85.9	6.8	4.6	
Solar			0	0	0	0	3	15	40			25.7	29.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			29554	30673	31093	34717	35782	36247	36698		0.5	1.4	0.3	
of which cogeneration units			6632	6800	6898	7949	8674	10119	10665		0.4	2.3	2.1	
Solids fired			28139	28775	28755	29745	29759	25492	24033		0.2	0.3	-2.1	
Gas fired			820	1263	1664	1709	2019	2501	3971		7.3	2.0	7.0	
Oil fired			472	474	461	472	472	352	296		-0.2	0.2	-4.6	
Biomass-waste fired			122	160	213	2792	3532	7902	8398		5.8	32.4	9.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.2	51.1	47.4	45.6	45.9	46.1	45.5					
Efficiency of gross thermal power generation (%)			33.7	34.5	36.5	38.4	40.0	41.5	45.9					
% of gross electricity from CHP			12.2	12.9	23.7	25.9	24.6	26.5	21.9					
Carbon free gross electricity generation (%)			2.2	3.5	8.5	10.8	15.7	28.4	36.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	10.2	18.4					
- renewable energy forms			2.2	3.5	8.5	10.8	15.7	18.2	18.1					
Transport sector														
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.3	330.1	381.2	436.1	488.4	0.5	2.7	3.1	2.5	
Public road transport	46.3	34.0	31.7	29.9	28.8	29.1	31.9	34.4	36.5	-3.7	-1.0	1.0	1.4	
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.3	315.6	360.9	404.1	4.1	4.0	3.3	2.5	
Rail	55.4	31.6	28.8	22.3	20.6	22.6	25.6	30.2	34.7	-6.3	-3.3	2.2	3.1	
Aviation	2.0	2.3	2.6	3.1	4.0	5.8	7.7	10.2	12.8	3.1	4.3	6.7	5.1	
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2	
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	233.9	267.3	295.1	314.9	0.6	4.0	3.3	1.7	
Trucks	40.3	51.2	75.0	111.8	143.3	173.6	197.7	218.0	232.6	6.4	6.7	3.3	1.6	
Rail	81.6	68.2	54.0	43.8	49.7	60.0	69.2	76.6	81.8	-4.0	-0.8	3.4	1.7	
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7	
Energy demand in transport (ktoe)	7338	8256	9185	12087	14890	17618	19465	20902	21444	2.3	4.9	2.7	1.0	
Public road transport	314	229	217	190	183	180	188	191	184	-3.6	-1.7	0.3	-0.2	
Private cars and motorcycles	3299	4112	4876	5324	6441	7501	8288	8990	9119	4.0	2.8	2.6	1.0	
Trucks	2335	2847	3178	5748	7356	8844	9746	10347	10759	3.1	8.8	2.9	1.0	
Rail	1095	667	539	502	534	614	654	659	556	-6.8	-0.1	2.0	-1.6	
Aviation	196	371	369	319	374	477	586	713	823	6.5	0.1	4.6	3.5	
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.3	

Source: PRIMES

Poland: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	67281	67851	71075	658	2236	2347	1.0	3.4	3.4
Solids	94459	71298	68876	53686	51443	42410	-192	-84	-1507	-0.4	-0.2	-3.4
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	9047	0	0	680	0.0	0.0	8.1
Renewable energy sources	2369	4256	5016	9795	12708	16318	850	2320	3173	9.5	22.3	24.1
Hydro	139	181	189	254	272	299	19	11	0	8.2	4.4	0.0
Biomass & Waste	2230	4072	4806	9011	11264	13979	571	1560	1737	6.8	16.1	14.2
Wind	0	0	12	480	843	1423	243	543	1031	102.8	181.2	263.1
Solar and others	0	0	0	36	309	589	12	197	391	49.9	174.9	197.3
Geothermal	0	3	9	15	20	27	4	8	14	38.7	71.6	107.5
Net Imports	2238	10131	16954	39771	45758	52900	-5109	-6175	-6400	-11.4	-11.9	-10.8
Solids	-18913	-16309	-12482	-3677	-3046	-3150	-5525	-6749	-7044	-299.0	-182.2	-180.9
Oil	14468	20381	21929	30200	32342	35282	129	-429	-537	0.4	-1.3	-1.5
- Crude oil and Feedstocks	13085	18827	18169	24865	26503	28726	102	-336	-418	0.4	-1.3	-1.4
- Oil products	1383	1554	3760	5335	5840	6557	27	-93	-120	0.5	-1.6	-1.8
Natural gas	6773	6607	8531	13691	16350	20858	53	257	252	0.4	1.6	1.2
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	106641	113169	123496	-4451	-3939	-4052	-4.0	-3.4	-3.2
Solids	75405	56358	55184	50008	48397	39259	-5717	-6833	-8550	-10.3	-12.4	-17.9
Oil	13399	20759	22525	30489	32602	35404	129	-428	-536	0.4	-1.3	-1.5
Natural gas	8938	9960	12235	16791	19350	23558	53	257	252	0.3	1.3	1.1
Nuclear	0	0	0	0	0	9047	0	0	680	0.0	0.0	8.1
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	9920	13330	17089	1084	3066	4102	12.3	29.9	31.6
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	46.9	42.8	31.8	-3.3	-4.4	-5.7			
Oil	13.4	22.9	24.0	28.6	28.8	28.7	1.3	0.6	0.5			
Natural gas	8.9	11.0	13.0	15.7	17.1	19.1	0.7	0.8	0.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.8			
Renewable energy forms	2.4	4.7	5.3	9.3	11.8	13.8	1.3	3.0	3.7			
Gross Electricity Generation in GWh_e	134591	143147	155331	167712	181691	222760	-17369	-22501	-13707	-9.4	-11.0	-5.8
Self consumption and grid losses	21063	27977	28574	28964	30237	39362	-3436	-4335	1809	-10.6	-12.5	4.8
Fuel Inputs to Thermal Power Generation	43419	35960	38149	35645	36245	30262	-6035	-5806	-6523	-14.5	-13.8	-17.7
Solids	41138	34793	35942	33164	32132	24077	-5655	-7008	-8925	-14.6	-17.9	-27.0
Oil (including refinery gas)	1236	228	179	24	270	29	-7	239	4	-23.5	770.9	17.2
Gas (including derived gases)	673	783	1483	1348	1639	2210	-218	-2	-2	-13.9	-0.1	-0.1
Biomass & Waste	372	157	546	1109	2205	3946	-154	964	2399	-12.2	77.7	155.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	35870	38059	40635	670	616	463	1.9	1.6	1.2
Refineries	13160	19949	19591	25866	27524	29657	101	-338	-419	0.4	-1.2	-1.4
Biofuels and hydrogen production	0	0	55	982	1904	2454	141	494	472	16.8	35.0	23.8
District heating	9949	4320	3639	3334	3547	4112	-84	-26	-92	-2.5	-0.7	-2.2
Derived gases, cokeries etc.	14746	9635	8541	5688	5084	4412	511	487	502	9.9	10.6	12.8
Energy Branch Consumption	6809	7401	7680	10191	10531	11623	-12	-98	335	-0.1	-0.9	3.0
Non-Energy Uses	4193	4218	4354	6272	7257	8944	-16	-22	-21	-0.3	-0.3	-0.2
Final Energy Demand	59583	55720	57169	71042	77093	85218	-204	-355	-249	-0.3	-0.5	-0.3
by sector												
Industry	25252	18883	16373	19993	22037	25166	-125	-349	-320	-0.6	-1.6	-1.3
- energy intensive industries	16252	13374	11149	12696	13652	15383	-126	-344	-359	-1.0	-2.5	-2.3
- other industrial sectors	9000	5509	5225	7297	8386	9784	1	-5	39	0.0	-0.1	0.4
Residential	18126	17516	18375	20618	21684	22711	106	368	525	0.5	1.7	2.4
Tertiary	8867	10136	10334	12813	13907	15897	-154	-260	-251	-1.2	-1.8	-1.6
Transport	7338	9185	12087	17618	19465	21444	-31	-113	-203	-0.2	-0.6	-0.9
by fuel												
Solids	17066	13728	11262	11155	10872	10454	-226	9	26	-2.0	0.1	0.2
Oil	9104	15452	17798	24189	25634	27214	702	34	-121	3.0	0.1	-0.4
Gas	7987	7447	8400	12449	13903	16232	17	-140	-161	0.1	-1.0	-1.0
Electricity	8233	8317	8498	9952	11146	13602	-1215	-1574	-1345	-10.9	-12.4	-9.0
Heat (from CHP and District Heating)	15563	6886	7056	6965	7662	8465	-238	53	385	-3.3	0.7	4.8
Renewable energy forms	1631	3889	4156	6329	7871	9244	757	1264	967	13.6	19.1	11.7
Other	0	0	0	3	5	7	0	0	0	1.4	-0.9	-1.9
RES in Gross Final Energy Consumption ^(A)		4153	4481	9001	11795	15557	1402	2881	3522	18.4	32.3	29.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	386.8	394.9	341.1	-22.5	-28.2	-62.1	-5.5	-6.7	-15.4
CO₂ Emissions (energy related)	332.2	290.3	290.7	305.4	309.4	261.4	-22.5	-28.0	-61.8	-6.9	-8.3	-19.1
Power generation/District heating	209.3	158.8	162.1	147.8	145.3	88.8	-23.0	-26.9	-61.4	-13.5	-15.6	-40.9
Energy Branch	5.8	11.4	10.6	11.8	12.0	12.4	-0.9	-1.0	0.1	-6.8	-7.9	0.8
Industry	44.0	46.3	33.2	41.2	44.4	48.8	0.9	0.9	1.0	2.3	2.0	2.2
Residential	33.1	27.9	30.2	32.1	31.6	30.1	0.4	0.2	0.1	1.2	0.7	0.3
Tertiary	19.4	20.1	20.4	24.3	25.0	26.2	0.6	0.4	0.1	2.4	1.6	0.5
Transport	20.5	25.8	34.3	48.1	51.1	55.2	-0.4	-1.6	-1.8	-0.9	-3.0	-3.2
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.5	17.7	22.7	-0.1	-0.2	-0.2	-0.5	-1.1	-0.9
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	66.9	67.8	56.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	90.0	91.9	79.3	-5.2	-6.6	-14.4			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Poland: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	276.8	239.7	188.7	-11.6	-8.3	-6.2	-4.0	-3.4	-3.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.86	2.73	2.12	-0.09	-0.15	-0.42	-3.0	-5.1	-16.5
Import Dependency %	2.2	11.1	18.0	37.2	40.3	42.7	-3.1	-3.9	-3.6			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	60.2	71.6	89.7	0.5	1.0	3.3	0.9	1.5	3.8
as % of GDP		16.1	15.8	15.6	15.2	13.7	0.1	0.2	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.0	3.3						
as % of GDP				0.14	0.22	0.50						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	51.1	45.2	39.1	-0.3	-0.7	-0.5	-0.6	-1.6	-1.3
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	54.5	47.3	35.7	0.3	0.8	0.8	0.5	1.7	2.4
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	71.7	63.7	51.2	-0.9	-1.2	-0.8	-1.2	-1.8	-1.6
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	25.0	24.0	20.9	0.0	0.0	0.0	0.0	0.0	-0.2
Freight transport (toe/Mtkm)	26.9	27.6	39.4	40.1	38.6	35.7	0.0	-0.1	-0.1	0.0	-0.2	-0.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.54	0.49	0.25	-0.04	-0.05	-0.16	-7.2	-9.5	-39.3
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.05	1.97	1.88	0.03	0.01	0.00	1.3	0.4	-0.1
Industry	1.74	2.45	2.02	2.06	2.01	1.94	0.06	0.07	0.07	2.9	3.6	3.5
Residential	1.83	1.59	1.64	1.56	1.46	1.33	0.01	-0.02	-0.03	0.6	-1.0	-2.1
Tertiary	2.19	1.98	1.97	1.90	1.80	1.65	0.07	0.06	0.03	3.7	3.5	2.1
Transport	2.80	2.81	2.84	2.73	2.63	2.58	-0.02	-0.07	-0.06	-0.7	-2.4	-2.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	12.3	14.8	17.6	2.0	3.7	4.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.8	10.2	12.2	0.9	2.7	2.5			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	41080	0	0	3086				8.1
Solids	134042	141361	139120	139207	123015	-19174	-36322	-38904				-24.0
Oil (including refinery gas)	2936	2964	696	1141	855	-1288	-1027	-817				-48.9
Gas (including derived gases)	2979	5603	9819	12828	17564	-596	1889	1456				9.0
Biomass-waste	1080	3068	9546	15544	20179	635	6508	9478				88.6
Hydro (pumping excluded)	2105	2201	2948	3164	3478	223	132	0				0.0
Wind	5	135	5583	9804	16552	2830	6317	11994				263.1
Solar	0	0	0	3	37	0	0	0				0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0				0.0
Net Generation Capacity in MW_e	30194	31711	38819	41894	50443	4100	2821	7080	11.8	7.2	16.3	
<u>Nuclear energy</u>	0	0	0	0	4742	0	0	356				8.1
<u>Renewable energy</u>	640	1038	4102	6112	9004	1717	3324	5651				168.6
Hydro (pumping excluded)	635	914	1072	1156	1235	0	0	0				0.0
Wind	5	124	3030	4952	7728	1717	3324	5651				272.1
Solar	0	0	0	3	40	0	0	0				0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				0.0
<u>Thermal power</u>	29554	30673	34717	35782	36698	2383	-503	1072				3.0
of which cogeneration units	6632	6800	7949	8674	10665	639	680	1569				17.2
Solids fired	28139	28775	29745	29759	24033	0	-3937	-4268				-15.1
Gas fired	820	1263	1709	2019	3971	-98	212	593				17.6
Oil fired	472	474	472	472	296	0	0	0				0.0
Biomass-waste fired	122	160	2792	3532	8398	2482	3222	4748				130.1
Fuel Cells	0	0	0	0	0	0	0	0				0.0
Geothermal heat	0	0	0	0	0	0	0	0				0.0
Avg. Load factor of net power capacity (%)	49.2	51.1	45.6	45.9	45.5	-10.6	-9.3	-12.0				
Efficiency of gross thermal power generation (%)	33.7	34.5	38.4	40.0	45.9	1.3	-0.4	1.4				
% of gross electricity from CHP	12.2	12.9	25.9	24.6	21.9	7.4	5.2	4.5				
Carbon free gross electricity generation (%)	2.2	3.5	10.8	15.7	36.5	3.0	8.1	12.5				
- nuclear	0.0	0.0	0.0	0.0	18.4	0.0	0.0	2.4				
- renewable energy forms	2.2	3.5	10.8	15.7	18.1	3.0	8.1	10.1				
Transport sector												
Passenger transport activity (Gpkm)	207.0	216.5	243.8	330.1	381.2	488.4	-0.7	-2.1	-3.8	-0.2	-0.6	-0.8
Public road transport	46.3	31.7	29.9	29.1	31.9	36.5	0.0	0.1	0.2	0.1	0.4	0.6
Private cars and motorcycles	102.8	153.1	188.3	272.3	315.6	404.1	-0.6	-2.1	-3.8	-0.2	-0.6	-0.9
Rail	55.4	28.8	22.3	22.6	25.6	34.7	0.0	0.0	0.3	0.1	0.2	0.8
Aviation	2.0	2.6	3.1	5.8	7.7	12.8	-0.1	-0.3	-0.5	-2.2	-3.3	-3.8
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	0.2	0.5	0.7
Freight transport activity (Gtkm)	122.9	130.2	156.0	233.9	267.3	314.9	-0.3	-1.1	-1.8	-0.1	-0.4	-0.6
Trucks	40.3	75.0	111.8	173.6	197.7	232.6	-0.4	-1.2	-2.2	-0.2	-0.6	-0.9
Rail	81.6	54.0	43.8	60.0	69.2	81.8	0.1	0.2	0.4	0.1	0.2	0.5
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.5	0.0	0.0	0.0	0.1	0.4	0.5
Energy demand in transport (ktoe)	7338	9185	12087	17618	19465	21444	-31	-113	-203	-0.2	-0.6	-0.9
Public road transport	314	217	190	180	188	184	0	1	1	0.1	0.4	0.6
Private cars and motorcycles	3299	4876	5324	7501	8288	9119	-7	-31	-45	-0.1	-0.4	-0.5
Trucks	2335	3178	5748	8844	9746	10759	-16	-62	-103	-0.2	-0.6	-0.9
Rail	1095	539	502	614	654	556	5	4	3	0.8	0.7	0.6
Aviation	196	369	319	477	586	823	-13	-26	-59	-2.6	-4.2	-6.7
Inland navigation	99	6	2	2	3	3	0	0	0	0.1	0.4	0.6

Source: PRIMES

Portugal: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2808	2602	3109	3583	5455	6293	7921	9136	10565	1.0	5.8	3.8	2.9
Solids	115	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	2692	2602	3109	3583	5455	6293	7921	9136	10565	1.4	5.8	3.8	2.9
Hydro	787	717	974	407	871	871	872	872	872	2.1	-1.1	0.0	0.0
Biomass & Waste	1891	1831	2053	2936	3420	3900	4895	5565	6039	0.8	5.2	3.7	2.1
Wind	0	1	14	152	984	1081	1354	1569	1778	66.9	52.5	3.2	2.8
Solar and others	11	15	18	23	95	320	666	983	1697	5.4	17.8	21.5	9.8
Geothermal	3	37	49	66	85	121	133	147	179	31.4	5.6	4.6	3.0
Net Imports	15160	17876	21588	24040	23270	24177	23796	23774	21931	3.6	0.8	0.2	-0.8
Solids	2789	3797	3913	3223	3430	3342	3341	2757	755	3.4	-1.3	-0.3	-13.8
Oil	12367	14001	15556	16338	16108	16536	16158	16281	16779	2.3	0.3	0.0	0.4
- Crude oil and Feedstocks	11360	13547	12022	13459	13486	13829	13670	13771	14173	0.6	1.2	0.1	0.4
- Oil products	1007	454	3534	2878	2621	2708	2487	2510	2606	13.4	-2.9	-0.5	0.5
Natural gas	0	0	2039	3893	3628	4148	4211	4660	4328		5.9	1.5	0.3
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Gross Inland Consumption	16890	19611	24108	26677	28120	29828	31046	32212	31773	3.6	1.6	1.0	0.2
Solids	2580	3493	3803	3347	3430	3342	3341	2757	755	4.0	-1.0	-0.3	-13.8
Oil	11614	13437	15083	15410	15502	15895	15487	15582	16055	2.6	0.3	0.0	0.4
Natural gas	0	0	2034	3751	3628	4148	4211	4660	4328		6.0	1.5	0.3
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Renewable energy forms	2692	2602	3109	3583	5455	6293	7921	9136	10565	1.4	5.8	3.8	2.9
as % in Gross Inland Consumption													
Solids	15.3	17.8	15.8	12.5	12.2	11.2	10.8	8.6	2.4				
Oil	68.8	68.5	62.6	57.8	55.1	53.3	49.9	48.4	50.5				
Natural gas	0.0	0.0	8.4	14.1	12.9	13.9	13.6	14.5	13.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	15.9	13.3	12.9	13.4	19.4	21.1	25.5	28.4	33.3				
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	58704	64038	70125	77349	83718	4.3	3.1	1.8	1.8
Self consumption and grid losses	4441	4776	5435	6125	6473	7098	7744	9428	9517	2.0	1.8	1.8	2.1
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	7415	7844	7663	7601	5996	4.2	1.3	0.3	-2.4
Solids	2027	2919	3198	3319	3424	3337	3337	2752	751	4.7	0.7	-0.3	-13.9
Oil (including refinery gas)	2105	2371	1670	1884	1178	1112	515	485	863	-2.3	-3.4	-7.9	5.3
Gas (including derived gases)	19	18	1234	2309	1792	2227	2209	2472	2141	51.6	3.8	2.1	-0.3
Biomass & Waste	149	148	356	430	939	1051	1474	1749	2067	9.1	10.2	4.6	3.4
Geothermal heat	3	37	49	65	82	117	129	143	174	31.4	5.2	4.7	3.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11484	14055	12700	13608	13960	14483	14590	14845	15320	1.0	1.0	0.4	0.5
Refineries	11152	13579	12251	13608	13772	14112	13951	14044	14441	0.9	1.2	0.1	0.3
Biofuels and hydrogen production	0	0	0	0	188	371	639	801	879			13.0	3.2
District heating	0	16	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1			
Energy Branch Consumption	658	870	881	900	852	858	834	904	846	3.0	-0.3	-0.2	0.1
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2840	2986	3113	1.0	1.0	1.0	0.9
Final Energy Demand	11208	13042	16937	16654	20201	21568	22776	23870	24618	4.2	1.8	1.2	0.8
by sector													
Industry	4139	4247	5518	5656	5875	6140	6410	6680	6867	2.9	0.6	0.9	0.7
- energy intensive industries	2497	2646	3437	3757	3843	3972	4117	4277	4396	3.2	1.1	0.7	0.7
- other industrial sectors	1642	1601	2081	1899	2032	2168	2293	2403	2471	2.4	-0.2	1.2	0.7
Residential	2290	2569	2804	3206	3654	4068	4456	4750	5009	2.0	2.7	2.0	1.2
Tertiary	1052	1373	2098	2766	3100	3244	3361	3527	3694	7.2	4.0	0.8	0.9
Transport	3728	4853	6517	7026	7572	8116	8549	8913	9050	5.7	1.5	1.2	0.6
by fuel													
Solids	617	546	465	16	5	5	5	5	5	-2.8	-36.0	-1.4	-0.3
Oil	6683	8187	10469	10492	11007	11357	11431	11432	11408	4.6	0.5	0.4	0.0
Gas	103	97	853	1307	1783	1863	1947	2128	2135	23.6	7.6	0.9	0.9
Electricity	2024	2477	3299	3983	4547	4996	5397	5864	6395	5.0	3.3	1.7	1.7
Heat (from CHP and District Heating)	28	36	134	328	324	316	339	386	451	16.8	9.2	0.5	2.9
Renewable energy forms	1752	1698	1716	2529	2535	3029	3655	4052	4221	-0.2	4.0	3.7	1.4
Other	0	0	0	0	1	1	2	3	3			14.9	2.7
RES in Gross Final Energy Consumption ^(A)			2907	3266	5181	5946	7457	8595	9945	6.0	3.7	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	84.5	85.8	84.8	83.2	75.8	3.5	0.0	0.0	-1.1
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	61.2	62.9	61.2	59.7	52.1	4.1	0.4	0.0	-1.6
Power generation/District heating	14.8	19.2	20.9	24.5	21.5	21.9	20.0	18.2	10.7	3.5	0.3	-0.7	-6.0
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	4.3	0.2	-0.7	-0.5
Industry	8.2	8.4	10.8	7.3	8.5	8.7	8.4	8.0	7.8	2.8	-2.4	-0.1	-0.8
Residential	1.6	1.9	2.0	2.3	2.4	2.6	2.8	3.0	3.1	2.0	2.0	1.4	0.9
Tertiary	1.9	2.2	3.2	4.2	4.3	4.0	3.8	3.7	3.6	5.4	3.2	-1.3	-0.6
Transport	11.0	14.4	19.4	21.0	22.1	23.3	24.0	24.7	24.9	5.8	1.3	0.8	0.4
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.3	6.6	6.9	7.0	4.7	-1.4	0.6	0.6
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	140.1	142.3	140.6	138.0	125.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: EC proposal with JI/CDM & without RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	172.8	161.1	145.9	132.2	116.5	0.2	0.3	-1.7	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.18	2.11	1.97	1.85	1.64	0.5	-1.1	-1.0	-1.8	
Import Dependency %	86.7	89.0	87.2	88.2	81.0	79.3	75.0	72.2	67.5					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.4	24.6	28.7	32.4	34.8		3.3	3.0	1.9	
as % of GDP			10.8	12.3	13.1	13.3	13.5	13.3	12.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.3	97.2	90.2	84.0	80.5	1.7	0.3	-1.3	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	110.4	109.2	105.3	99.1	94.0	-2.0	1.0	-0.5	-1.1	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	123.2	112.5	101.9	93.9	88.3	3.9	2.1	-1.9	-1.4	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.4	37.8	35.8	33.8	31.0	0.2	-1.1	-0.9	-1.4	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.0	57.0	56.2	1.3	-0.3	-0.5	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.32	0.27	0.22	0.12	-1.0	-3.0	-2.4	-7.7	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.85	1.79	1.71	1.65	1.60	0.3	-1.2	-0.8	-0.7	
Industry	1.99	1.97	1.96	1.30	1.45	1.41	1.32	1.20	1.14	-0.1	-3.0	-0.9	-1.5	
Residential	0.71	0.74	0.71	0.70	0.67	0.65	0.63	0.62	0.61	0.0	-0.6	-0.6	-0.3	
Tertiary	1.77	1.61	1.50	1.53	1.40	1.23	1.13	1.05	0.97	-1.6	-0.7	-2.1	-1.6	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.80	2.77	2.75	0.1	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.0	26.8	31.8	34.8	39.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.4	7.2	8.8	9.6					
Gross Electricity generation by source (in GWh)														
			43364	46180	58704	64038	70125	77349	83718		3.1	1.8	1.8	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15629	15229	15229	12560	4272		0.6	-0.3	-11.9	
Oil (including refinery gas)			9483	9244	7479	7058	3677	2913	5249		-2.3	-6.9	3.6	
Gas (including derived gases)			5745	11580	10323	13117	12934	15504	14900		6.0	2.3	1.4	
Biomass-waste			1802	3434	3453	4883	8476	10738	13190		6.7	9.4	4.5	
Hydro (pumping excluded)			11321	4730	10127	10132	10137	10137	10142		-1.1	0.0	0.0	
Wind			168	1773	11445	12568	15748	18240	20669		52.5	3.2	2.8	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	876	1064	1215	1297		5.2	23.1	2.0	
Net Generation Capacity in MW_e			10643	13440	22024	22581	25918	29539	37823		7.5	1.6	3.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10380	11440	14974	18543	26077		9.8	3.7	5.7	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5991	6503	8139	9374	11054		50.6	3.1	3.1	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	364	448	519	542				1.9	
<u>Thermal power</u>			6585	8156	11644	11142	10944	10996	11745		5.9	-0.6	0.7	
of which cogeneration units			1372	1373	1840	2017	2260	2569	3183		3.0	2.1	3.5	
Solids fired			1903	1914	1885	1837	1837	1421	568		-0.1	-0.3	-11.1	
Gas fired			1868	3724	6011	5528	5206	5403	6310		12.4	-1.4	1.9	
Oil fired			2338	2008	1981	1919	1519	1317	1336		-1.6	-2.6	-1.3	
Biomass-waste fired			463	493	1750	1832	2351	2823	3490		14.2	3.0	4.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	27	32	32	41		2.1	7.0	2.6	
Avg. Load factor of net power capacity (%)			44.8	37.8	29.7	31.6	30.1	28.8	24.6					
Efficiency of gross thermal power generation (%)			42.1	42.6	42.9	44.4	45.5	47.4	54.3					
% of gross electricity from CHP			11.3	10.1	10.8	12.6	16.3	18.1	20.9					
Carbon free gross electricity generation (%)			30.8	21.8	43.0	44.7	54.6	60.0	70.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	43.0	44.7	54.6	60.0	70.8					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.7	124.5	135.8	147.6	158.3	5.3	2.4	1.9	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.9	12.2	12.5	1.4	-0.5	0.6	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.4	96.6	103.8	110.1	7.7	3.0	1.8	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.1	5.5	6.2	7.0	-3.2	0.4	1.5	2.4	
Aviation	7.1	9.1	11.7	13.2	15.3	18.1	21.3	24.9	28.1	5.1	2.7	3.4	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.5	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.9	63.5	68.9	73.6	4.7	2.1	2.1	1.5	
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	58.8	63.9	68.4	5.4	2.1	2.1	1.5	
Rail	1.5	2.0	2.2	2.4	2.7	3.1	3.3	3.5	3.8	4.1	2.2	2.0	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.4	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7572	8116	8549	8913	9050	5.7	1.5	1.2	0.6	
Public road transport	67	90	100	108	103	100	100	97	91	4.2	0.2	-0.3	-1.0	
Private cars and motorcycles	1575	2299	2945	3058	3288	3421	3480	3493	3338	6.5	1.1	0.6	-0.4	
Trucks	1387	1717	2551	2872	3062	3336	3604	3849	4071	6.3	1.8	1.6	1.2	
Rail	82	80	88	66	67	65	60	56	48	0.6	-2.6	-1.1	-2.2	
Aviation	574	620	790	881	1005	1140	1248	1358	1441	3.2	2.4	2.2	1.5	
Inland navigation	43	46	43	41	47	52	56	59	61	0.0	0.8	1.9	0.7	

Source: PRIMES

Portugal: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6293	7921	10565	805	1861	3022	14.7	30.7	40.1
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	-39.7	-80.1	461.7
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6293	7921	10565	805	1861	3022	14.7	30.7	40.1
Hydro	787	974	407	871	872	872	1	0	0	0.1	0.1	0.0
Biomass & Waste	1891	2053	2936	3900	4895	6039	311	979	1162	8.7	25.0	23.8
Wind	0	14	152	1081	1354	1778	238	346	377	28.2	34.3	26.9
Solar and others	11	18	23	320	666	1697	219	494	1481	215.3	286.7	683.6
Geothermal	3	49	66	121	133	179	37	42	3	43.5	46.1	1.6
Net Imports	15160	21588	24040	24177	23796	21931	-1674	-3668	-6244	-6.5	-13.4	-22.2
Solids	2789	3913	3223	3342	3341	755	-955	-1804	-3992	-22.2	-35.1	-84.1
Oil	12367	15556	16338	16536	16158	16779	-387	-1325	-830	-2.3	-7.6	-4.7
- Crude oil and Feedstocks	11360	12022	13459	13829	13670	14173	-308	-912	-566	-2.2	-6.3	-3.8
- Oil products	1007	3534	2878	2708	2487	2606	-79	-413	-264	-2.8	-14.2	-9.2
Natural gas	0	2039	3893	4148	4211	4328	-333	-539	-1422	-7.4	-11.3	-24.7
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	29828	31046	31773	-869	-1806	-3220	-2.8	-5.5	-9.2
Solids	2580	3803	3347	3342	3341	755	-955	-1804	-3992	-22.2	-35.1	-84.1
Oil	11614	15083	15410	15895	15487	16055	-386	-1324	-828	-2.4	-7.9	-4.9
Natural gas	0	2034	3751	4148	4211	4328	-333	-539	-1422	-7.4	-11.3	-24.7
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6293	7921	10565	805	1861	3022	14.7	30.7	40.1
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.2	10.8	2.4	-2.8	-4.9	-11.2			
Oil	68.8	62.6	57.8	53.3	49.9	50.5	0.2	-1.3	2.3			
Natural gas	0.0	8.4	14.1	13.9	13.6	13.6	-0.7	-0.9	-2.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	21.1	25.5	33.3	3.2	7.1	11.7			
Gross Electricity Generation in GWh_e	28350	43364	46180	64038	70125	83718	-4334	-7155	-9710	-6.3	-9.3	-10.4
Self consumption and grid losses	4441	5435	6125	7098	7744	9517	-809	-1351	-2382	-10.2	-14.9	-20.0
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7844	7663	5996	-1272	-2384	-4736	-14.0	-23.7	-44.1
Solids	2027	3198	3319	3337	3337	751	-956	-1805	-3994	-22.3	-35.1	-84.2
Oil (including refinery gas)	2105	1670	1884	1112	515	863	-243	-755	-137	-17.9	-59.5	-13.7
Gas (including derived gases)	19	1234	2309	2227	2209	2141	-285	-409	-1195	-11.3	-15.6	-35.8
Biomass & Waste	149	356	430	1051	1474	2067	175	546	591	20.0	58.9	40.0
Geothermal heat	3	49	65	117	129	174	36	40	0	43.6	44.9	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	14483	14590	15320	-256	-748	-397	-1.7	-4.9	-2.5
Refineries	11152	12251	13608	14112	13951	14441	-308	-913	-566	-2.1	-6.1	-3.8
Biofuels and hydrogen production	0	0	0	371	639	879	52	164	169	16.5	34.6	23.8
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	858	834	846	-52	-117	-162	-5.8	-12.3	-16.0
Non-Energy Uses	2103	2330	2405	2684	2840	3113	-2	-3	-3	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	21558	22776	24618	-190	-455	-671	-0.9	-2.0	-2.7
by sector												
Industry	4139	5518	5656	6140	6410	6867	-82	-209	-277	-1.3	-3.2	-3.9
- energy intensive industries	2497	3437	3757	3972	4117	4396	-71	-153	-179	-1.8	-3.6	-3.9
- other industrial sectors	1642	2081	1899	2168	2293	2471	-11	-56	-98	-0.5	-2.4	-3.8
Residential	2290	2804	3206	4068	4456	5009	56	63	39	1.4	1.4	0.8
Tertiary	1052	2098	2766	3244	3361	3694	-127	-225	-294	-3.8	-6.3	-7.4
Transport	3728	6517	7026	8116	8549	9050	-37	-84	-138	-0.5	-1.0	-1.5
by fuel												
Solids	617	465	16	5	5	5	1	1	2	26.2	37.1	68.0
Oil	6683	10469	10492	11357	11431	11408	-126	-504	-653	-1.1	-4.2	-5.4
Gas	103	853	1307	1863	1947	2135	-44	-123	-211	-2.3	-5.9	-9.0
Electricity	2024	3299	3983	4996	5397	6395	-303	-499	-630	-5.7	-8.5	-9.0
Heat (from CHP and District Heating)	28	134	328	316	339	451	-4	27	11	-1.3	8.5	2.5
Renewable energy forms	1752	1716	2529	3029	3655	4221	286	643	809	10.4	21.3	23.7
Other	0	0	0	1	2	3	0	0	0	1.1	2.7	2.6
RES in Gross Final Energy Consumption ^(A)		2907	3266	5946	7457	9945	736	1716	2914	14.1	29.9	41.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	85.8	84.8	75.8	-5.8	-12.6	-21.7	-6.3	-12.9	-22.2
CO₂ Emissions (energy related)	39.0	58.5	61.6	62.9	61.2	52.1	-5.7	-12.5	-21.6	-8.4	-17.0	-29.3
Power generation/District heating	14.8	20.9	24.5	21.9	20.0	10.7	-5.2	-10.5	-19.0	-19.2	-34.5	-63.9
Energy Branch	1.5	2.3	2.3	2.3	2.2	2.1	-0.1	-0.2	-0.1	-2.1	-8.1	-5.1
Industry	8.2	10.8	7.3	8.7	8.4	7.8	-0.1	-0.9	-1.3	-0.6	-9.5	-14.7
Residential	1.6	2.0	2.3	2.6	2.8	3.1	0.0	-0.1	-0.1	-1.7	-3.2	-3.7
Tertiary	1.9	3.2	4.2	4.0	3.8	3.6	-0.1	-0.2	-0.2	-3.3	-5.1	-5.5
Transport	11.0	19.4	21.0	23.3	24.0	24.9	-0.2	-0.7	-0.8	-1.0	-2.7	-3.2
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.3	6.6	7.0	0.0	-0.1	-0.1	-0.3	-0.8	-1.3
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	16.6	17.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	142.3	140.6	125.6	-9.5	-20.9	-35.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	161.1	145.9	116.5	-4.7	-8.5	-11.8	-2.8	-5.5	-9.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.11	1.97	1.64	-0.13	-0.27	-0.47	-5.7	-12.2	-22.1
Import Dependency %	86.7	87.2	88.2	79.3	75.0	67.5	-3.1	-6.9	-11.4			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	24.6	28.7	34.8	0.2	0.9	1.9	0.7	3.2	5.9
as % of GDP		10.8	12.3	13.3	13.5	12.7	0.1	0.4	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.9	1.9						
as % of GDP				0.10	0.41	0.71						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	97.2	90.2	80.5	-1.3	-2.9	-3.3	-1.3	-3.2	-3.9
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	109.2	105.3	94.0	1.5	1.5	0.7	1.4	1.4	0.8
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	112.5	101.9	88.3	-4.4	-6.8	-7.0	-3.8	-6.3	-7.4
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.8	35.8	31.0	-0.1	-0.2	-0.3	-0.3	-0.6	-1.0
Freight transport (toe/Mtkm)	55.4	62.9	63.8	59.0	58.0	56.2	0.0	0.0	0.0	0.0	0.0	0.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.27	0.12	-0.05	-0.11	-0.18	-14.0	-28.4	-60.0
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.79	1.71	1.60	-0.01	-0.05	-0.06	-0.3	-2.6	-3.4
Industry	1.99	1.96	1.30	1.41	1.32	1.14	0.01	-0.09	-0.14	0.7	-6.5	-11.3
Residential	0.71	0.71	0.70	0.65	0.63	0.61	-0.02	-0.03	-0.03	-3.1	-4.6	-4.5
Tertiary	1.77	1.50	1.53	1.23	1.13	0.97	0.01	0.01	0.02	0.4	1.2	2.0
Transport	2.95	2.97	2.98	2.87	2.80	2.75	-0.02	-0.05	-0.05	-0.6	-1.7	-1.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	26.8	31.8	39.1	39.1	3.6	7.9	12.4			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.4	7.2	9.6	9.6	0.6	1.9	1.9			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15229	15229	15229	4272	-5414	-10372	-23745	-26.2	-40.5	-84.8
Oil (including refinery gas)	9483	9244	7058	3677	5249	5249	-1419	-4068	-1095	-16.7	-52.5	-17.3
Gas (including derived gases)	5745	11580	13117	12934	14900	14900	-1145	-2718	-6687	-8.0	-17.4	-31.0
Biomass-waste	1802	3434	4883	8476	13190	13190	125	2940	3301	2.6	53.1	33.4
Hydro (pumping excluded)	11321	4730	10132	10137	10142	10142	10	5	0	0.1	0.1	0.0
Wind	168	1773	12568	15748	20669	20669	2766	4025	4379	28.2	34.3	26.9
Solar	1	3	176	2861	14000	14000	0	2643	13738	0.0	1211.1	5246.5
Geothermal and other renewables	80	105	876	1064	1297	1297	743	391	400	558.9	58.0	44.6
Net Generation Capacity in MW_e	10643	13440	22581	25918	37823	37823	580	2287	9835	2.6	9.7	35.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	4058	5284	11440	14974	26077	26077	1615	3946	12505	16.4	35.8	92.1
Hydro (pumping excluded)	3958	4234	4435	4490	4490	4490	0	0	0	0.0	0.0	0.0
Wind	100	1047	6503	8139	11054	11054	1251	2048	2540	23.8	33.6	29.8
Solar	1	3	138	1896	9990	9990	0	1724	9757	0.0	1001.6	4184.4
Other renewables (tidal etc.)	0	0	364	448	542	542	364	174	208		63.6	62.0
<u>Thermal power</u>	6585	8156	11142	10944	11745	11745	-1034	-1659	-2670	-8.5	-13.2	-18.5
of which cogeneration units	1372	1373	2017	2260	3183	3183	-189	38	21	-8.5	1.7	0.7
Solids fired	1903	1914	1837	1837	568	568	-628	-1203	-2677	-25.5	-39.6	-82.5
Gas fired	1868	3724	5528	5206	6310	6310	-389	-713	-786	-6.6	-12.1	-11.1
Oil fired	2338	2008	1919	1519	1336	1336	-228	-423	-211	-10.6	-21.8	-13.6
Biomass-waste fired	463	493	1832	2351	3490	3490	200	669	1005	12.3	39.8	40.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	13	16	27	32	41	41	11	11	0	65.6	50.0	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	31.6	30.1	24.6	24.6	-2.9	-6.0	-11.9			
Efficiency of gross thermal power generation (%)	42.1	42.6	44.4	45.5	54.3	54.3	-1.2	-1.3	1.3			
% of gross electricity from CHP	11.3	10.1	12.6	16.3	20.9	20.9	-0.1	3.2	3.1			
Carbon free gross electricity generation (%)	30.8	21.8	44.7	54.6	70.8	70.8	8.2	18.0	30.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	30.8	21.8	44.7	54.6	70.8	70.8	8.2	18.0	30.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	52.7	88.5	100.7	124.5	135.8	158.3	-0.5	-1.1	-1.9	-0.4	-0.8	-1.2
Private cars and motorcycles	10.3	11.8	11.1	11.5	11.9	12.5	0.0	0.0	0.1	0.1	0.3	0.5
Rail	28.6	60.0	71.4	89.4	96.6	110.1	-0.2	-0.5	-0.9	-0.2	-0.5	-0.8
Aviation	6.3	4.6	4.6	5.1	5.5	7.0	0.0	-0.1	-0.1	-0.1	-0.9	-1.5
Inland navigation	7.1	11.7	13.2	18.1	21.3	28.1	-0.4	-0.7	-1.0	-2.0	-3.1	-3.5
Freight transport activity (Gtkm)	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	0.1	0.3	0.5
Freight transport activity (Gtkm)	26.4	41.9	46.0	57.9	63.5	73.6	-0.1	-0.3	-0.5	-0.1	-0.4	-0.7
Trucks	23.1	38.9	42.6	53.6	58.8	68.4	-0.1	-0.2	-0.5	-0.1	-0.4	-0.8
Rail	1.5	2.2	2.4	3.1	3.3	3.8	0.0	0.0	0.0	0.0	0.4	-0.5
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.5	0.0	0.0	0.0	0.0	0.2	0.4
Energy demand in transport (ktoe)												
Public road transport	3728	6517	7026	8116	8549	9050	-37	-84	-138	-0.5	-1.0	-1.5
Private cars and motorcycles	67	100	108	100	100	91	0	0	0	0.1	0.4	-0.1
Trucks	1575	2945	3058	3421	3480	3338	-4	-13	-21	-0.1	-0.4	-0.6
Rail	1387	2551	2872	3336	3604	4071	-4	-15	-29	-0.1	-0.4	-0.7
Aviation	82	88	66	65	60	48	0	0	-1	0.1	-0.7	-2.1
Inland navigation	574	790	881	1140	1248	1441	-29	-57	-88	-2.5	-4.3	-5.8
Inland navigation	43	43	41	52	56	61	0	0	0	0.0	0.3	0.5

Source: PRIMES

Romania: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	41400	32600	28774	28181	29209	31004	33495	35920	38218	-3.6	0.1	1.4	1.3
Solids	7935	7889	5879	5793	6231	4097	3728	5073	6199	-3.0	0.6	-5.0	5.2
Oil	7947	7104	6389	6120	5647	6183	6172	6167	6164	-2.2	-1.2	0.9	0.0
Natural gas	22911	14446	10968	9701	9761	10552	11008	10383	9822	-7.1	-1.2	1.2	-1.1
Nuclear	0	0	1407	1433	1474	2869	3435	3681	3755		0.5	8.8	0.9
Renewable energy sources	2607	3162	4131	5134	6095	7303	9152	10616	12278	4.7	4.0	4.1	3.0
Hydro	1460	1435	1271	1737	1680	1700	1712	1734	1788	-1.4	2.8	0.2	0.4
Biomass & Waste	1147	1726	2854	3314	4235	5278	6814	8054	9521	9.5	4.0	4.9	3.4
Wind	0	0	0	0	50	59	98	134	157			6.9	4.8
Solar and others	0	0	0	0	10	88	253	363	430			37.7	5.5
Geothermal	0	0	7	82	119	178	276	332	382		33.3	8.8	3.3
Net Imports	20360	14542	8099	10719	12055	14671	16677	19602	21651	-8.8	4.1	3.3	2.6
Solids	2423	2870	1905	2904	3050	4752	5148	5091	4843	-2.4	4.8	5.4	-0.6
Oil	11194	6852	3542	3874	5042	5718	6753	7642	8357	-10.9	3.6	3.0	2.2
- Crude oil and Feedstocks	16094	8735	4836	8751	9814	10940	12347	13553	14522	-11.3	7.3	2.3	1.6
- Oil products	-4900	-1883	-1294	-4877	-4772	-5221	-5594	-5912	-6165				
Natural gas	5928	4794	2712	4190	4267	4612	5217	7332	8939	-7.5	4.6	2.0	5.5
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	61492	47109	37069	39147	41263	45675	50172	55522	59869	-4.9	1.1	2.0	1.8
Solids	10126	10796	7757	8769	9281	8849	8876	10164	11042	-2.6	1.8	-0.4	2.2
Oil	19106	13886	10148	10162	10689	11901	12925	13808	14521	-6.1	0.5	1.9	1.2
Natural gas	28838	19240	13680	13942	14028	15164	16225	17715	18761	-7.2	0.3	1.5	1.5
Nuclear	0	0	1407	1433	1474	2869	3435	3681	3755		0.5	8.8	0.9
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	6039	7233	9061	10510	12152	4.7	3.9	4.1	3.0
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	22.5	19.4	17.7	18.3	18.4				
Oil	31.1	29.5	27.4	26.0	25.9	26.1	25.8	24.9	24.3				
Natural gas	46.9	40.8	36.9	35.6	34.0	33.2	32.3	31.9	31.3				
Nuclear	0.0	0.0	3.8	3.7	3.6	6.3	6.8	6.6	6.3				
Renewable energy forms	4.2	6.7	11.2	13.0	14.6	15.8	18.1	18.9	20.3				
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	62643	72043	81421	94174	108375	-2.0	1.9	2.7	2.9
Self consumption and grid losses	14388	11292	8909	10341	8930	8755	9448	10986	13343	-4.7	0.0	0.6	3.5
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8194	7901	9138	11633	13566	-7.6	-2.6	1.1	4.0
Solids	8166	7352	5442	5982	6113	5356	5495	6986	8058	-4.0	1.2	-1.1	3.9
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	13	-12.2	-29.1		
Gas (including derived gases)	8984	6090	3507	3343	2028	2317	2520	2813	2741	-9.0	-5.3	2.2	0.8
Biomass & Waste	36	37	4	3	0	175	1123	1835	2754	-19.0			9.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	25764	21571	14558	17946	19504	21319	22680	23786	24780	-5.5	3.0	1.5	0.9
Refineries	23718	15646	11318	14978	15461	17123	18519	19720	20686	-7.1	3.2	1.8	1.1
Biofuels and hydrogen production	0	0	0	0	82	189	313	578	989			14.3	12.2
District heating	496	1901	1737	823	1284	1068	1074	936	902	13.4	-3.0	-1.8	-1.7
Derived gases, cokeries etc.	1551	4024	1503	2144	2677	2939	2773	2553	2203	-0.3	5.9	0.4	-2.3
Energy Branch Consumption	3594	5270	4137	4184	4331	4552	4748	5044	5343	1.4	0.5	0.9	1.2
Non-Energy Uses	908	1326	2291	2448	2425	2633	2921	3226	3522	9.7	0.6	1.9	1.9
Final Energy Demand	36548	26449	22374	24625	28098	31982	35522	39052	42501	-4.8	2.3	2.4	1.8
by sector													
Industry	25106	14528	8788	9751	10887	12552	13936	15482	17151	-10.0	2.2	2.5	2.1
- energy intensive industries	15699	10582	5962	6928	7596	8567	9307	10164	10988	-9.2	2.5	2.1	1.7
- other industrial sectors	9407	3946	2826	2823	3291	3985	4628	5318	6163	-11.3	1.5	3.5	2.9
Residential	4190	6461	8557	8093	8574	9231	10052	10842	11516	7.4	0.0	1.6	1.4
Tertiary	2845	2401	1646	2576	3272	3764	4024	4189	4231	-5.3	7.1	2.1	0.5
Transport	4407	3058	3384	4204	5364	6435	7511	8539	9602	-2.6	4.7	3.4	2.5
by fuel													
Solids	2678	1529	703	1429	1803	1996	1971	1831	1607	-12.5	9.9	0.9	-2.0
Oil	8030	5234	5292	6547	7732	8948	9965	10793	11458	-4.1	3.9	2.6	1.4
Gas	20495	10249	6885	7721	8819	9587	10038	10914	11766	-10.3	2.5	1.3	1.6
Electricity	4355	3282	3122	3481	3834	4504	5211	6152	7159	-3.3	2.1	3.1	3.2
Heat (from CHP and District Heating)	377	4679	3570	2135	1671	1733	2316	2738	3329	25.2	-7.3	3.3	3.7
Renewable energy forms	612	1476	2802	3312	4239	5213	6019	6620	7177	16.4	4.2	3.6	1.8
Other	0	0	0	0	1	1	2	4	5			13.7	9.9
RES in Gross Final Energy Consumption ^(A)			4197	5132	6015	7162	8828	10119	11560	3.7	3.9	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	155.6	162.5	170.7	177.4	180.8	-6.4	1.3	0.9	0.6
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	94.4	98.1	103.0	113.7	118.4	-6.7	1.2	0.9	1.4
Power generation/District heating	75.9	59.2	40.6	37.2	33.4	30.2	31.0	37.5	39.2	-6.1	-1.9	-0.7	2.4
Energy Branch	6.2	7.5	7.4	8.0	8.5	9.0	9.3	9.7	9.9	1.8	1.4	0.8	0.7
Industry	58.1	30.2	17.6	20.9	23.1	25.8	26.5	27.4	27.9	-11.3	2.8	1.4	0.5
Residential	7.5	5.2	6.5	7.2	8.2	8.4	8.7	9.5	10.4	-1.4	2.3	0.6	1.7
Tertiary	6.7	3.1	1.8	4.4	5.8	6.4	6.4	6.1	5.5	-12.1	12.2	0.9	-1.4
Transport	12.3	8.6	9.6	12.1	15.4	18.3	21.1	23.5	25.5	-2.4	4.8	3.2	1.9
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.8	21.7	24.8	27.6	30.2	-5.6	3.4	3.3	2.0
Non-CO₂ GHGs Emissions	76.1		40.9	44.3	43.3	42.8	43.0	36.1	32.2	-6.0	0.6	-0.1	-2.9
TOTAL GHGs Emissions Index (1990=100)	100.0		51.7	56.2	58.6	61.2	64.3	66.8	68.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	393.4	323.7	271.0	232.9	198.3	-3.3	-4.4	-3.7	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.29	2.15	2.05	2.05	1.98	-1.8	0.1	-1.1	-0.4
Import Dependency %	33.1	30.9	21.8	27.4	29.2	32.1	33.2	35.3	36.2				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	20.7	26.4	32.7	38.4	44.4		4.0	4.7	3.1
as % of GDP			23.4	18.7	19.8	18.7	17.7	16.1	14.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	75.0	65.8	57.4	51.0	45.8	-7.5	-2.8	-2.6	-2.2
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.4	39.4	32.7	27.3	22.9	8.2	-6.8	-4.1	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.0	93.3	75.0	59.6	47.1	-4.0	1.0	-3.8	-4.5
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.7	28.5	27.2	25.9	25.6	7.6	-2.6	-0.9	-0.6
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.2	29.6	28.9	28.1	27.3	0.5	-3.1	-0.5	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.36	0.30	0.26	0.28	0.25	-10.1	-0.6	-3.2	-0.5
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.87	1.84	1.77	1.70	1.63	-3.7	1.6	-0.6	-0.8
Industry	2.31	2.08	2.00	2.14	2.12	2.05	1.90	1.77	1.63	-1.4	0.6	-1.1	-1.5
Residential	1.78	0.81	0.76	0.89	0.95	0.91	0.87	0.88	0.90	-8.2	2.3	-0.9	0.4
Tertiary	2.37	1.30	1.12	1.69	1.79	1.71	1.58	1.45	1.31	-7.2	4.7	-1.2	-1.9
Transport	2.79	2.81	2.85	2.89	2.87	2.84	2.81	2.75	2.66	0.2	0.1	-0.2	-0.6
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	20.5	21.6	24.1	25.1	26.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.9	9.0				
Gross Electricity generation by source (in GWh)													
			51925	59402	62643	72043	81421	94174	108375		1.9	2.7	2.9
Nuclear energy			5455	5554	6207	11614	14122	15236	15571		1.3	8.6	1.0
Solids			16409	19761	22132	23299	24924	30785	39395		3.0	1.2	4.7
Oil (including refinery gas)			4145	3256	243	243	0	0	59		-24.7		
Gas (including derived gases)			11002	10316	13444	15157	15996	17890	17746		2.0	1.8	1.0
Biomass-waste			138	311	492	1275	5329	8510	12932		13.6	26.9	9.3
Hydro (pumping excluded)			14775	20203	19537	19767	19902	20166	20795		2.8	0.2	0.4
Wind			0	0	583	680	1135	1555	1820			6.9	4.8
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e													
			19962	19838	23128	22434	22634	19608	19947		1.5	-0.2	-1.3
<u>Nuclear energy</u>			654	650	1330	1342	1637	1766	1804		7.4	2.1	1.0
<u>Renewable energy</u>			5935	6215	6789	7209	7843	8212	8425		1.4	1.5	0.7
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	421	490	841	1142	1333			7.2	4.7
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	15008	13883	13154	9630	9718		1.2	-1.3	-3.0
of which cogeneration units			5378	5459	1679	2227	3418	4422	5285		-11.0	7.4	4.5
Solids fired			7285	7139	7122	7369	7514	4797	4585		-0.2	0.5	-4.8
Gas fired			3692	3459	5360	4590	3454	2844	2576		3.8	-4.3	-2.9
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	84	222	982	1548	2258		15.1	27.9	8.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	28.8	34.9	39.1	52.0	58.1				
Efficiency of gross thermal power generation (%)			25.6	28.6	38.1	43.5	43.5	42.3	44.5				
% of gross electricity from CHP			30.2	25.8	18.6	20.4	25.8	28.0	30.2				
Carbon free gross electricity generation (%)			39.2	43.9	42.8	46.3	49.7	48.3	47.2				
- nuclear			10.5	9.3	9.9	16.1	17.3	16.2	14.4				
- renewable energy forms			28.7	34.5	32.9	30.2	32.4	32.1	32.9				
Transport sector													
Passenger transport activity (Gpkm)													
	68.0	51.4	51.7	60.9	76.9	97.9	121.5	148.2	178.1	-2.7	4.1	4.7	3.9
Public road transport	24.0	12.3	7.7	9.4	11.7	14.5	16.8	18.8	20.8	-10.7	4.3	3.7	2.2
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.4	71.3	89.0	109.1	132.0	9.6	5.8	4.8	4.0
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.1	16.3	-9.2	-3.5	3.7	3.4
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.2	9.1	1.6	7.3	9.2	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9
Freight transport activity (Gtkm)													
	80.0	40.7	33.3	76.5	101.8	123.3	145.8	167.6	184.8	-8.4	11.8	3.7	2.4
Trucks	29.0	19.7	14.3	51.5	72.0	88.4	104.8	120.4	131.5	-6.8	17.5	3.8	2.3
Rail	48.9	17.9	16.4	16.6	18.2	20.6	23.8	27.3	31.1	-10.4	1.1	2.7	2.7
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.3	17.2	20.0	22.2	2.3	16.0	4.0	2.6
Energy demand in transport (ktoe)													
	4407	3058	3384	4204	5364	6435	7511	8539	9602	-2.6	4.7	3.4	2.5
Public road transport	329	176	117	93	109	129	144	153	159	-9.9	-0.6	2.8	1.0
Private cars and motorcycles	591	845	1681	1609	1994	2428	2859	3287	3897	11.0	1.7	3.7	3.1
Trucks	2617	1272	893	2130	2828	3364	3894	4368	4687	-10.2	12.2	3.3	1.9
Rail	282	470	449	208	217	235	232	244	249	4.8	-7.0	0.7	0.7
Aviation	275	192	128	113	147	194	280	370	482	-7.3	1.3	6.7	5.6
Inland navigation	312	103	115	51	70	85	101	116	128	-9.5	-4.9	3.8	2.4

Source: PRIMES

Romania: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	31004	33495	38218	-1193	-1478	1503	-3.7	-4.2	4.1
Solids	7935	5879	5793	4097	3728	6199	-1594	-3227	-1267	-28.0	-46.4	-17.0
Oil	7947	6389	6120	6183	6172	6164	0	0	0	0.0	0.0	0.0
Natural gas	22911	10968	9701	10552	11008	9822	-373	0	0	-3.4	0.0	0.0
Nuclear	0	1407	1433	2869	3435	3755	0	-174	0	0.0	-4.8	0.0
Renewable energy sources	2607	4131	5134	7303	9152	12278	774	1922	2770	11.8	26.6	29.1
Hydro	1460	1271	1737	1700	1712	1788	68	59	0	4.1	3.6	0.0
Biomass & Waste	1147	2854	3314	5278	6814	9521	548	1464	2108	11.6	27.4	28.4
Wind	0	0	0	59	98	157	50	83	131	629.6	591.3	503.8
Solar and others	0	0	0	88	253	430	52	182	304	148.2	257.7	240.9
Geothermal	0	7	82	178	276	382	55	134	227	45.1	94.5	146.8
Net Imports	20360	8099	10719	14671	16677	21651	-79	-1341	-3866	-0.5	-7.4	-15.2
Solids	2423	1905	2904	4752	5148	4843	106	-429	-2819	2.3	-7.7	-36.8
Oil	11194	3542	3874	5718	6753	8357	-14	-265	-427	-0.2	-3.8	-4.9
- Crude oil and Feedstocks	16094	4836	8751	10940	12347	14522	-19	-360	-578	-0.2	-2.8	-3.8
- Oil products	-4900	-1294	-4877	-5221	-5594	-6165	5	96	151	-0.1	-1.7	-2.4
Natural gas	5928	2712	4190	4612	5217	8939	-163	-628	-591	-3.4	-10.7	-6.2
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	45675	50172	59869	-1272	-2819	-2363	-2.7	-5.3	-3.8
Solids	10126	7757	8769	8849	8876	11042	-1488	-3655	-4086	-14.4	-29.2	-27.0
Oil	19106	10148	10162	11901	12925	14521	-14	-265	-427	-11.01	-2.0	-2.9
Natural gas	28838	13680	13942	15164	16225	18761	-536	-628	-591	-3.4	-3.7	-3.1
Nuclear	0	1407	1433	2869	3435	3755	0	-174	0	0.0	-4.8	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7233	9061	12152	766	1903	2742	11.9	26.6	29.1
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	19.4	17.7	18.4	-2.6	-6.0	-5.9			
Oil	31.1	27.4	26.0	26.1	25.8	24.3	0.7	0.9	0.2			
Natural gas	46.9	36.9	35.6	33.2	32.3	31.3	-0.2	0.5	0.2			
Nuclear	0.0	3.8	3.7	6.3	6.8	6.3	0.2	0.0	0.2			
Renewable energy forms	4.2	11.2	13.0	15.8	18.1	20.3	2.1	4.6	5.2			
Gross Electricity Generation in GWh_e	63398	51925	59402	72043	81421	108375	-7641	-11517	-11349	-9.6	-12.4	-9.5
Self consumption and grid losses	14388	8909	10341	8755	9448	13343	-1492	-2259	-1525	-14.6	-19.3	-10.3
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7901	9138	13566	-1949	-3081	-2324	-19.8	-25.2	-14.6
Solids	8166	5442	5982	5356	5495	8058	-1716	-3555	-3785	-24.3	-39.3	-32.0
Oil (including refinery gas)	6202	1684	775	54	0	13	54	0	13			
Gas (including derived gases)	8984	3507	3343	2317	2520	2741	-436	-295	170	-15.8	-10.5	6.6
Biomass & Waste	36	4	3	175	1123	2754	149	769	1278	571.4	216.9	86.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	21319	22680	24780	292	-73	-389	1.4	-0.3	-1.5
Refineries	23718	11318	14978	17123	18519	20686	-19	-360	-578	-0.1	-1.9	-2.7
Biofuels and hydrogen production	0	0	0	189	313	989	28	79	189	17.1	33.9	23.7
District heating	496	1737	823	1068	1074	902	19	8	-150	1.8	0.7	-14.2
Derived gases, cokeries etc.	1551	1503	2144	2939	2773	2203	264	201	149	9.9	7.8	7.3
Energy Branch Consumption	3594	4137	4184	4552	4748	5343	-102	-231	-188	-2.2	-4.6	-3.4
Non-Energy Uses	908	2291	2448	2633	2921	3522	-2	-4	-6	-0.1	-0.1	-0.2
Final Energy Demand	36548	22374	24625	31982	35522	42501	-36	-384	-651	-0.1	-1.1	-1.5
by sector												
Industry	25106	8788	9751	12552	13936	17151	44	-181	-424	0.4	-1.3	-2.4
- energy intensive industries	15699	5962	6928	8567	9307	10988	77	-102	-244	0.9	-1.1	-2.2
- other industrial sectors	9407	2826	2823	3985	4628	6163	-32	-79	-181	-0.8	-1.7	-2.8
Residential	4190	8557	8093	9231	10052	11516	6	57	91	0.1	0.6	0.8
Tertiary	2845	1646	2576	3764	4024	4231	-47	-138	-286	-1.2	-3.3	-6.3
Transport	4407	3384	4204	6435	7511	9602	-39	-122	-31	-0.6	-1.6	-0.3
by fuel												
Solids	2678	703	1429	1996	1971	1607	145	78	36	7.8	4.1	2.3
Oil	8030	5292	6547	8948	9965	11458	-9	-234	-397	-0.1	-2.3	-3.4
Gas	20495	6885	7721	9587	10038	11766	-55	-380	-805	-0.6	-3.6	-6.4
Electricity	4355	3122	3481	4504	5211	7159	-538	-792	-838	-10.7	-13.2	-10.5
Heat (from CHP and District Heating)	377	3570	2135	1733	2316	3329	-83	0	101	-4.6	0.0	3.1
Renewable energy forms	612	2802	3312	5213	6019	7177	504	944	1253	10.7	18.6	21.2
Other	0	0	0	1	2	5	0	0	0	2.6	1.6	3.8
RES in Gross Final Energy Consumption ^(A)		4197	5132	7162	8828	11560	753	1777	2515	11.7	25.2	27.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	162.5	170.7	180.8	-8.2	-19.1	-23.7	-4.8	-10.0	-11.6
CO₂ Emissions (energy related)	166.7	83.6	89.7	98.1	103.0	118.4	-7.5	-17.3	-21.9	-7.1	-14.4	-15.6
Power generation/District heating	75.9	40.6	37.2	30.2	31.0	39.2	-7.8	-15.7	-18.5	-20.5	-33.6	-32.1
Energy Branch	6.2	7.4	8.0	9.0	9.3	9.9	-0.3	-0.5	-0.5	-3.1	-4.8	-4.4
Industry	58.1	17.6	20.9	25.8	26.5	27.9	0.9	0.1	-0.7	3.5	0.3	-2.4
Residential	7.5	6.5	7.2	8.4	8.7	10.4	-0.2	-0.4	-0.7	-2.3	-4.6	-6.0
Tertiary	6.7	1.8	4.4	6.4	6.4	5.5	0.1	-0.2	-0.9	1.9	-2.9	-13.5
Transport	12.3	9.6	12.1	18.3	21.1	25.5	-0.2	-0.6	-0.7	-1.0	-2.8	-2.6
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.7	24.8	30.2	0.6	0.0	-0.4	2.8	0.0	-1.5
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	42.8	43.0	32.2	-1.3	-1.8	-1.4	-3.0	-3.9	-4.1
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	61.2	64.3	68.0	-3.1	-7.2	-8.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	323.7	271.0	198.3	-9.0	-15.2	-7.8	-2.7	-5.3	-3.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.15	2.05	1.98	-0.10	-0.22	-0.28	-4.5	-9.6	-12.3
Import Dependency %	33.1	21.8	27.4	32.1	33.2	36.2	0.7	-0.8	-4.8			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	26.4	32.7	44.4	0.1	0.4	1.3	0.6	1.3	2.9
as % of GDP		23.4	18.7	18.7	17.7	14.7	0.1	0.2	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.5	1.3						
as % of GDP				0.12	0.25	0.43						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	65.8	57.4	45.8	0.2	-0.7	-1.1	0.4	-1.3	-2.4
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	39.4	32.7	22.9	0.0	0.2	0.2	0.1	0.6	0.8
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	93.3	75.0	47.1	-1.2	-2.6	-3.2	-1.2	-3.3	-6.3
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.5	27.2	25.6	-0.1	-0.2	1.1	-0.3	-0.7	4.5
Freight transport (toe/Mtkm)	39.2	41.4	30.7	29.6	28.9	27.3	-0.2	-0.5	-0.8	-0.5	-1.6	-2.7
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.30	0.26	0.25	-0.05	-0.10	-0.10	-13.4	-26.8	-27.5
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.84	1.77	1.63	0.02	-0.01	-0.04	1.1	-0.7	-2.5
Industry	2.31	2.00	2.14	2.05	1.90	1.63	0.06	0.03	0.00	3.1	1.6	0.0
Residential	1.78	0.76	0.89	0.91	0.87	0.90	-0.02	-0.05	-0.06	-2.4	-5.2	-6.7
Tertiary	2.37	1.12	1.69	1.71	1.58	1.31	0.05	0.01	-0.11	3.2	0.4	-7.7
Transport	2.79	2.85	2.89	2.84	2.81	2.66	-0.01	-0.04	-0.06	-0.4	-1.2	-2.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	21.6	24.1	26.3	2.4	5.2	6.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	9.0	0.4	1.0	1.8			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	72043	81421	108375	108375	-7641	-11517	-11349	-9.6	-12.4	-9.5
Nuclear energy	5455	5554	11614	14122	15571	15571	0	-769	17	0.0	-5.2	0.1
Solids	16409	19761	23299	24924	39395	39395	-6642	-13765	-19861	-22.2	-35.6	-33.5
Oil (including refinery gas)	4145	3256	243	0	59	59	243	0	59			
Gas (including derived gases)	11002	10316	15157	15996	17746	17746	-3675	-2786	-104	-19.5	-14.8	-0.6
Biomass-waste	138	311	1275	5329	12932	12932	1061	4150	7022	496.1	351.9	118.8
Hydro (pumping excluded)	14775	20203	19767	19902	20795	20795	785	682	0	4.1	3.6	0.0
Wind	0	0	680	1135	1820	1820	587	971	1518	629.6	591.3	503.8
Solar	0	0	7	12	58	58	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	19962	19838	22434	22634	19947	19947	-210	540	-475	-0.9	2.4	-2.3
<u>Nuclear energy</u>	654	650	1342	1637	1804	1804	0	-89	2	0.0	-5.1	0.1
<u>Renewable energy</u>	5935	6215	7209	7843	8425	8425	420	720	1115	6.2	10.1	15.2
Hydro (pumping excluded)	5935	6212	6713	6993	7046	7046	0	0	0	0.0	0.0	0.0
Wind	0	0	490	841	1333	1333	420	720	1115	598.2	597.3	511.3
Solar	0	3	6	9	46	46	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	13373	12972	13883	13154	9718	9718	-630	-91	-1591	-4.3	-0.7	-14.1
of which cogeneration units	5378	5459	2227	3418	5285	5285	12	274	929	0.5	8.7	21.3
Solids fired	7285	7139	7369	7514	4585	4585	-305	-352	-2579	-4.0	-4.5	-36.0
Gas fired	3692	3459	4590	3454	2576	2576	-525	-410	-134	-10.3	-10.6	-4.9
Oil fired	2375	2354	1702	1204	298	298	0	0	0	0.0	0.0	0.0
Biomass-waste fired	20	20	222	982	2258	2258	201	671	1122	920.1	216.1	98.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	27.0	30.8	34.9	39.1	58.1	58.1	-3.1	-6.3	-4.6			
Efficiency of gross thermal power generation (%)	25.6	28.6	43.5	43.5	44.5	44.5	0.7	2.2	-0.5			
% of gross electricity from CHP	30.2	25.8	20.4	25.8	30.2	30.2	1.9	5.1	6.7			
Carbon free gross electricity generation (%)	39.2	43.9	46.3	49.7	47.2	47.2	7.5	11.6	11.6			
- nuclear	10.5	9.3	16.1	17.3	14.4	14.4	1.5	1.3	1.4			
- renewable energy forms	28.7	34.5	30.2	32.4	32.9	32.9	5.9	10.3	10.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	68.0	51.7	60.9	97.9	121.5	178.1	-0.2	-0.5	-1.8	-0.2	-0.4	-1.0
Private cars and motorcycles	24.0	7.7	9.4	14.5	16.8	20.8	0.1	0.1	0.3	0.5	0.7	1.3
Rail	12.6	31.5	42.4	71.3	89.0	132.0	-0.2	-0.6	-2.0	-0.3	-0.6	-1.5
Aviation	30.6	11.6	8.0	9.7	11.7	16.3	0.0	0.1	0.2	0.5	0.5	1.0
Inland navigation	0.7	0.8	1.2	2.4	4.0	9.1	0.0	-0.1	-0.2	-1.6	-2.3	-2.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
Freight transport activity (Gtkm)												
Trucks	80.0	33.3	76.5	123.3	145.8	184.8	-0.2	-0.5	-1.5	-0.2	-0.4	-0.8
Rail	29.0	14.3	51.5	88.4	104.8	131.5	-0.5	-0.9	-2.3	-0.5	-0.9	-1.7
Inland navigation	48.9	16.4	16.6	20.6	23.8	31.1	0.2	0.3	0.5	1.0	1.2	1.7
Inland navigation	2.1	2.6	8.4	14.3	17.2	22.2	0.1	0.1	0.2	0.4	0.6	0.9
Energy demand in transport (ktoe)												
Public road transport	4407	3384	4204	6435	7511	9602	-39	-122	-31	-0.6	-1.6	-0.3
Private cars and motorcycles	329	117	93	129	144	159	0	0	-2	0.2	0.0	-1.3
Trucks	591	1681	1609	2428	2859	3897	-12	-29	169	-0.5	-1.0	4.5
Rail	2617	893	2130	3364	3894	4687	-27	-75	-185	-0.8	-1.9	-3.8
Aviation	282	449	208	235	232	249	2	-11	1	0.9	-4.6	0.4
Inland navigation	275	128	113	194	280	482	-3	-7	-15	-1.7	-2.6	-3.1
Inland navigation	312	115	51	85	101	128	0	0	1	0.3	0.3	0.5

Source: PRIMES

Slovak Republic: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	5248	4808	5970	6305	5331	5562	6565	7222	7964	1.3	-1.1	2.1	2.0	
Solids	1397	1017	1018	637	846	698	585	581	729	-3.1	-1.8	-3.6	2.2	
Oil	81	74	59	55	37	36	37	38	38	-3.1	-4.6	0.2	0.3	
Natural gas	338	264	133	126	120	147	141	147	148	-8.9	-1.0	1.7	0.4	
Nuclear	3105	2950	4255	4573	3191	3244	4052	4312	4614	3.2	-2.8	2.4	1.3	
Renewable energy sources	328	503	506	914	1138	1437	1749	2144	2436	4.4	8.4	4.4	3.4	
Hydro	162	427	406	399	403	431	435	436	438	9.7	-0.1	0.8	0.1	
Biomass & Waste	166	76	100	507	710	950	1188	1484	1723	-5.0	21.7	5.3	3.8	
Wind	0	0	0	1	17	20	35	88	98			7.6	10.9	
Solar and others	0	0	0	0	6	32	86	128	169			30.7	6.9	
Geothermal	0	0	0	8	2	3	6	7	8			8.8	3.5	
Net Imports	16086	12482	11623	13163	12953	14081	14519	15090	15621	-3.2	1.1	1.1	0.7	
Solids	6055	4131	3437	3794	3586	3507	3521	3546	3901	-5.5	0.4	-0.2	1.0	
Oil	4231	3704	2711	3935	3963	3920	3946	4047	4027	-4.4	3.9	0.0	0.2	
- Crude oil and Feedstocks	5892	5405	5283	5768	5893	5859	5917	6073	6054	-1.1	1.1	0.0	0.2	
- Oil products	-1661	-1701	-2573	-1833	-1930	-1939	-1971	-2025	-2026					
Natural gas	5353	4528	5707	5757	5504	6748	6488	6751	6772	0.6	-0.4	1.7	0.4	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18284	19642	21083	22312	23585	-1.8	0.4	1.4	1.1	
Solids	7771	5414	4261	4288	4432	4205	4106	4126	4630	-5.8	0.4	-0.8	1.2	
Oil	4229	3487	2925	4045	4000	3956	3983	4085	4065	-3.6	3.2	0.0	0.2	
Natural gas	5088	5217	5776	5925	5624	6895	6630	6898	6920	1.3	-0.3	1.7	0.4	
Nuclear	3105	2950	4255	4573	3191	3244	4052	4312	4614	3.2	-2.8	2.4	1.3	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	1059	1397	2355	3148	3601	4.3	7.8	8.3	4.3	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	24.2	21.4	19.5	18.5	19.6					
Oil	20.2	19.7	16.7	20.8	21.9	20.1	18.9	18.3	17.2					
Natural gas	24.3	29.5	33.0	30.5	30.8	35.1	31.4	30.9	29.3					
Nuclear	14.8	16.7	24.3	23.6	17.5	16.5	19.2	19.3	19.6					
Renewable energy forms	1.6	2.8	2.8	4.4	5.8	7.1	11.2	14.1	15.3					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30299	34808	39678	48225	54224	2.6	0.0	2.7	3.2	
Self consumption and grid losses	4853	5351	5235	4704	3343	3570	4237	5153	6880	0.8	-4.4	2.4	5.0	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2601	2991	3308	4209	4980	-1.9	-0.2	2.4	4.2	
Solids	2054	1835	1617	1638	1480	1131	968	997	1755	-2.4	-0.9	-4.2	6.1	
Oil (including refinery gas)	243	119	37	99	4	25	0	6	0	-17.1	-20.3			
Gas (including derived gases)	936	1216	1002	845	985	1734	1179	1397	1103	0.7	-0.2	1.8	-0.7	
Biomass & Waste	0	0	0	40	133	101	1162	1808	2122			24.2	6.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	9901	10030	10194	10403	10230	-1.2	2.1	0.3	0.0	
Refineries	6314	5182	5410	6374	6695	6673	6802	7016	7014	-1.5	2.2	0.2	0.3	
Biofuels and hydrogen production	0	0	0	11	52	123	234	278	319			16.3	3.2	
District heating	237	731	584	717	752	779	637	622	558	9.4	2.6	-1.7	-1.3	
Derived gases, cokeries etc.	2458	2060	2026	2233	2403	2455	2521	2486	2339	-1.9	1.7	0.5	-0.7	
Energy Branch Consumption	1154	990	905	2482	2029	2135	2145	2180	2247	-2.4	8.4	0.6	0.5	
Non-Energy Uses	1203	651	1109	1239	1252	1330	1499	1664	1771	-0.8	1.2	1.8	1.7	
Final Energy Demand	14893	11085	10822	10560	11614	12526	13288	13956	14457	-3.1	0.7	1.4	0.8	
by sector														
Industry	6706	4339	3953	4413	4923	5302	5526	5670	5710	-5.1	2.2	1.2	0.3	
- energy intensive industries	4081	3091	3145	3590	4025	4337	4472	4573	4581	-2.6	2.5	1.1	0.2	
- other industrial sectors	2626	1248	808	823	898	965	1053	1097	1130	-11.1	1.1	1.6	0.7	
Residential	2275	2158	2822	2533	2623	2767	2989	3235	3461	2.2	-0.7	1.3	1.5	
Tertiary	4473	3078	2498	1809	1927	2129	2330	2530	2733	-5.7	-2.6	1.9	1.6	
Transport	1440	1509	1549	1805	2141	2329	2443	2520	2553	0.7	3.3	1.3	0.4	
by fuel														
Solids	4319	2322	1511	1455	1880	2007	2020	2025	1831	-10.0	2.2	0.7	-1.0	
Oil	3294	1873	1870	2195	2464	2578	2590	2631	2610	-5.5	2.8	0.5	0.1	
Gas	4319	3907	4537	3651	3657	3954	4102	4189	4493	0.5	-2.1	1.2	0.9	
Electricity	2013	1868	1893	1965	2229	2562	2924	3360	3736	-0.6	1.7	2.8	2.5	
Heat (from CHP and District Heating)	781	1111	1011	951	1223	1121	1218	1248	1177	2.6	1.9	0.0	-0.3	
Renewable energy forms	166	4	1	344	161	305	432	503	610	-42.8	74.3	10.4	3.5	
Other	0	0	0	0	0	0	1	1	1			15.7	2.9	
RES in Gross Final Energy Consumption ^(A)			407	761	894	1062	1970	2804	3214		8.2	8.2	5.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	52.4	55.2	54.9	55.2	52.1	-3.7	1.1	0.5	-0.5	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	38.4	40.1	38.8	39.4	36.4	-4.1	0.9	0.1	-0.6	
Power generation/District heating	12.1	12.9	10.6	10.5	9.7	10.1	8.1	8.3	5.8	-1.3	-0.9	-1.8	-3.3	
Energy Branch	2.5	1.8	1.5	5.0	4.5	4.3	4.5	4.5	4.3	-4.6	11.3	-0.1	-0.5	
Industry	17.8	12.2	10.3	10.4	12.1	12.8	12.9	12.7	12.0	-5.3	1.7	0.6	-0.7	
Residential	4.4	2.9	4.1	3.5	3.5	4.0	4.3	4.8	5.3	-0.6	-1.5	1.9	2.2	
Tertiary	12.6	5.7	4.2	2.5	2.4	2.5	2.4	2.3	2.3	-10.3	-5.4	0.1	-0.4	
Transport	4.0	4.2	4.4	5.2	6.1	6.5	6.6	6.7	6.7	0.8	3.4	0.7	0.2	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.2	6.0	6.4	6.7	-0.7	3.0	3.2	1.1	
Non-CO₂ GHGs Emissions	12.3	8.8	8.8	9.7	9.6	9.8	10.1	9.4	9.1	-3.3	1.0	0.5	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	75.9	79.9	79.5	80.0	75.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: EC proposal with JI/CDM & without RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1	
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	365.5	313.0	271.8	241.6	223.0	-3.2	-4.4	-2.9	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	2.04	1.84	1.76	1.54	-2.3	0.5	-1.3	-1.7	
Import Dependency %	76.7	70.6	66.5	67.8	70.8	71.7	68.9	67.6	66.2					
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.3	11.2	13.1	15.1	16.5		2.7	3.5	2.3	
as % of GDP			23.3	19.5	18.6	17.8	16.9	16.4	15.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.9	46.9	40.0	35.3	32.5	-6.4	-5.8	-3.1	-2.0	
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.5	50.9	45.1	41.4	38.9	2.0	-5.1	-2.7	-1.5	
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.6	49.9	44.4	40.2	37.0	-5.6	-5.5	-2.4	-1.8	
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.3	27.3	26.0	24.5	3.6	0.5	-0.7	-1.1	
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	23.9	23.0	22.1	21.5	2.0	1.0	-0.5	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.19	0.14	0.12	0.08	-3.8	-1.5	-3.4	-5.5	
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.09	2.06	1.97	1.90	1.82	-2.0	-0.2	-0.6	-0.8	
Industry	2.65	2.82	2.61	2.37	2.47	2.42	2.34	2.24	2.10	-0.2	-0.5	-0.5	-1.1	
Residential	1.93	1.35	1.46	1.39	1.35	1.43	1.43	1.47	1.53	-2.8	-0.8	0.6	0.7	
Tertiary	2.81	1.87	1.69	1.37	1.25	1.17	1.05	0.94	0.86	-4.9	-2.9	-1.8	-2.0	
Transport	2.80	2.76	2.82	2.89	2.87	2.80	2.70	2.66	2.62	0.1	0.1	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.4	8.2	14.3	19.4	21.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.6	8.3	9.6	11.0					
Gross Electricity generation by source (in GWh)														
			30431	31346	30299	34808	39678	48225	54224	0.0	2.7	3.2		
Nuclear energy			16491	17724	12371	12600	16180	18397	19769	-2.8	2.7	2.0		
Solids			4969	4825	5523	4698	4279	5719	10041	1.1	-2.5	8.9		
Oil (including refinery gas)			144	455	119	501	0	127	17	-1.9				
Gas (including derived gases)			4102	3527	6786	11272	8878	10177	8660	5.2	2.7	-0.2		
Biomass-waste			0	172	618	483	4863	7671	9453		22.9	6.9		
Hydro (pumping excluded)			4725	4637	4687	5015	5053	5073	5094	-0.1	0.8	0.1		
Wind			0	7	194	230	405	1028	1141		7.6	10.9		
Solar			0	0	2	9	18	33	49		24.7	10.3		
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			6795	7307	7783	8339	8695	9627	10418	1.4	1.1	1.8		
<u>Nuclear energy</u>			2326	2439	1652	1705	2132	2256	2415	-3.4	2.6	1.3		
<u>Renewable energy</u>			1669	1838	2041	2184	2325	2785	2883	2.0	1.3	2.2		
Hydro (pumping excluded)			1668	1832	1901	2013	2021	2025	2029	1.3	0.6	0.0		
Wind			1	5	139	164	289	734	815	63.8	7.6	10.9		
Solar			0	0	2	7	15	26	40		24.6	10.2		
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2800	3031	4089	4450	4238	4586	5120	3.9	0.4	1.9		
of which cogeneration units			1220	1400	1713	1529	2171	2604	2788	3.5	2.4	2.5		
Solids fired			1598	1661	1846	1606	1138	1014	1064	1.5	-4.7	-0.7		
Gas fired			1184	1221	2053	2654	2086	2070	2079	5.7	0.2	0.0		
Oil fired			18	115	115	115	115	115	115	20.7	0.0	0.0		
Biomass-waste fired			1	34	74	74	899	1386	1862	54.2	28.3	7.5		
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.5	44.3	42.3	45.7	49.8	54.5	55.4					
Efficiency of gross thermal power generation (%)			29.8	29.4	43.1	48.8	46.8	48.4	48.6					
% of gross electricity from CHP			26.0	15.8	32.3	27.0	26.8	28.2	24.6					
Carbon free gross electricity generation (%)			69.7	71.9	59.0	52.7	66.8	66.8	65.5					
- nuclear			54.2	56.5	40.8	36.2	40.8	38.1	36.5					
- renewable energy forms			15.5	15.4	18.2	16.5	26.1	28.6	29.0					
Transport sector														
Passenger transport activity (Gpkm)	41.5	34.2	35.8	36.4	39.0	42.4	47.4	52.6	57.2	-1.5	0.9	2.0	1.9	
Public road transport	19.5	11.2	8.4	8.1	7.9	7.8	7.7	7.7	7.7	-8.1	-0.6	-0.3	0.0	
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.5	31.9	36.9	41.8	46.1	4.5	1.7	2.6	2.3	
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.5	0.9	
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.4	4.6	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	35.6	29.7	25.6	32.0	41.6	47.3	50.0	52.0	53.6	-3.3	5.0	1.9	0.7	
Trucks	14.2	15.9	14.3	22.6	31.6	36.1	38.2	39.9	41.4	0.1	8.2	1.9	0.8	
Rail	21.4	13.8	11.2	9.5	10.0	11.2	11.8	12.1	12.3	-6.2	-1.1	1.6	0.4	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1440	1509	1549	1805	2141	2329	2443	2520	2553	0.7	3.3	1.3	0.4	
Public road transport	96	79	70	59	55	51	48	45	42	-3.1	-2.5	-1.2	-1.4	
Private cars and motorcycles	671	729	886	964	1016	1068	1159	1229	1249	2.8	1.4	1.3	0.8	
Trucks	572	583	510	693	967	1093	1111	1114	1120	-1.1	6.6	1.4	0.1	
Rail	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.1	-0.8	
Aviation	0	0	0	39	54	66	75	85	96			3.3	2.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovak Republic: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	5562	6565	7964	-402	75	336	-6.7	1.2	4.4
Solids	1397	1018	637	698	585	729	-147	-246	-35	-17.4	-29.7	-4.6
Oil	81	59	55	36	37	38	-2	-2	-2	-4.2	-5.9	-5.1
Natural gas	338	133	126	147	141	148	2	-15	-34	1.5	-9.9	-18.9
Nuclear	3105	4255	4573	3244	4052	4614	-610	-13	-95	-15.8	-0.3	-2.0
Renewable energy sources	328	506	914	1437	1749	2436	355	353	503	32.8	25.3	26.0
Hydro	162	406	399	431	435	438	7	3	0	1.6	0.7	0.0
Biomass & Waste	166	100	507	950	1188	1723	311	257	298	48.6	27.6	20.9
Wind	0	0	1	20	35	98	15	24	70	353.6	216.8	244.5
Solar and others	0	0	0	32	86	169	21	67	130	188.7	341.3	338.8
Geothermal	0	0	8	3	6	8	1	3	4	49.7	100.6	130.4
Net Imports	16086	11623	13163	14081	14519	15621	-275	-825	-1093	-1.9	-5.4	-6.5
Solids	6055	3437	3794	3507	3521	3901	-189	-509	-553	-5.1	-12.6	-12.4
Oil	4231	2711	3935	3920	3946	4027	-218	-316	-285	-5.3	-7.4	-6.6
- Crude oil and Feedstocks	5892	5283	5768	5859	5917	6054	-275	-404	-360	-4.5	-6.4	-5.6
- Oil products	-1661	-2573	-1833	-1939	-1971	-2026	56	88	75	-2.8	-4.3	-3.6
Natural gas	5353	5707	5757	6748	6488	6772	101	-710	-1578	1.5	-9.9	-18.9
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19642	21083	23585	-677	-750	-757	-3.3	-3.4	-3.1
Solids	7771	4261	4288	4205	4106	4630	-336	-755	-588	-7.4	-15.5	-11.3
Oil	4229	2925	4045	3956	3983	4065	-220	-318	-287	-5.3	-7.4	-6.6
Natural gas	5088	5776	5925	6895	6630	6920	104	-726	-1612	1.5	-9.9	-18.9
Nuclear	3105	4255	4573	3244	4052	4614	-610	-13	-95	-15.8	-0.3	-2.0
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1397	2355	3601	386	1062	1825	38.2	82.1	102.8
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	21.4	19.5	19.6	-0.9	-2.8	-1.8			
Oil	20.2	16.7	20.8	20.1	18.9	17.2	-0.4	-0.8	-0.6			
Natural gas	24.3	33.0	30.5	35.1	31.4	29.3	1.7	-2.2	-5.7			
Nuclear	14.8	24.3	23.6	16.5	19.2	19.6	-2.5	0.6	0.2			
Renewable energy forms	1.6	2.8	4.4	7.1	11.2	15.3	2.1	5.2	8.0			
Gross Electricity Generation in GWh_e	23428	30431	31346	34808	39678	54224	-2856	-3354	-929	-7.6	-7.8	-1.7
Self consumption and grid losses	4853	5235	4704	3570	4237	6880	-420	-368	760	-10.5	-8.0	12.4
Fuel Inputs to Thermal Power Generation	3232	2656	2622	2991	3308	4980	-326	-668	-9	-9.8	-16.8	-0.2
Solids	2054	1617	1638	1131	968	1755	-463	-834	-520	-29.0	-46.3	-22.9
Oil (including refinery gas)	243	37	99	25	0	0	-86	-118	-10	-77.8	-100.0	-99.2
Gas (including derived gases)	936	1002	845	1734	1179	1103	294	-550	-773	20.4	-31.8	-41.2
Biomass & Waste	0	0	40	101	1162	2122	-71	834	1294	-41.4	254.1	156.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	10030	10194	10230	-192	-364	-481	-1.9	-3.4	-4.5
Refineries	6314	5410	6374	6673	6802	7014	-281	-412	-370	-4.0	-5.7	-5.0
Biofuels and hydrogen production	0	0	11	123	234	319	17	58	54	16.3	33.3	20.2
District heating	237	584	717	779	637	558	-41	-71	-196	-5.0	-10.1	-26.0
Derived gases, cokeries etc.	2458	2026	2233	2455	2521	2339	112	61	31	4.8	2.5	1.3
Energy Branch Consumption	1154	905	2482	2135	2145	2247	-3	-77	-91	-0.1	-3.5	-3.9
Non-Energy Uses	1203	1109	1239	1330	1499	1771	-7	-9	-12	-0.5	-0.6	-0.7
Final Energy Demand	14893	10822	10560	12526	13288	14457	-58	-224	-393	-0.5	-1.7	-2.6
by sector												
Industry	6706	3953	4413	5302	5526	5710	34	-57	-151	0.7	-1.0	-2.6
- energy intensive industries	4081	3145	3590	4337	4472	4581	42	-35	-76	1.0	-0.8	-1.6
- other industrial sectors	2626	808	823	965	1053	1130	-7	-22	-75	-0.8	-2.0	-6.2
Residential	2275	2822	2533	2767	2989	3461	-41	-33	-15	-1.5	-1.1	-0.4
Tertiary	4473	2498	1809	2129	2330	2733	-32	-84	-143	-1.5	-3.5	-5.0
Transport	1440	1549	1805	2329	2443	2553	-20	-50	-83	-0.9	-2.0	-3.1
by fuel												
Solids	4319	1511	1455	2007	2020	1831	87	44	-91	4.5	2.2	-4.8
Oil	3294	1870	2195	2578	2590	2610	-18	-86	-126	-0.7	-3.2	-4.6
Gas	4319	4537	3651	3954	4102	4493	181	83	-241	4.8	2.1	-5.1
Electricity	2013	1893	1965	2562	2924	3736	-202	-256	-143	-7.3	-8.1	-3.7
Heat (from CHP and District Heating)	781	1011	951	1121	1218	1177	-113	-24	-30	-9.2	-2.0	-2.5
Renewable energy forms	166	1	344	305	432	610	7	15	240	2.4	3.6	64.7
Other	0	0	0	0	1	1	0	0	0	2.3	3.8	-28.4
RES in Gross Final Energy Consumption ^(A)		407	761	1062	1970	3214	224	903	1770	26.8	84.5	122.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	55.2	54.9	52.1	-1.9	-5.9	-11.9	-3.3	-9.7	-18.6
CO₂ Emissions (energy related)	53.3	35.1	37.1	40.1	38.8	36.4	-1.8	-5.6	-11.6	-4.2	-12.7	-24.2
Power generation/District heating	12.1	10.6	10.5	10.1	8.1	5.8	-2.2	-5.4	-9.6	-17.7	-39.9	-62.4
Energy Branch	2.5	1.5	5.0	4.3	4.5	4.3	-0.4	-0.4	-0.7	-7.8	-8.3	-14.7
Industry	17.8	10.3	10.4	12.8	12.9	12.0	0.5	0.3	-0.7	4.2	2.5	-5.3
Residential	4.4	4.1	3.5	4.0	4.3	5.3	0.1	0.0	-0.1	3.7	0.9	-2.1
Tertiary	12.6	4.2	2.5	2.5	2.4	2.3	0.2	0.1	-0.1	8.8	4.4	-3.2
Transport	4.0	4.4	5.2	6.5	6.6	6.7	-0.1	-0.3	-0.4	-1.6	-4.4	-5.8
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.2	6.0	6.7	0.0	-0.1	-0.1	0.6	-0.9	-1.6
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.8	10.1	9.1	-0.1	-0.2	-0.2	-1.3	-1.8	-1.9
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	79.9	79.5	75.5	-2.7	-8.5	-17.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	313.0	271.8	223.0	-10.8	-9.7	-7.2	-3.3	-3.4	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	2.04	1.84	1.54	-0.02	-0.19	-0.43	-0.9	-9.6	-21.7
Import Dependency %	76.7	66.5	67.8	71.7	68.9	66.2	1.0	-1.4	-2.4			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.2	13.1	16.5	0.2	0.4	0.7	2.1	3.0	4.4
as % of GDP		23.3	19.5	17.8	16.9	15.6	0.4	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.7						
as % of GDP				0.37	0.50	0.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.9	40.0	32.5	0.3	-0.4	-0.9	0.7	-1.0	-2.6
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	50.9	45.1	38.9	-0.8	-0.5	-0.2	-1.5	-1.1	-0.4
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	49.9	44.4	37.0	-0.7	-1.6	-1.9	-1.5	-3.5	-5.0
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	28.3	27.3	24.5	-0.1	-0.3	-0.5	-0.5	-1.2	-1.8
Freight transport (toe/Mtkm)	17.9	21.9	22.7	23.9	23.0	21.5	-0.1	-0.4	-0.5	-0.6	-1.5	-2.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.19	0.14	0.08	-0.02	-0.08	-0.13	-10.8	-36.1	-62.3
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.06	1.97	1.82	0.07	0.04	-0.04	3.5	2.3	-2.0
Industry	2.65	2.61	2.37	2.42	2.34	2.10	0.08	0.08	-0.06	3.5	3.5	-2.8
Residential	1.93	1.46	1.39	1.43	1.43	1.53	0.07	0.03	-0.03	5.3	2.0	-1.7
Tertiary	2.81	1.69	1.37	1.17	1.05	0.86	0.11	0.08	0.02	10.4	8.1	1.9
Transport	2.80	2.82	2.89	2.80	2.70	2.62	-0.02	-0.07	-0.07	-0.7	-2.5	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	8.2	14.3	21.3	1.8	6.7	11.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.6	8.3	11.0	0.7	2.2	2.2			
Gross Electricity generation by source (in GWh_e)												
	30431	31346	34808	39678	54224	54224	-2856	-3354	-929	-7.6	-7.8	-1.7
Nuclear energy	16491	17724	12600	16180	19769	19769	-2644	0	-365	-17.3	0.0	-1.8
Solids	4969	4825	4698	4279	10041	10041	-1446	-3516	-2472	-23.5	-45.1	-19.8
Oil (including refinery gas)	144	455	501	0	17	17	0	-529	-145	0.0	-100.0	-89.7
Gas (including derived gases)	4102	3527	11272	8878	8660	8660	1265	-2782	-3748	12.6	-23.9	-30.2
Biomass-waste	0	172	483	4863	9453	9453	-288	3162	4992	-37.3	185.9	111.9
Hydro (pumping excluded)	4725	4637	5015	5053	5094	5094	77	34	0	1.6	0.7	0.0
Wind	0	7	230	405	1141	1141	179	277	810	353.6	216.8	244.5
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	6795	7307	8339	8695	10418	10418	-232	715	1429	-2.7	9.0	15.9
<u>Nuclear energy</u>	2326	2439	1705	2132	2415	2415	-305	0	-42	-15.2	0.0	-1.7
<u>Renewable energy</u>	1669	1838	2184	2325	2883	2883	146	206	579	7.1	9.7	25.1
Hydro (pumping excluded)	1668	1832	2013	2021	2029	2029	17	8	0	0.8	0.4	0.0
Wind	1	5	164	289	815	815	129	199	579	367.0	220.4	245.2
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	4450	4238	5120	5120	-72	509	893	-1.6	13.6	21.1
of which cogeneration units	1220	1400	1529	2171	2788	2788	-98	482	968	-6.0	28.5	53.2
Solids fired	1598	1661	1606	1138	1064	1064	-90	-262	-611	-5.3	-18.7	-36.5
Gas fired	1184	1221	2654	2086	2079	2079	6	2	-18	0.2	0.1	-0.9
Oil fired	18	115	115	115	115	115	0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	74	899	1862	1862	11	768	1521	17.2	586.7	446.2
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	45.7	49.8	55.4	55.4	-2.3	-9.1	-11.2			
Efficiency of gross thermal power generation (%)	29.8	29.4	48.8	46.8	48.6	48.6	3.6	-0.1	-2.3			
% of gross electricity from CHP	26.0	15.8	27.0	26.8	24.6	24.6	3.5	2.1	2.9			
Carbon free gross electricity generation (%)	69.7	71.9	52.7	66.8	65.5	65.5	-3.1	13.3	11.0			
- nuclear	54.2	56.5	36.2	40.8	36.5	36.5	-4.3	3.2	0.0			
- renewable energy forms	15.5	15.4	16.5	26.1	29.0	29.0	1.2	10.1	11.0			
Transport sector												
Passenger transport activity (Gpkm)												
	41.5	35.8	36.4	42.4	47.4	57.2	-0.1	-0.4	-0.7	-0.3	-0.8	-1.2
Public road transport	19.5	8.4	8.1	7.8	7.7	7.7	0.0	0.0	0.1	0.3	0.7	0.9
Private cars and motorcycles	15.6	24.1	25.6	31.9	36.9	46.1	-0.2	-0.4	-0.8	-0.5	-1.1	-1.6
Rail	6.4	3.2	2.5	2.4	2.5	2.7	0.0	0.0	0.0	0.5	0.7	1.0
Aviation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-2.4	-3.5	-3.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	35.6	25.6	32.0	47.3	50.0	53.6	-0.1	-0.3	-0.5	-0.3	-0.6	-0.8
Trucks	14.2	14.3	22.6	36.1	38.2	41.4	-0.2	-0.4	-0.6	-0.6	-1.1	-1.5
Rail	21.4	11.2	9.5	11.2	11.8	12.3	0.1	0.1	0.2	0.8	1.1	1.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1440	1549	1805	2329	2443	2553	-20	-50	-83	-0.9	-2.0	-3.1
Public road transport	96	70	59	51	48	42	0	0	-1	0.0	0.0	-1.3
Private cars and motorcycles	671	886	964	1068	1159	1249	-7	-16	-29	-0.6	-1.4	-2.3
Trucks	572	510	693	1093	1111	1120	-10	-25	-39	-0.9	-2.2	-3.4
Rail	100	83	49	51	49	45	0	0	0	0.3	0.2	-0.1
Aviation	0	0	39	66	75	96	-3	-9	-14	-4.6	-10.9	-12.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: EC proposal with JI/CDM & without RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2902	3020	3085	3492	3552	3255	3685	4052	4859	0.6	1.4	0.4	2.8
Solids	1432	1216	1062	1184	1113	575	515	609	1237	-2.9	0.5	-7.4	9.1
Oil	3	2	1	0	0	0	0	0	0	-10.4			
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.8		
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1456	0.3	1.9	0.0	-0.2
Renewable energy sources	254	542	788	787	952	1197	1686	1987	2166	12.0	1.9	5.9	2.5
Hydro	254	279	330	298	353	355	358	365	371	2.7	0.7	0.1	0.4
Biomass & Waste	0	263	458	489	584	734	1147	1398	1522		2.5	7.0	2.9
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4
Solar and others	0	0	0	0	15	107	180	222	269			28.4	4.1
Geothermal	0	0	0	0	0	0	0	0	0			7.8	3.4
Net Imports	2567	3056	3369	3810	4318	4799	4739	4712	4379	2.8	2.5	0.9	-0.8
Solids	130	187	245	323	290	306	300	308	252	6.5	1.7	0.3	-1.7
Oil	1798	2231	2418	2589	2878	3052	3068	3081	3036	3.0	1.8	0.6	-0.1
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.6	0.0
- Oil products	1202	1644	2267	2589	2876	3051	3066	3080	3035	6.5	2.4	0.6	-0.1
Natural gas	723	750	820	925	1099	1216	1125	1246	1139	1.3	3.0	0.2	0.1
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Gross Inland Consumption	5517	6103	6415	7305	7870	8054	8425	8764	9238	1.5	2.1	0.7	0.9
Solids	1645	1402	1306	1539	1402	881	815	917	1489	-2.3	0.7	-5.3	6.2
Oil	1748	2281	2381	2560	2878	3052	3068	3081	3036	3.1	1.9	0.6	-0.1
Natural gas	763	746	826	929	1103	1216	1125	1246	1139	0.8	2.9	0.2	0.1
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1456	0.3	1.9	0.0	-0.2
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Renewable energy forms	254	571	788	787	952	1197	1715	2022	2204	12.0	1.9	6.1	2.5
as % in Gross Inland Consumption													
Solids	29.8	23.0	20.4	21.1	17.8	10.9	9.7	10.5	16.1				
Oil	31.7	37.4	37.1	35.0	36.6	37.9	36.4	35.2	32.9				
Natural gas	13.8	12.2	12.9	12.7	14.0	15.1	13.4	14.2	12.3				
Nuclear	21.6	20.4	19.1	20.8	18.8	18.4	17.6	16.6	15.8				
Renewable energy forms	4.6	9.3	12.3	10.8	12.1	14.9	20.4	23.1	23.9				
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15463	14443	16077	20618	25930	0.9	1.3	0.4	4.9
Self consumption and grid losses	1516	1427	1625	1908	2017	1859	2007	2475	4130	0.7	2.2	-0.1	7.5
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1359	924	1124	1627	2281	-1.4	0.1	-1.9	7.3
Solids	1296	1315	1253	1411	1287	753	673	738	1304	-0.3	0.3	-6.3	6.8
Oil (including refinery gas)	155	119	12	9	1	1	1	1	0	-22.8	-20.6	-7.1	-2.4
Gas (including derived gases)	92	90	62	58	42	74	52	406	357	-3.8	-3.8	2.2	21.1
Biomass & Waste	0	0	15	30	29	95	398	482	620		6.5	29.9	4.5
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	594	580	253	90	194	269	312	333	313	-8.2	-2.6	4.9	0.0
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.6	0.0
Biofuels and hydrogen production	0	0	0	0	44	119	212	249	282			17.1	2.9
District heating	53	76	83	89	149	149	99	83	29	4.7	6.0	-4.0	-11.4
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0				
Energy Branch Consumption	122	121	112	104	115	96	101	127	249	-0.9	0.3	-1.3	9.5
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9
Final Energy Demand	3368	3940	4431	4880	5475	5959	6273	6468	6610	2.8	2.1	1.4	0.5
by sector													
Industry	1468	1179	1423	1655	1829	1935	2027	2061	2115	-0.3	2.5	1.0	0.4
- energy intensive industries	728	587	839	1036	1143	1232	1301	1329	1363	1.4	3.1	1.3	0.5
- other industrial sectors	740	593	584	619	686	703	726	732	752	-2.3	1.6	0.6	0.4
Residential	850	1176	1122	1183	1230	1333	1420	1467	1497	2.8	0.9	1.4	0.5
Tertiary	122	259	578	573	576	590	597	598	592	16.9	0.0	0.4	-0.1
Transport	928	1326	1309	1469	1839	2101	2230	2342	2405	3.5	3.5	1.9	0.8
by fuel													
Solids	243	115	97	80	84	92	104	136	140	-8.8	-1.4	2.1	3.1
Oil	1507	2098	2231	2392	2676	2825	2823	2825	2763	4.0	1.8	0.5	-0.2
Gas	603	468	569	665	786	856	829	605	595	-0.6	3.3	0.5	-3.3
Electricity	837	807	905	1096	1196	1294	1415	1588	1775	0.8	2.8	1.7	2.3
Heat (from CHP and District Heating)	177	192	195	196	188	191	207	208	195	1.0	-0.4	0.9	-0.6
Renewable energy forms	0	260	435	452	544	699	895	1105	1140		2.3	5.1	2.5
Other	0	0	0	0	0	0	1	1	1			19.7	2.9
RES in Gross Final Energy Consumption ^(A)			780	767	936	1157	1621	1910	2070		1.8	5.6	2.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.3	18.7	18.1	18.8	16.9	0.3	0.9	-1.1	-0.7
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	15.9	14.4	13.9	14.6	12.7	0.6	1.3	-1.4	-0.9
Power generation/District heating	6.2	6.2	5.5	6.2	5.7	3.6	3.1	4.1	2.5	-1.1	0.3	-6.1	-2.2
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9			
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.0	2.0	-0.7	0.5	0.1	-2.1
Residential	1.7	2.1	1.3	1.4	1.4	1.4	1.5	1.4	1.3	-2.5	1.0	0.2	-1.1
Tertiary	0.0	0.0	1.0	1.0	1.0	0.9	0.8	0.7	0.5	46.9	0.2	-1.8	-3.9
Transport	2.7	3.9	3.8	4.3	5.3	5.9	6.1	6.3	6.4	3.5	3.5	1.3	0.5
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.2	-1.2	0.3	1.6	0.8
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.2	3.0	3.0	2.9	-0.6	-0.4	-1.1	-0.4
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	112.7	104.0	100.5	104.2	93.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	233.6	207.6	193.8	182.2	176.5	-0.3	-1.6	-1.9	-0.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.02	1.79	1.65	1.66	1.37	-0.9	-0.7	-2.0	-1.8
Import Dependency %	46.5	50.1	52.5	52.2	54.9	59.6	56.3	53.8	47.4				
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.2	7.2	8.0	8.6		3.7	3.3	1.7
as % of GDP			15.6	14.5	15.5	16.1	16.6	16.7	16.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.8	75.4	70.7	68.4	-0.9	-1.5	-1.3	-1.0
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	75.4	72.0	67.5	63.5	0.2	-2.3	-1.0	-1.2
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	68.9	61.3	55.3	49.6	44.7	14.2	-3.7	-2.2	-2.1
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	43.2	40.2	38.2	37.1	5.3	-1.5	-1.2	-0.8
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	46.6	46.8	45.8	43.2	2.3	-1.0	0.6	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.31	0.21	0.16	0.18	0.09	-2.0	-0.9	-6.4	-6.1
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.82	1.73	1.61	1.55	-0.8	-0.2	-0.8	-1.1
Industry	1.72	1.55	1.65	1.38	1.34	1.34	1.23	0.98	0.95	-0.4	-2.0	-0.9	-2.5
Residential	1.98	1.80	1.17	1.21	1.18	1.09	1.04	0.97	0.88	-5.2	0.1	-1.3	-1.6
Tertiary	0.17	0.13	1.65	1.76	1.69	1.51	1.36	1.20	0.92	25.7	0.3	-2.2	-3.9
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.72	2.68	2.64	0.0	0.0	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.4	18.8	25.0	28.5	29.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.8	8.0	9.0	10.0				
Gross Electricity generation by source (in GWh)													
			13622	15114	15463	14443	16077	20618	25930		1.3	0.4	4.9
Nuclear energy			4760	5883	5751	5751	5751	6593	6593		1.9	0.0	1.4
Solids			4484	5229	5163	3315	3076	3859	8780		1.4	-5.0	11.1
Oil (including refinery gas)			106	36	5	3	3	4	3		-26.1	-5.0	0.1
Gas (including derived gases)			321	324	208	641	942	2760	2435		-4.3	16.3	10.0
Biomass-waste			117	181	227	593	2118	3136	3768		6.9	25.0	5.9
Hydro (pumping excluded)			3833	3460	4107	4133	4168	4239	4319		0.7	0.1	0.4
Wind			0	0	2	6	19	25	30			27.1	4.4
Solar			0	0	0	1	1	2	3			11.2	8.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2861	3188	3255	3370	3215	3716	4197		1.3	-0.1	2.7
Nuclear energy			656	656	666	666	666	761	761		0.2	0.0	1.3
Renewable energy			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2
Wind			0	0	2	7	22	29	34			27.1	4.4
Solar			0	0	0	1	1	1	2			11.2	8.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			1241	1557	1606	1663	1488	1885	2343		2.6	-0.8	4.6
of which cogeneration units			244	363	330	381	586	640	880		3.0	5.9	4.1
Solids fired			996	1013	1029	1051	690	571	932		0.3	-3.9	3.0
Gas fired			81	374	375	370	358	728	726		16.6	-0.5	7.3
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.4
Biomass-waste fired			21	71	102	169	403	586	685		17.1	14.7	5.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			51.1	50.7	50.7	46.4	54.2	59.9	63.6				
Efficiency of gross thermal power generation (%)			32.2	32.9	35.4	42.4	47.0	51.6	56.5				
% of gross electricity from CHP			3.5	3.2	5.2	13.7	21.6	18.9	16.6				
Carbon free gross electricity generation (%)			63.9	63.0	65.2	72.6	75.0	67.9	56.7				
- nuclear			34.9	38.9	37.2	39.8	35.8	32.0	25.4				
- renewable energy forms			29.0	24.1	28.0	32.8	39.2	35.9	31.3				
Transport sector													
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.1	23.3	25.3	27.6	29.7	-0.5	2.1	1.8	1.6
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.2	1.2
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.9	22.6	24.4	26.2	3.9	2.6	1.7	1.5
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.4	1.6	-6.8	2.6	3.3	2.4
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	5.2	4.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	19.9	23.5	25.9	28.2	30.2	-1.1	9.3	2.7	1.6
Trucks	4.9	3.3	5.3	11.0	15.4	18.2	20.2	21.9	23.3	0.8	11.2	2.8	1.4
Rail	4.2	3.1	2.9	3.2	4.5	5.3	5.7	6.2	6.9	-3.8	4.8	2.3	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	928	1326	1309	1469	1839	2101	2230	2342	2405	3.5	3.5	1.9	0.8
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	0.0	-0.4
Private cars and motorcycles	498	727	867	828	923	967	973	1000	1041	5.7	0.6	0.5	0.7
Trucks	330	492	368	582	845	1053	1170	1251	1274	1.1	8.7	3.3	0.9
Rail	29	29	34	29	39	44	43	41	32	1.4	1.3	1.0	-2.7
Aviation	27	20	25	23	24	30	36	43	50	-0.8	-0.1	3.9	3.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovenia: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3255	3685	4859	-224	-13	810	-6.4	-0.3	20.0
Solids	1432	1062	1184	575	515	1237	-451	-590	-57	-44.0	-53.4	-4.4
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1456	0	0	94	0.0	0.0	6.9
Renewable energy sources	254	788	787	1197	1686	2166	228	577	773	23.5	52.1	55.5
Hydro	254	330	298	355	358	371	43	35	0	13.7	10.8	0.0
Biomass & Waste	0	458	489	734	1147	1522	112	426	599	17.9	59.1	64.8
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	107	180	269	74	116	174	219.9	184.5	183.6
Geothermal	0	0	0	0	0	0	0	0	0	70.8	137.1	209.3
Net Imports	2567	3369	3810	4799	4739	4379	-408	-788	-1351	-7.8	-14.3	-23.6
Solids	130	245	323	306	300	252	-78	-160	-256	-20.2	-34.8	-50.4
Oil	1798	2418	2589	3052	3068	3036	-264	-415	-683	-8.0	-11.9	-18.4
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-7.6	-11.4	-17.0
- Oil products	1202	2267	2589	3051	3066	3035	-264	-415	-683	-8.0	-11.9	-18.4
Natural gas	723	820	925	1216	1125	1139	-67	-242	-449	-5.2	-17.7	-28.3
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	8054	8425	9238	-632	-801	-541	-7.3	-8.7	-5.5
Solids	1645	1306	1539	881	815	1489	-529	-750	-313	-37.5	-47.9	-17.4
Oil	1748	2381	2560	3052	3068	3036	-264	-415	-683	-8.0	-11.9	-18.4
Natural gas	763	826	929	1216	1125	1139	-67	-242	-449	-5.2	-17.7	-28.3
Nuclear	1192	1228	1518	1483	1483	1456	0	0	94	0.0	0.0	6.9
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1197	1715	2204	228	606	811	23.5	54.7	58.3
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	10.9	9.7	16.1	-5.3	-7.3	-2.3			
Oil	31.7	37.1	35.0	37.9	36.4	32.9	-0.3	-1.3	-5.2			
Natural gas	13.8	12.9	12.7	15.1	13.4	12.3	0.3	-1.5	-3.9			
Nuclear	21.6	19.1	20.8	18.4	17.6	15.8	1.3	1.5	1.8			
Renewable energy forms	4.6	12.3	10.8	14.9	20.4	23.9	3.7	8.3	9.6			
Gross Electricity Generation in GWh_e	12440	13622	15114	14443	16077	25930	-1631	-1914	1665	-10.1	-10.6	6.9
Self consumption and grid losses	1516	1625	1908	1859	2007	4130	-350	-467	952	-15.9	-18.9	30.0
Fuel Inputs to Thermal Power Generation	1543	1342	1507	924	1124	2281	-513	-495	108	-35.7	-30.6	5.0
Solids	1296	1253	1411	753	673	1304	-539	-755	-355	-41.7	-52.8	-21.4
Oil (including refinery gas)	155	12	9	1	1	0	0	-1	-1	-42.9	-50.6	-61.2
Gas (including derived gases)	92	62	58	74	52	357	-37	-66	41	-33.2	-55.9	12.9
Biomass & Waste	0	15	30	95	398	620	63	327	423	198.2	460.5	214.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	269	312	313	8	0	-25	2.9	0.0	-7.5
Refineries	540	169	1	1	1	1	0	0	0	-7.6	-11.4	-17.0
Biofuels and hydrogen production	0	0	0	119	212	282	13	43	26	12.5	25.1	10.3
District heating	53	83	89	149	99	29	-5	-42	-52	-3.5	-30.0	-63.8
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	96	101	249	-19	-25	75	-16.7	-19.6	43.0
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5559	6273	6610	-288	-452	-648	-4.6	-6.7	-8.9
by sector												
Industry	1468	1423	1655	1935	2027	2115	-34	-45	-78	-1.7	-2.2	-3.6
- energy intensive industries	728	839	1036	1232	1301	1363	-9	-12	-31	-0.7	-0.9	-2.2
- other industrial sectors	740	584	619	703	726	752	-25	-33	-48	-3.4	-4.3	-5.9
Residential	850	1122	1183	1333	1420	1497	-35	-47	-64	-2.6	-3.2	-4.1
Tertiary	122	578	573	590	597	592	-96	-141	-208	-14.0	-19.1	-26.0
Transport	928	1309	1469	2101	2230	2405	-122	-219	-297	-5.5	-8.9	-11.0
by fuel												
Solids	243	97	80	92	104	140	10	5	42	11.8	4.7	43.1
Oil	1507	2231	2392	2825	2823	2763	-262	-414	-682	-8.5	-12.8	-19.8
Gas	603	569	665	856	829	595	-25	-112	-422	-2.9	-11.9	-41.5
Electricity	837	905	1096	1294	1415	1775	-110	-124	61	-7.8	-8.1	3.6
Heat (from CHP and District Heating)	177	195	196	191	207	195	-20	-23	-15	-9.3	-9.9	-7.1
Renewable energy forms	0	435	452	699	895	1140	119	217	369	20.6	31.9	47.7
Other	0	0	0	0	1	1	0	0	0	3.5	0.7	-7.8
RES in Gross Final Energy Consumption ^(A)		780	767	1157	1621	2070	217	552	752	23.1	51.7	57.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	18.7	18.1	16.9	-3.3	-5.1	-8.4	-15.1	-22.2	-33.3
CO₂ Emissions (energy related)	13.2	14.0	15.2	14.4	13.9	12.7	-3.1	-4.9	-8.2	-17.9	-26.1	-39.2
Power generation/District heating	6.2	5.5	6.2	3.6	3.1	2.5	-2.3	-3.4	-5.3	-39.5	-52.7	-68.3
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.3	-21.1	-33.5
Industry	2.5	2.3	2.3	2.6	2.5	2.0	0.0	-0.2	-0.7	-1.6	-6.6	-25.6
Residential	1.7	1.3	1.4	1.4	1.5	1.3	-0.2	-0.3	-0.6	-11.7	-15.8	-31.7
Tertiary	0.0	1.0	1.0	0.9	0.8	0.5	-0.2	-0.3	-0.6	-16.8	-24.3	-50.8
Transport	2.7	3.8	4.3	5.9	6.1	6.4	-0.4	-0.8	-1.0	-6.4	-11.5	-13.8
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.1	1.1	1.2	0.0	0.0	0.0	-0.1	0.3	-1.0
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.2	3.0	2.9	-0.2	-0.2	-0.2	-5.4	-7.5	-7.8
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	104.0	100.5	93.7	-18.5	-28.6	-46.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	207.6	193.8	176.5	-16.3	-18.4	-10.3	-7.3	-8.7	-5.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.79	1.65	1.37	-0.23	-0.39	-0.76	-11.5	-19.1	-35.6
Import Dependency %	46.5	52.5	52.2	59.6	56.3	47.4	-0.4	-3.7	-11.2			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.2	7.2	8.6	0.2	0.3	0.6	2.7	5.1	8.0
as % of GDP		15.6	14.5	16.1	16.6	16.4	0.4	0.8	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.6						
as % of GDP				0.43	0.81	1.22						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.8	75.4	68.4	-1.4	-1.7	-2.5	-1.7	-2.2	-3.6
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	75.4	72.0	63.5	-2.0	-2.4	-2.7	-2.6	-3.2	-4.1
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	61.3	55.3	44.7	-10.0	-13.1	-15.7	-14.0	-19.1	-26.0
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	43.2	40.2	37.1	-0.7	-1.1	-1.4	-1.7	-2.7	-3.6
Freight transport (toe/Mtkm)	39.1	48.9	42.6	46.6	46.8	43.2	-2.4	-4.4	-5.2	-5.0	-8.6	-10.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.21	0.16	0.09	-0.10	-0.14	-0.20	-32.9	-47.1	-69.9
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.82	1.73	1.55	-0.05	-0.11	-0.26	-2.5	-5.8	-14.4
Industry	1.72	1.65	1.38	1.34	1.23	0.95	0.00	-0.06	-0.28	0.1	-4.5	-22.8
Residential	1.98	1.17	1.21	1.09	1.04	0.88	-0.11	-0.15	-0.36	-9.3	-13.0	-28.8
Tertiary	0.17	1.65	1.76	1.51	1.36	0.92	-0.05	-0.09	-0.46	-3.3	-6.4	-33.6
Transport	2.88	2.89	2.94	2.81	2.72	2.64	-0.03	-0.08	-0.09	-1.0	-2.8	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.8	25.0	29.6	29.6	4.3	9.7	12.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	8.0	10.0	0.8	2.2	2.0			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14443	16077	25930	25930	-1631	-1914	1665	-10.1	-10.6	6.9
Nuclear energy	4760	5883	5751	5751	6593	6593	0	0	424	0.0	0.0	6.9
Solids	4484	5229	3315	3076	8780	8780	-2215	-3602	-954	-40.1	-53.9	-9.8
Oil (including refinery gas)	106	36	3	3	3	3	-4	-2	-4	-51.7	-38.3	-53.6
Gas (including derived gases)	321	324	641	942	2435	2435	-209	-211	-298	-24.6	-18.3	-10.9
Biomass-waste	117	181	593	2118	3768	3768	298	1496	2497	101.1	240.2	196.6
Hydro (pumping excluded)	3833	3460	4133	4168	4319	4319	497	405	0	13.7	10.8	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3370	3215	4197	4197	-143	-351	115	-4.1	-9.8	2.8
<u>Nuclear energy</u>	656	656	666	666	761	761	0	0	49	0.0	0.0	6.9
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1663	1488	2343	2343	-143	-351	66	-7.9	-19.1	2.9
of which cogeneration units	244	363	381	586	880	880	-22	-4	97	-5.6	-0.7	12.4
Solids fired	996	1013	1051	690	932	932	-65	-327	-273	-5.9	-32.1	-22.6
Gas fired	81	374	370	358	726	726	-155	-274	-157	-29.6	-43.3	-17.8
Oil fired	142	99	73	37	0	0	0	-23	0	0.0	-37.6	-51.2
Biomass-waste fired	21	71	169	403	685	685	78	272	496	85.0	209.4	262.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	46.4	54.2	63.6	63.6	-2.7	0.0	0.3			
Efficiency of gross thermal power generation (%)	32.2	32.9	42.4	47.0	56.5	56.5	2.4	2.0	2.1			
% of gross electricity from CHP	3.5	3.2	13.7	21.6	16.6	16.6	0.6	2.3	0.1			
Carbon free gross electricity generation (%)	63.9	63.0	72.6	75.0	56.7	56.7	12.3	18.5	8.1			
- nuclear	34.9	38.9	39.8	35.8	25.4	25.4	4.0	3.8	0.0			
- renewable energy forms	29.0	24.1	32.8	39.2	31.3	31.3	8.3	14.7	8.1			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.3	25.3	29.7	-0.3	-0.6	-0.8	-1.5	-2.3	-2.7
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.0	1.7	2.6	3.1
Private cars and motorcycles	10.0	14.7	16.8	20.9	22.6	26.2	-0.4	-0.6	-0.9	-1.8	-2.8	-3.4
Rail	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.0	0.1	2.3	3.7	4.2
Aviation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	0.0	-2.1	-3.0	-3.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.5	25.9	30.2	-0.7	-1.0	-1.4	-2.7	-3.8	-4.3
Trucks	4.9	5.3	11.0	18.2	20.2	23.3	-0.8	-1.2	-1.7	-4.2	-5.7	-6.6
Rail	4.2	2.9	3.2	5.3	5.7	6.9	0.1	0.2	0.3	2.6	3.8	4.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2101	2230	2405	-122	-219	-297	-5.5	-8.9	-11.0
Public road transport	43	15	7	8	8	7	0	0	-1	-0.8	-2.5	-11.1
Private cars and motorcycles	498	867	828	967	973	1041	-32	-51	-69	-3.2	-5.0	-6.2
Trucks	330	368	582	1053	1170	1274	-91	-167	-223	-7.9	-12.5	-14.9
Rail	29	34	29	44	43	32	1	0	-1	1.6	0.8	-2.6
Aviation	27	25	23	30	36	50	-1	-2	-4	-2.7	-4.5	-6.6
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	34563	37748	41641	38182	42041	-0.7	1.0	1.9	0.1	
Solids	11679	10170	7740	6265	5856	4664	4065	3062	2577	-4.0	-2.8	-3.6	-4.5	
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Renewable energy sources	6276	5722	7185	8710	12660	17845	22487	26303	28812	1.4	5.8	5.9	2.5	
Hydro	2184	1987	2534	1681	2410	2325	2365	2454	2552	1.5	-0.5	-0.2	0.8	
Biomass & Waste	4067	3684	4205	5129	6883	9617	12021	14080	15788	0.3	5.1	5.7	2.8	
Wind	1	23	406	1825	3032	5185	6868	8040	8444	79.0	22.3	8.5	2.1	
Solar and others	21	25	33	68	326	708	1223	1718	2017	4.5	25.9	14.1	5.1	
Geothermal	2	3	8	8	9	10	11	11	11	12.3	1.5	1.8	0.3	
Net Imports	59857	75415	98351	122830	126424	131275	129858	131642	125179	5.1	2.5	0.3	-0.4	
Solids	7038	9146	12636	14418	15656	17287	16686	17425	16449	6.0	2.2	0.6	-0.1	
Oil	49166	58363	69866	78279	78324	79100	78693	78567	77011	3.6	1.1	0.0	-0.2	
- Crude oil and Feedstocks	53256	55362	58393	59850	60610	61120	60916	60888	60258	0.9	0.4	0.1	-0.1	
- Oil products	-4091	3001	11473	18429	17714	17980	17777	17679	16753	4.4	0.0	0.0	-0.6	
Natural gas	3690	7521	15467	30248	32180	34087	30764	31583	27132	15.4	7.6	-0.4	-1.2	
Electricity	-36	386	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Gross Inland Consumption	89401	102207	122698	143487	152472	160036	162138	160221	157598	3.2	2.2	0.6	-0.3	
Solids	18942	19515	20643	20698	21513	21951	20751	20488	19027	0.9	0.4	-0.4	-0.9	
Oil	45547	54556	63223	69507	69973	70262	69432	68964	67390	3.3	1.0	-0.1	-0.3	
Natural gas	4970	7722	15219	29844	32310	34187	30764	31583	27132	11.8	7.8	-0.5	-1.2	
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Electricity	-36	385	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Renewable energy forms	6276	5723	7185	8711	12660	18313	25977	30390	33395	1.4	5.8	7.5	2.5	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	14.1	13.7	12.8	12.8	12.1					
Oil	50.9	53.4	51.5	48.4	45.9	43.9	42.8	43.0	42.8					
Natural gas	5.6	7.6	12.4	20.8	21.2	21.4	19.0	19.7	17.2					
Nuclear	15.3	14.0	13.1	10.3	10.3	9.4	9.2	5.5	6.8					
Renewable energy forms	7.0	5.6	5.9	6.1	8.3	11.4	16.0	19.0	21.2					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	309058	335148	359056	394987	418508	4.0	3.3	1.5	1.5	
Self consumption and grid losses	21388	24573	32539	40790	39035	41544	44533	52117	55861	4.3	1.8	1.3	2.3	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33845	34399	33474	37637	35239	4.7	2.5	-0.1	0.5	
Solids	13881	13585	18249	17641	18900	19332	18047	17948	16616	2.8	0.4	-0.5	-0.8	
Oil (including refinery gas)	2170	3654	4442	5246	1818	466	880	858	855	7.4	-8.5	-7.0	-0.3	
Gas (including derived gases)	486	987	3075	11140	11760	12117	9359	11212	9508	20.3	14.4	-2.3	0.2	
Biomass & Waste	145	377	694	1389	1366	2484	5189	7619	8260	16.9	7.0	14.3	4.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64773	67362	68336	68111	67259	0.9	0.3	0.5	-0.2	
Refineries	53753	56041	60048	60507	60345	61082	60953	60891	60296	1.1	0.0	0.1	-0.1	
Biofuels and hydrogen production	0	0	65	259	2188	4126	5529	5675	5700	42.1	9.7	0.3		
District heating	0	0	0	0	0	0	0	0	0		-0.4	-1.4		
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2155	1854	1546	1262	-3.0	-3.0	-1.9	-3.8	
Energy Branch Consumption	4757	5473	6118	6397	5742	5819	5842	6064	6033	2.5	-0.6	0.2	0.3	
Non-Energy Uses	5847	8006	9094	7823	8080	8582	9060	9401	9589	4.5	-1.2	1.2	0.6	
Final Energy Demand	56647	63536	79422	97170	106260	113021	115450	116338	115320	3.4	3.0	0.8	0.0	
by sector														
Industry	20014	20476	25474	31036	33987	36750	38437	38914	38801	2.4	2.9	1.2	0.1	
- energy intensive industries	13069	13620	17260	20421	22153	23898	24660	24791	24654	2.8	2.5	1.1	0.0	
- other industrial sectors	6945	6856	8213	10615	11833	12851	13777	14122	14147	1.7	3.7	1.5	0.3	
Residential	9266	9986	11871	15150	16434	16883	16614	16196	15673	2.5	3.3	0.1	-0.6	
Tertiary	5041	7007	9219	11556	11751	12153	12043	11950	11652	6.2	2.5	0.2	-0.3	
Transport	22326	26069	32858	39428	44089	47235	48356	49279	49195	3.9	3.0	0.9	0.2	
by fuel														
Solids	3524	2235	1671	1782	1614	1716	1923	1900	1896	-7.2	-0.3	1.8	-0.1	
Oil	33488	38971	45784	52776	55901	57151	55471	54855	53305	3.2	2.0	-0.1	-0.4	
Gas	4873	6841	12141	17978	20420	21680	20991	19789	16933	9.6	5.3	0.3	-2.1	
Electricity	10817	12116	16205	20827	22926	25018	26712	28959	30667	4.1	3.5	1.5	1.4	
Heat (from CHP and District Heating)	0	39	74	0	18	17	22	23	22		-13.3	2.2	-0.2	
Renewable energy forms	3945	3335	3547	3806	5377	7432	10318	10797	12481	-1.1	4.2	6.7	1.9	
Other	0	0	0	0	3	7	14	16	16			15.3	1.9	
RES in Gross Final Energy Consumption ^(A)			6709	8189	11895	17008	23982	27730	30487	5.9	7.3	2.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	460.4	462.8	444.4	444.6	424.6	3.1	1.7	-0.4	-0.5	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	347.9	353.4	336.6	335.1	313.7	3.4	2.1	-0.3	-0.7	
Power generation/District heating	63.6	68.2	94.1	113.2	108.4	106.6	96.2	100.1	90.7	4.0	1.4	-1.2	-0.6	
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.6	13.4	13.0	12.5	1.6	0.0	-0.1	-0.7	
Industry	41.9	43.4	48.9	58.2	63.3	66.9	64.6	62.4	56.1	1.6	2.6	0.2	-1.4	
Residential	12.9	13.6	16.4	20.4	20.8	20.0	17.4	13.8	10.9	2.5	2.4	-1.8	-4.6	
Tertiary	7.7	10.5	12.9	16.2	15.7	15.5	14.7	13.7	12.6	5.3	2.0	-0.7	-1.5	
Transport	65.6	76.9	97.3	116.7	126.1	130.7	130.3	132.1	130.8	4.0	2.6	0.3	0.0	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.6	40.8	40.4	39.7	38.8	1.6	2.8	0.5	-0.4	
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	73.9	68.7	67.4	69.8	72.1	2.5	-0.2	-0.9	0.7		
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	160.4	161.2	154.8	154.9	147.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.2	128.8	114.9	102.9	94.1	0.2	-1.0	-2.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.28	2.21	2.08	2.09	1.99	0.1	-0.1	-0.9	-0.4
Import Dependency %	64.2	71.6	76.5	81.2	78.5	77.7	75.7	77.5	74.9				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	102.0	118.0	134.9	147.7	156.0		3.6	2.8	1.5
as % of GDP			9.2	9.1	9.6	9.5	9.6	9.5	9.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	99.5	91.0	84.3	79.4	0.3	0.8	-1.7	-1.4
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	100.0	88.8	77.5	68.9	62.2	-0.4	0.0	-2.5	-2.2
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.3	82.9	72.2	65.3	59.6	3.8	-0.7	-2.5	-1.9
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.7	36.4	35.1	34.5	0.6	-0.4	-1.1	-0.5
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	58.6	55.0	52.1	49.2	-2.3	-1.3	-1.0	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.35	0.32	0.27	0.25	0.22	0.0	-1.8	-2.7	-2.1
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.13	2.06	1.97	1.91	1.82	-0.2	-0.4	-0.8	-0.7
Industry	2.10	2.12	1.92	1.87	1.86	1.82	1.68	1.60	1.45	-0.9	-0.3	-1.0	-1.5
Residential	1.39	1.36	1.39	1.34	1.27	1.18	1.05	0.85	0.69	0.0	-0.9	-1.9	-4.0
Tertiary	1.53	1.50	1.40	1.40	1.34	1.28	1.22	1.15	1.08	-0.9	-0.5	-0.9	-1.2
Transport	2.94	2.95	2.96	2.96	2.86	2.77	2.69	2.68	2.66	0.1	-0.3	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	10.9	14.6	20.1	23.0	25.4				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	8.6	11.5	11.9	12.3				
Gross Electricity generation by source (in GWh)													
			222776	290555	309058	335148	359056	394987	418508		3.3	1.5	1.5
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	82933	79363	92717	101210		0.3	-0.2	2.5
Oil (including refinery gas)			19567	23770	9087	3300	5232	5454	5452		-7.4	-5.4	0.4
Gas (including derived gases)			24741	85513	87494	91234	74175	85165	65624		13.5	-1.6	-1.2
Biomass-waste			3374	5457	6307	10715	31944	49922	62370		6.5	17.6	6.9
Hydro (pumping excluded)			29465	19549	28023	27035	27499	28532	29674		-0.5	-0.2	0.8
Wind			4723	21215	35251	60296	79860	93493	98182		22.3	8.5	2.1
Solar			18	78	674	1539	2887	5190	7150		43.7	15.7	9.5
Geothermal and other renewables			0	0	0	0	0	339	356				
Net Generation Capacity in MW_e			60718	80297	91574	99335	108704	115791	130841		4.2	1.7	1.9
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40529	49481	57995	66630		7.4	4.9	3.0
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25717	33802	40663	47997		22.0	7.5	3.6
Solar			14	52	435	992	1857	3334	4626		41.5	15.6	9.6
Other renewables (tidal etc.)			0	0	0	0	0	176	185				
<u>Thermal power</u>			38166	50004	53525	51820	52237	53689	58611		3.4	-0.2	1.2
of which cogeneration units			5017	7578	7888	7804	9546	10466	11993		4.6	1.9	2.3
Solids fired			11352	11485	11277	10503	10163	11618	15976		-0.1	-1.0	4.6
Gas fired			19801	32257	35544	34163	32641	30880	30380		6.0	-0.8	-0.7
Oil fired			6518	5375	5589	5216	3925	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1115	1938	5508	7943	9751		8.5	17.3	5.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	37.2	37.3	36.5	37.3	35.0				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.8	47.0	49.0	53.3	57.3				
% of gross electricity from CHP			7.4	13.5	12.5	12.0	15.2	16.2	16.0				
Carbon free gross electricity generation (%)			44.8	35.7	42.5	47.0	55.8	53.6	58.8				
- nuclear			27.9	19.8	19.8	17.3	16.2	8.7	11.6				
- renewable energy forms			16.9	15.9	22.7	29.7	39.6	44.9	47.2				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	690.8	756.3	810.9	846.7	5.3	2.9	2.1	1.1
Public road transport	33.4	39.6	50.3	54.6	57.8	60.5	63.8	66.3	68.6	4.2	1.4	1.0	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	472.9	508.7	535.4	549.2	5.5	3.1	1.8	0.8
Rail	19.9	20.8	25.4	27.2	29.7	32.6	36.5	41.9	47.8	2.5	1.6	2.1	2.7
Aviation	39.5	51.4	73.6	82.2	99.3	122.5	145.0	164.9	178.7	6.4	3.0	3.9	2.1
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	350.2	379.2	399.9	405.6	4.1	5.1	1.9	0.7
Trucks	83.8	101.6	148.7	233.2	267.4	296.2	319.6	337.8	342.6	5.9	6.0	1.8	0.7
Rail	11.2	11.0	11.6	11.1	12.8	14.5	16.0	17.1	17.5	0.4	1.0	2.3	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	39.5	43.6	45.0	45.5	-0.6	1.3	2.2	0.4
Energy demand in transport (ktoe)	22326	26069	32858	39428	44089	47235	48356	49279	49195	3.9	3.0	0.9	0.2
Public road transport	224	221	275	284	283	278	278	269	270	2.1	0.3	-0.2	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17626	18358	18459	18478	18430	6.2	2.1	0.5	0.0
Trucks	9634	9647	11587	14854	16950	18073	18235	18262	17792	1.9	3.9	0.7	-0.2
Rail	528	626	847	1166	1233	1302	1326	1273	905	4.8	3.8	0.7	-3.7
Aviation	2456	3105	4486	5323	6324	7417	8133	9052	9861	6.2	3.5	2.5	1.9
Inland navigation	1655	1871	1378	1534	1673	1808	1926	1946	1937	-1.8	2.0	1.4	0.1

Source: PRIMES

Spain: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	37748	41641	42041	1342	1092	2793	3.7	2.7	7.1
Solids	11679	7740	6265	4664	4065	2577	0	-186	0	0.0	-4.4	0.0
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	-1070.6
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Renewable energy sources	6276	7185	8710	17845	22487	28812	1342	1278	2793	8.1	6.0	10.7
Hydro	2184	2534	1681	2325	2365	2552	81	67	0	3.6	2.9	0.0
Biomass & Waste	4067	4205	5129	9617	12021	15788	1039	620	859	12.1	5.4	5.8
Wind	1	406	1825	5185	6868	8444	1	145	1151	0.0	2.2	15.8
Solar and others	21	33	68	708	1223	2017	219	444	780	44.7	57.0	63.1
Geothermal	2	8	8	10	11	11	2	2	3	20.1	29.1	34.8
Net Imports	59857	98351	122830	131275	129858	125179	-8811	-10874	-17493	-6.3	-7.7	-12.3
Solids	7038	12636	14418	17287	16686	16449	483	-707	-7256	2.9	-4.1	-30.6
Oil	49166	69866	78279	79100	78693	77011	-3037	-5729	-8234	-3.7	-6.8	-9.7
- Crude oil and Feedstocks	53256	58393	59850	61120	60916	60258	-2076	-3929	-5326	-3.3	-6.1	-8.1
- Oil products	-4091	11473	18429	17980	17777	16753	-961	-1800	-2908	-5.1	-9.2	-14.8
Natural gas	3690	15467	30248	34087	30764	27132	-6477	-7596	-6153	-16.0	-19.8	-18.5
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	160036	162138	157598	-7463	-9768	-14681	-4.5	-5.7	-8.5
Solids	18942	20643	20698	21951	20751	19027	483	-894	-7256	2.3	-4.1	-27.6
Oil	45547	63223	69507	70262	69432	67390	-3030	-5715	-8214	-4.1	-7.6	-10.9
Natural gas	4970	15219	29844	34187	30764	27132	-6477	-7596	-6153	-15.9	-19.8	-18.5
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	18313	25977	33395	1561	4437	6943	9.3	20.6	26.2
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	13.7	12.8	12.1	0.9	0.2	-3.2			
Oil	50.9	51.5	48.4	43.9	42.8	42.8	0.1	-0.9	-1.1			
Natural gas	5.6	12.4	20.8	21.4	19.0	17.2	-2.9	-3.3	-2.1			
Nuclear	15.3	13.1	10.3	9.4	9.2	6.8	0.4	0.5	0.6			
Renewable energy forms	7.0	5.9	6.1	11.4	16.0	21.2	1.4	3.5	5.8			
Gross Electricity Generation in GWh_e	150944	222776	290555	335148	359056	418508	-28613	-27763	1713	-7.9	-7.2	0.4
Self consumption and grid losses	21388	32539	40790	41544	44533	55861	-3337	-3356	527	-7.4	-7.0	1.0
Fuel Inputs to Thermal Power Generation	16682	26461	35416	34399	33474	35239	-5041	-4785	-4593	-12.8	-12.5	-11.5
Solids	13881	18249	17641	19332	18047	16616	267	-1285	-7578	1.4	-6.6	-31.3
Oil (including refinery gas)	2170	4442	5246	466	880	855	-91	276	129	-16.3	45.8	17.8
Gas (including derived gases)	486	3075	11140	12117	9359	9508	-5900	-4093	991	-32.7	-30.4	11.6
Biomass & Waste	145	694	1389	2484	5189	8260	682	316	1865	37.9	6.5	29.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	67362	68336	67259	-1315	-2597	-4740	-1.9	-3.7	-6.6
Refineries	53753	60048	60507	61082	60953	60296	-2075	-3929	-5326	-3.3	-6.1	-8.1
Biofuels and hydrogen production	0	65	259	4126	5529	5700	474	1124	529	13.0	25.5	10.2
District heating	0	0	0	0	0	0	0	0	0	-11.1	-9.0	-25.6
Derived gases, cokeries etc.	4131	3031	3077	2155	1854	1262	286	208	57	15.3	12.6	4.8
Energy Branch Consumption	4757	6118	6397	5819	5842	6033	-156	-309	-516	-2.6	-5.0	-7.9
Non-Energy Uses	5847	9094	7823	8582	9060	9589	-18	-21	-24	-0.2	-0.2	-0.2
Final Energy Demand	56647	79422	97170	113021	115450	115320	-4634	-7208	-10828	-3.9	-5.9	-8.6
by sector												
Industry	20014	25474	31036	36750	38437	38801	-628	-952	-1731	-1.7	-2.4	-4.3
- energy intensive industries	13069	17260	20421	23898	24660	24654	-253	-480	-928	-1.0	-1.9	-3.6
- other industrial sectors	6945	8213	10615	12851	13777	14147	-374	-473	-803	-2.8	-3.3	-5.4
Residential	9266	11871	15150	16883	16614	15673	-783	-1154	-1991	-4.4	-6.5	-11.3
Tertiary	5041	9219	11556	12153	12043	11652	-1302	-1708	-2321	-9.7	-12.4	-16.6
Transport	22326	32858	39428	47235	48356	49195	-1921	-3394	-4786	-3.9	-6.6	-8.9
by fuel												
Solids	3524	1671	1782	1716	1923	1896	125	321	298	7.8	20.1	18.7
Oil	33488	45784	52776	57151	55471	53305	-2792	-5854	-8123	-4.7	-9.5	-13.2
Gas	4873	12141	17978	21680	20991	16933	-484	-3287	-7096	-2.2	-13.5	-29.5
Electricity	10817	16205	20827	25018	26712	30667	-2170	-2086	130	-8.0	-7.2	0.4
Heat (from CHP and District Heating)	0	74	0	17	22	22	-3	-5	-3	-15.5	-19.2	-10.8
Renewable energy forms	3945	3547	3806	7432	10318	12481	690	3702	3965	10.2	56.0	46.6
Other	0	0	0	7	14	16	1	1	0	8.9	5.6	-2.0
RES in Gross Final Energy Consumption ^(A)		6709	8189	17008	23982	30487	1534	4277	6328	9.9	21.7	26.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	462.8	444.4	424.6	-28.3	-47.5	-78.0	-5.8	-9.7	-15.5
CO₂ Emissions (energy related)	203.3	283.2	339.4	353.4	336.6	313.7	-22.4	-38.6	-67.6	-6.0	-10.3	-17.7
Power generation/District heating	63.6	94.1	113.2	106.6	96.2	90.7	-13.0	-13.9	-27.3	-10.9	-12.6	-23.1
Energy Branch	11.5	13.6	14.7	13.6	13.4	12.5	-0.4	-0.6	-0.6	-2.7	-4.5	-4.4
Industry	41.9	48.9	58.2	66.9	64.6	56.1	0.7	-5.4	-11.1	1.0	-7.8	-16.6
Residential	12.9	16.4	20.4	20.0	17.4	10.9	-1.6	-3.5	-9.1	-7.2	-16.9	-45.4
Tertiary	7.7	12.9	16.2	15.5	14.7	12.6	-1.0	-1.6	-2.7	-6.1	-10.1	-17.5
Transport	65.6	97.3	116.7	130.7	130.3	130.8	-7.1	-13.5	-16.9	-5.1	-9.4	-11.5
CO₂ Emissions (non energy related)	24.9	29.2	36.5	40.8	40.4	38.8	0.1	-0.4	-0.8	0.4	-1.0	-2.0
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	68.7	67.4	72.1	-6.0	-8.5	-9.5	-8.0	-11.2	-11.7
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	161.2	154.8	147.9	-9.8	-16.5	-27.2			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Spain: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	128.8	114.9	94.1	-6.0	-6.9	-8.8	-4.5	-5.7	-8.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.21	2.08	1.99	-0.04	-0.11	-0.22	-1.6	-4.9	-10.1
Import Dependency %	64.2	76.5	81.2	77.7	75.7	74.9	-1.7	-1.9	-3.6			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	118.0	134.9	156.0	4.5	6.4	10.1	4.0	5.0	6.9
as % of GDP		9.2	9.1	9.5	9.6	9.3	0.4	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				4.6	6.6	10.3						
as % of GDP				0.37	0.46	0.62						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	99.5	91.0	79.4	-1.7	-2.3	-3.5	-1.7	-2.4	-4.3
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	88.8	77.5	62.2	-4.1	-5.4	-7.9	-4.4	-6.5	-11.3
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	82.9	72.2	59.6	-8.9	-10.2	-11.9	-9.7	-12.4	-16.6
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.7	36.4	34.5	-0.6	-0.9	-1.4	-1.5	-2.5	-4.0
Freight transport (toe/Mtkm)	87.8	69.3	61.1	58.6	55.0	49.2	-1.9	-3.6	-4.9	-3.2	-6.2	-9.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.32	0.27	0.22	-0.01	-0.02	-0.07	-3.3	-5.8	-23.4
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.06	1.97	1.82	0.00	-0.08	-0.16	0.2	-4.0	-8.0
Industry	2.10	1.92	1.87	1.82	1.68	1.45	0.05	-0.10	-0.21	2.7	-5.5	-12.8
Residential	1.39	1.39	1.34	1.18	1.05	0.69	-0.04	-0.13	-0.43	-2.9	-11.1	-38.5
Tertiary	1.53	1.40	1.40	1.28	1.22	1.08	0.05	0.03	-0.01	3.9	2.6	-1.1
Transport	2.94	2.96	2.96	2.77	2.69	2.66	-0.04	-0.08	-0.08	-1.3	-3.0	-2.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	14.6	20.1	25.4	1.9	4.6	6.9			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	8.6	11.5	12.3	1.3	3.0	2.3			
Gross Electricity generation by source (in GWh_e)												
	222776	290555	335148	359056	418508	418508	-28613	-27763	1713	-7.9	-7.2	0.4
Nuclear energy	62195	57529	58096	58096	58096	48490	0	0	0	0.0	0.0	0.0
Solids	78694	77443	82933	79363	101210	101210	1040	-8107	-31718	1.3	-9.3	-23.9
Oil (including refinery gas)	19567	23770	3300	5232	5452	5452	-448	1365	1481	-12.0	35.3	37.3
Gas (including derived gases)	24741	85513	91234	74175	65624	65624	-32715	-32530	-12976	-26.4	-30.5	-16.5
Biomass-waste	3374	5457	10715	31944	62370	62370	2353	9008	30037	28.1	39.3	92.9
Hydro (pumping excluded)	29465	19549	27035	27495	29674	29674	940	775	0	3.6	2.9	0.0
Wind	4723	21215	60296	79860	98182	98182	15	1683	13384	0.0	2.2	15.8
Solar	18	78	1539	2887	7150	7150	201	43	1149	15.1	1.5	19.1
Geothermal and other renewables	0	0	0	0	356	356	0	0	356			
Net Generation Capacity in MW_e	60718	80297	99335	108704	130841	130841	603	-430	13384	0.6	-0.4	11.4
<u>Nuclear energy</u>	7579	7579	6986	6986	5600	5600	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	14974	22714	40529	49481	66630	66630	133	137	10441	0.3	0.3	18.6
Hydro (pumping excluded)	12725	12725	13820	13822	13822	13822	0	0	0	0.0	0.0	0.0
Wind	2235	9937	25717	33802	47997	47997	6	109	9488	0.0	0.3	24.6
Solar	14	52	992	1857	4626	4626	128	27	768	14.8	1.5	19.9
Other renewables (tidal etc.)	0	0	0	0	185	185	0	0	185			
<u>Thermal power</u>	38166	50004	51820	52237	58611	58611	469	-567	2942	0.9	-1.1	5.3
of which cogeneration units	5017	7578	7804	9546	11993	11993	-249	-909	511	-3.1	-8.7	4.4
Solids fired	11352	11485	10503	10163	15976	15976	-68	-1179	-403	-0.6	-10.4	-2.5
Gas fired	19801	32257	34163	32641	30380	30380	-304	-1242	-1424	-0.9	-3.7	-4.5
Oil fired	6518	5375	5216	3925	2504	2504	0	0	0	0.0	0.0	0.0
Biomass-waste fired	495	887	1938	5508	9751	9751	841	1855	4769	76.7	50.8	95.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	37.3	36.5	35.0	35.0	-3.5	-2.7	-3.7			
Efficiency of gross thermal power generation (%)	41.1	46.7	47.0	49.0	57.3	57.3	-0.5	-0.7	3.8			
% of gross electricity from CHP	7.4	13.5	12.0	15.2	16.0	16.0	0.7	0.6	1.3			
Carbon free gross electricity generation (%)	44.8	35.7	47.0	55.8	58.8	58.8	4.7	7.0	10.5			
- nuclear	27.9	19.8	17.3	16.2	11.6	11.6	1.4	1.2	0.0			
- renewable energy forms	16.9	15.9	29.7	39.6	47.2	47.2	3.3	5.8	10.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	33.4	50.3	54.6	60.5	63.8	68.6	1.1	1.7	2.1	1.9	2.8	3.2
Private cars and motorcycles	182.0	310.7	369.2	472.9	508.7	549.2	-8.4	-14.5	-18.8	-1.8	-2.8	-3.3
Rail	19.9	25.4	27.2	32.6	36.5	47.8	0.4	0.6	1.1	1.1	1.6	2.4
Aviation	39.5	73.6	82.2	122.5	145.0	178.7	-2.3	-4.0	-5.7	-1.8	-2.7	-3.1
Inland navigation	2.1	1.9	2.1	2.3	2.4	2.4	0.0	0.0	0.0	-0.8	-0.7	-0.7
Freight transport activity (Gtkm)												
Trucks	83.8	148.7	233.2	296.2	319.6	342.6	-8.8	-13.8	-17.2	-2.9	-4.1	-4.8
Rail	11.2	11.6	11.1	14.5	16.0	17.5	0.5	0.8	1.0	3.9	5.0	5.8
Inland navigation	33.0	31.0	32.0	39.5	43.6	45.5	0.4	0.7	0.9	1.1	1.7	2.0
Energy demand in transport (ktoe)												
Public road transport	224	275	284	278	278	270	-1	-3	-16	-0.2	-1.0	-5.6
Private cars and motorcycles	7830	14286	16266	18358	18459	18430	-577	-924	-1119	-3.0	-4.8	-5.7
Trucks	9634	11587	14854	18073	18235	17792	-1175	-2129	-2835	-6.1	-10.5	-13.7
Rail	528	847	1166	1302	1326	905	15	19	-33	1.1	1.4	-3.6
Aviation	2456	4486	5323	7417	8133	9861	-182	-352	-811	-2.4	-4.1	-7.6
Inland navigation	1655	1378	1534	1808	1926	1937	-2	-4	29	-0.1	-0.2	1.5

Source: PRIMES

Sweden: EC proposal with JI/CDM & without RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	29728	31514	30077	34378	35550	37414	35478	31758	31341	0.1	1.7	0.0	-1.2	
Solids	216	321	231	302	290	99	59	7	5	0.7	2.3	-14.7	-21.5	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19234	19476	15142	7849	5974	-1.8	2.7	-2.4	-8.9	
Renewable energy sources	11745	13149	15065	15406	16025	17840	20277	23902	25361	2.5	0.6	2.4	2.3	
Hydro	6234	5856	6757	6260	6265	6273	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	8957	10687	13008	15061	15511	4.1	0.8	3.8	1.8	
Wind	1	9	39	80	760	761	846	2400	3392	54.2	34.5	1.1	14.9	
Solar and others	3	5	5	6	44	118	143	161	177	5.3	23.4	12.5	2.2	
Geothermal	0	0	0	0	0	0	0	0	0			6.9	1.2	
Net Imports	17923	19281	19172	19867	20455	19655	19306	19028	17729	0.7	0.6	-0.6	-0.8	
Solids	2329	2657	2340	2462	2888	3291	3441	3327	2603	0.0	2.1	1.8	-2.8	
Oil	15169	16014	15654	17198	17509	16328	15443	15267	14911	0.3	1.1	-1.2	-0.3	
- Crude oil and Feedstocks	16989	17815	20372	19825	20253	19490	18896	18740	18473	1.8	-0.1	-0.7	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2744	-3161	-3453	-3473	-3562					
Natural gas	577	755	776	843	986	1499	1834	1758	1573	3.0	2.4	6.4	-1.5	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	53968	54960	52600	48519	46728	0.1	1.2	-0.3	-1.2	
Solids	2677	2893	2442	2626	3179	3390	3500	3334	2608	-0.9	2.7	1.0	-2.9	
Oil	14555	15754	14382	14646	15472	14219	13259	12999	12569	-0.1	0.7	-1.5	-0.5	
Natural gas	577	755	776	843	986	1499	1834	1758	1573	3.0	2.4	6.4	-1.5	
Nuclear	17764	18040	14781	18670	19234	19476	15142	7849	5974	-1.8	2.7	-2.4	-8.9	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16025	17840	20277	23902	25361	2.5	0.6	2.4	2.3	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.2	6.7	6.9	5.6					
Oil	30.9	31.2	30.1	28.4	28.7	25.9	25.2	26.8	26.9					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.5	3.6	3.4					
Nuclear	37.7	35.8	30.9	36.2	35.6	35.4	28.8	16.2	12.8					
Renewable energy forms	24.9	26.1	31.5	29.9	29.7	32.5	38.5	49.3	54.3					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166767	180486	178643	183783	192149	0.0	1.4	0.7	0.7	
Self consumption and grid losses	13436	14222	14818	15557	16877	17628	17621	19207	19763	1.0	1.3	0.4	1.2	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3675	3996	5469	7309	6091	8.1	1.3	4.1	1.1	
Solids	558	705	467	494	517	10	0	0	0	-1.8	1.0			
Oil (including refinery gas)	253	737	276	316	42	33	19	1	1	0.9	-17.1	-7.6	-29.5	
Gas (including derived gases)	253	406	414	490	0	10	14	0	8	5.0	-54.0	54.8	-5.8	
Biomass & Waste	427	1398	2083	3166	3116	3943	5436	7309	6083	17.2	4.1	5.7	1.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24198	23525	23126	22656	22128	2.1	-0.4	-0.5	-0.4	
Refineries	18041	19475	21618	20537	20231	19479	18891	18738	18472	1.8	-0.7	-0.7	-0.2	
Biofuels and hydrogen production	0	0	0	210	437	703	984	1058	1151			8.5	1.6	
District heating	1123	2373	1973	1722	1578	1391	1271	891	694	5.8	-2.2	-2.1	-5.9	
Derived gases, cokeries etc.	1415	1615	1704	1835	1953	1952	1979	1971	1811	1.9	1.4	0.1	-0.9	
Energy Branch Consumption	1758	1629	1532	1424	1524	1585	1573	1563	1507	-1.4	0.0	0.3	-0.4	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2585	2601	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34375	35770	35950	35795	36920	0.9	0.3	0.4	0.3	
by sector														
Industry	11857	11527	12047	12042	13157	14601	15248	15468	16722	0.2	0.9	1.5	0.9	
- energy intensive industries	8574	8572	9161	9204	9941	11087	11566	11707	12812	0.7	0.8	1.5	1.0	
- other industrial sectors	3283	2955	2886	2838	3211	3514	3681	3760	3910	-1.3	1.1	1.4	0.6	
Residential	6840	8032	7546	7882	7827	7506	7005	6484	6267	1.0	0.4	-1.1	-1.1	
Tertiary	4555	5378	5581	4577	4497	4563	4461	4420	4366	2.1	-2.1	-0.1	-0.2	
Transport	7263	7666	8128	8643	8893	9101	9236	9423	9565	1.1	0.9	0.4	0.3	
by fuel														
Solids	1231	1192	1141	1345	1620	2324	2431	2324	1683	-0.8	3.6	4.1	-3.6	
Oil	12004	12567	12341	11087	11288	10253	9960	9897	9722	0.3	-0.9	-1.2	-0.2	
Gas	587	611	673	746	1515	1948	2011	1953	1581	1.4	8.5	2.9	-2.4	
Electricity	10348	10711	11068	11382	11693	12271	12208	12675	13332	0.7	0.6	0.4	0.9	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3715	3334	3038	2198	1984	7.6	0.5	-2.0	-4.2	
Renewable energy forms	4639	3981	4528	4410	4543	5638	6298	6744	8612	-0.2	0.0	3.3	3.2	
Other	0	0	0	0	1	2	3	4	4			14.5	2.8	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14708	16511	18384	20791	23241	0.0	2.3	2.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.2	68.9	67.4	65.7	61.3	-0.1	-0.2	-0.5	-0.9	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.6	49.2	47.8	46.5	42.3	2.0	0.0	-0.6	-1.2	
Power generation/District heating	6.3	7.9	5.1	5.5	3.4	1.3	0.5	0.0	0.0	-2.0	-4.0	-17.9	-27.3	
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.4	2.1	2.0	1.8	2.3	1.3	-0.5	-1.3	
Industry	11.6	12.5	11.0	12.2	16.1	17.0	17.3	16.5	12.7	-0.5	3.9	0.7	-3.0	
Residential	4.8	4.6	3.7	1.4	1.5	1.4	1.2	1.0	0.7	-2.6	-8.4	-2.1	-5.7	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.8	2.7	2.8	2.7	0.0	-6.2	-0.6	-0.1	
Transport	20.7	21.8	23.2	24.0	24.3	24.2	23.9	24.3	24.4	1.1	0.5	-0.2	0.2	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.9	6.9	6.9	6.9	-0.3	0.7	0.0	0.0	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.8	12.8	12.3	12.1	-0.4	-1.1	-0.7	-0.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.5	94.4	92.3	90.0	84.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	160.6	145.2	124.9	104.6	93.0	-1.9	-1.5	-2.5	-2.9
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.94	0.90	0.91	0.96	0.91	-0.1	-1.2	-0.3	0.0
Import Dependency %	37.5	37.5	39.0	37.2	36.5	34.4	35.2	37.5	36.1				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.1	39.2	43.8	48.9	52.2		3.8	2.2	1.8
as % of GDP			9.5	10.7	10.4	10.4	10.4	10.5	10.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.7	72.3	67.1	61.7	61.7	-5.6	-2.9	-1.1	-0.8
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	83.9	72.6	61.7	52.4	47.0	-0.7	-1.7	-3.0	-2.7
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.4	57.1	50.1	44.8	40.7	0.5	-4.5	-2.3	-2.1
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	35.2	33.8	32.3	30.9	-0.6	-0.9	-0.9	-0.9
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	39.8	37.1	35.8	34.6	1.3	-0.3	-1.5	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.00	-3.1	-5.0		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.31	1.27	1.26	1.24	1.10	-0.7	0.0	-0.4	-1.4
Industry	0.97	1.08	0.91	1.01	1.23	1.16	1.13	1.06	0.76	-0.6	3.0	-0.8	-3.9
Residential	0.70	0.57	0.49	0.18	0.20	0.19	0.18	0.15	0.11	-3.5	-8.7	-1.0	-4.7
Tertiary	1.23	1.00	1.00	0.68	0.65	0.62	0.62	0.62	0.62	-2.0	-4.2	-0.5	0.1
Transport	2.85	2.85	2.85	2.77	2.74	2.66	2.59	2.58	2.55	0.0	-0.4	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	41.0	44.2	49.0	55.4	60.1				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.0	9.9	10.7	11.7				
Gross Electricity generation by source (in GWh)													
			145524	158341	166767	180486	178643	183783	192149		1.4	0.7	0.7
Nuclear energy			57306	72364	74583	75638	58750	30435	23166		2.7	-2.4	-8.9
Solids			1141	1241	542	283	0	0	0		-7.2		
Oil (including refinery gas)			1828	1004	262	252	132	3	3		-17.7	-6.6	-31.5
Gas (including derived gases)			1714	1394	107	186	82	1	40		-24.2	-2.7	-6.9
Biomass-waste			4508	8607	9586	22330	36813	52399	56452		7.8	14.4	4.4
Hydro (pumping excluded)			78570	72795	72852	72939	73027	73027	73027		-0.8	0.0	0.0
Wind			457	936	8833	8853	9832	27909	39447		34.5	1.1	14.9
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	36739	36762	36809	45494	52616		1.2	0.0	3.6
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	19020	19038	19418	25763	30659		1.8	0.2	4.7
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	3359	3365	3735	10141	15022		30.7	1.1	14.9
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8675	8277	7942	10283	12509		2.1	-0.9	4.6
of which cogeneration units			3791	4762	3147	3811	4265	4283	5010		-1.8	3.1	1.6
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	504	465	815	2452		1.3	-2.2	18.1
Oil fired			4271	4366	4135	3022	1586	1573	1485		-0.3	-9.1	-0.7
Biomass-waste fired			1389	1842	3282	4462	5659	7680	8440		9.0	5.6	4.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	50.5	54.4	53.5	44.4	40.2				
Efficiency of gross thermal power generation (%)			24.4	23.6	24.6	49.6	58.2	61.7	79.8				
% of gross electricity from CHP			5.9	7.5	5.2	10.8	14.5	13.8	16.8				
Carbon free gross electricity generation (%)			96.8	97.7	99.5	99.6	99.9	100.0	100.0				
- nuclear			39.4	45.7	44.7	41.9	32.9	16.6	12.1				
- renewable energy forms			57.4	52.0	54.7	57.7	67.0	83.4	87.9				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	154.4	166.4	177.1	188.1	198.3	1.1	1.4	1.4	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.4	9.9	10.3	10.7	1.7	-0.3	0.7	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	113.6	119.5	126.4	132.0	0.6	1.4	1.1	1.0
Rail	8.6	8.8	10.2	11.0	12.2	14.1	15.2	15.8	17.2	1.7	1.8	2.2	1.2
Aviation	8.1	10.8	13.8	15.6	18.8	21.9	24.9	27.9	30.6	5.4	3.1	2.9	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.3	7.5	7.7	7.8	-1.3	0.0	0.4	0.4
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	74.6	81.6	87.7	93.7	99.4	1.4	1.9	1.6	1.3
Trucks	26.5	31.6	35.6	38.6	42.3	45.1	48.0	51.8	54.9	3.0	1.7	1.3	1.4
Rail	19.1	19.4	19.5	21.7	25.1	28.7	31.3	33.1	35.5	0.2	2.6	2.2	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.8	9.0	-1.8	0.6	1.3	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	8893	9101	9236	9423	9565	1.1	0.9	0.4	0.3
Public road transport	230	275	189	156	146	143	144	144	142	-2.0	-2.5	-0.1	-0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4470	4487	4428	4360	0.2	0.8	0.1	-0.3
Trucks	1872	2066	2471	2695	2863	2888	2887	3002	3086	2.8	1.5	0.1	0.7
Rail	252	273	299	332	368	389	387	373	379	1.7	2.1	0.5	-0.2
Aviation	760	849	928	846	936	1065	1181	1323	1445	2.0	0.1	2.3	2.0
Inland navigation	143	103	154	141	143	146	150	153	153	0.8	-0.8	0.5	0.2

Source: PRIMES

Sweden: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	37414	35478	31341	719	-1837	-7127	2.0	-4.9	-18.5
Solids	216	231	302	99	59	5	-207	-211	-140	-67.8	-78.1	-96.4
Oil	3	0	0	0	0	0	0	0	0	-388.9	-100.0	-427.3
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19476	15142	5974	0	-4335	-13505	0.0	-22.3	-69.3
Renewable energy sources	11745	15065	15406	17840	20277	25361	926	2708	6518	5.5	15.4	34.6
Hydro	6234	6757	6260	6273	6280	6280	20	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	10687	13008	15511	484	2188	3509	4.7	20.2	29.2
Wind	1	39	80	761	846	3392	339	420	2887	80.1	98.9	570.8
Solar and others	3	5	6	118	143	177	83	99	121	233.9	224.9	218.2
Geothermal	0	0	0	0	0	0	0	0	0	57.9	115.9	145.7
Net Imports	17923	19172	19867	19655	19306	17729	-3286	-3941	-5157	-14.3	-17.0	-22.5
Solids	2329	2340	2462	3291	3441	2603	-1774	-1737	-2173	-35.0	-33.5	-45.5
Oil	15169	15654	17198	16328	15443	14911	-867	-1271	-1704	-5.0	-7.6	-10.3
- Crude oil and Feedstocks	16989	20372	19825	19490	18896	18473	-622	-874	-1220	-3.1	-4.4	-6.2
- Oil products	-1820	-4718	-2626	-3161	-3453	-3562	-245	-397	-484	8.4	13.0	15.7
Natural gas	577	776	843	1499	1834	1573	-645	-933	-1280	-30.1	-33.7	-44.9
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	54960	52600	46728	-2567	-5776	-12282	-4.5	-9.9	-20.8
Solids	2677	2442	2626	3390	3500	2608	-1981	-1948	-2313	-36.9	-35.8	-47.0
Oil	14555	14382	14646	14219	13259	12569	-866	-1269	-1702	-5.7	-8.7	-11.9
Natural gas	577	776	843	1499	1834	1573	-645	-933	-1280	-30.1	-33.7	-44.9
Nuclear	17764	14781	18670	19476	15142	5974	0	-4335	-13505	0.0	-22.3	-69.3
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	17840	20277	25361	926	2708	6518	5.5	15.4	34.6
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.2	6.7	5.6	-3.2	-2.7	-2.8			
Oil	30.9	30.1	28.4	25.9	25.2	26.9	-0.4	0.3	2.7			
Natural gas	1.2	1.6	1.6	2.7	3.5	3.4	-1.0	-1.3	-1.5			
Nuclear	37.7	30.9	36.2	35.4	28.8	12.8	1.6	-4.6	-20.2			
Renewable energy forms	24.9	31.5	29.9	32.5	38.5	54.3	3.1	8.5	22.3			
Gross Electricity Generation in GWh_e	145958	145524	158341	180486	178643	192149	-5434	-10104	563	-2.9	-5.4	0.3
Self consumption and grid losses	13436	14818	15557	17628	17621	19763	-1108	-1344	-48	-5.9	-7.1	-0.2
Fuel Inputs to Thermal Power Generation	1491	3239	4465	3996	5469	6091	-2295	-726	579	-36.5	-11.7	10.5
Solids	558	467	494	10	0	0	-990	-646	-166	-99.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	33	19	1	-20	5	0	-37.6	39.6	-18.9
Gas (including derived gases)	253	414	490	10	14	8	-391	-463	-589	-97.5	-97.1	-98.7
Biomass & Waste	427	2083	3166	3943	5436	6083	-895	379	1334	-18.5	7.5	28.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	23525	23126	22128	-894	-1196	-2096	-3.7	-4.9	-8.7
Refineries	18041	21618	20537	19479	18891	18472	-622	-874	-1220	-3.1	-4.4	-6.2
Biofuels and hydrogen production	0	0	210	703	984	1151	72	190	98	11.3	23.9	9.3
District heating	1123	1973	1722	1391	1271	694	-358	-492	-969	-20.5	-27.9	-58.3
Derived gases, cokeries etc.	1415	1704	1835	1952	1979	1811	15	-21	-4	0.8	-1.0	-0.2
Energy Branch Consumption	1758	1532	1424	1585	1573	1507	-76	-107	-228	-4.6	-6.4	-13.1
Non-Energy Uses	1769	1771	2344	2550	2570	2601	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	35770	35950	36920	-1262	-2311	-3018	-3.4	-6.0	-7.6
by sector												
Industry	11857	12047	12042	14601	15248	16722	341	316	868	2.4	2.1	5.5
- energy intensive industries	8574	9161	9204	11087	11566	12812	399	423	1016	3.7	3.8	8.6
- other industrial sectors	3283	2886	2838	3514	3681	3910	-58	-107	-149	-1.6	-2.8	-3.7
Residential	6840	7546	7882	7506	7005	6267	-765	-1303	-2108	-9.2	-15.7	-25.2
Tertiary	4555	5581	4577	4563	4461	4366	-412	-629	-883	-8.3	-12.4	-16.8
Transport	7263	8128	8643	9101	9236	9565	-426	-695	-895	-4.5	-7.0	-8.6
by fuel												
Solids	1231	1141	1345	2324	2431	1683	-522	-746	-1484	-18.3	-23.5	-46.9
Oil	12004	12341	11087	10253	9960	9722	-715	-1173	-1658	-6.5	-10.5	-14.6
Gas	587	673	746	1948	2011	1581	-299	-395	-521	-13.3	-16.4	-24.8
Electricity	10348	11068	11382	12271	12208	13332	-369	-705	196	-2.9	-5.5	1.5
Heat (from CHP and District Heating)	1706	3550	4174	3334	3038	1984	-647	-975	-1992	-16.2	-24.3	-50.1
Renewable energy forms	4639	4528	4410	5638	6298	8612	1291	1684	2442	29.7	36.5	39.6
Other	0	0	0	2	3	4	0	0	-1	7.6	7.3	-22.2
RES in Gross Final Energy Consumption ^(A)		14717	14682	16511	18384	23241	1303	2450	5735	8.6	15.4	32.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	68.9	67.4	61.3	-12.9	-15.2	-19.0	-15.8	-18.4	-23.7
CO₂ Emissions (energy related)	50.5	50.5	48.5	49.2	47.8	42.3	-11.9	-13.7	-17.3	-19.5	-22.3	-29.0
Power generation/District heating	6.3	5.1	5.5	1.3	0.5	0.0	-6.9	-6.2	-5.4	-84.0	-92.9	-99.6
Energy Branch	1.5	1.9	2.3	2.4	2.1	1.8	-0.2	-0.2	-0.2	-6.6	-6.8	-8.6
Industry	11.6	11.0	12.2	17.0	17.3	12.7	-2.7	-3.7	-6.5	-13.9	-17.7	-33.9
Residential	4.8	3.7	1.4	1.4	1.2	0.7	-0.3	-0.5	-1.4	-15.5	-29.7	-67.8
Tertiary	5.6	5.6	3.1	2.8	2.7	2.7	-0.4	-0.5	-0.7	-11.8	-16.3	-19.5
Transport	20.7	23.2	24.0	24.2	23.9	24.4	-1.5	-2.6	-3.1	-5.7	-9.7	-11.2
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.9	6.9	6.9	-0.1	-0.2	-0.4	-1.1	-3.4	-5.4
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.8	12.8	12.1	-0.9	-1.3	-1.3	-6.5	-9.1	-10.0
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	94.4	92.3	84.0	-17.7	-20.9	-26.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: EC proposal with JI/CDM & without RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	145.2	124.9	93.0	-6.8	-13.7	-24.4	-4.5	-9.9	-20.8
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.90	0.91	0.91	-0.17	-0.14	-0.10	-15.8	-13.8	-10.3
Import Dependency %	37.5	39.0	37.2	34.4	35.2	36.1	-4.0	-3.1	-1.2			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.2	43.8	52.2	1.3	3.0	7.5	3.4	7.5	16.7
as % of GDP		9.5	10.7	10.4	10.4	10.4	0.3	0.7	1.5			
Total Compliance Costs ^(D) (in 000 M€05)				1.3	3.1	7.5						
as % of GDP				0.35	0.73	1.49						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	72.3	67.1	61.7	1.7	1.4	3.2	2.4	2.1	5.5
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	72.6	61.7	47.0	-7.4	-11.5	-15.8	-9.2	-15.7	-25.2
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	57.1	50.1	40.7	-5.2	-7.1	-8.2	-8.3	-12.4	-16.8
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	35.2	33.8	30.9	-0.7	-1.0	-1.3	-1.9	-2.7	-4.0
Freight transport (toe/Mtkm)	38.8	44.2	44.6	39.8	37.1	34.6	-2.3	-3.6	-3.6	-5.4	-8.8	-9.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.01	0.00	0.00	-0.03	-0.03	-0.02	-83.1	-92.1	-99.6
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.27	1.26	1.10	-0.09	-0.12	-0.21	-6.4	-8.5	-16.1
Industry	0.97	0.91	1.01	1.16	1.13	0.76	-0.22	-0.27	-0.45	-15.9	-19.4	-37.3
Residential	0.70	0.49	0.18	0.19	0.18	0.11	-0.01	-0.04	-0.15	-6.9	-16.6	-57.0
Tertiary	1.23	1.00	0.68	0.62	0.62	0.62	-0.02	-0.03	-0.02	-3.8	-4.5	-3.2
Transport	2.85	2.85	2.77	2.66	2.59	2.55	-0.03	-0.08	-0.08	-1.3	-2.9	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.2	49.0	60.1	4.9	9.1	18.2			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.0	9.9	11.7	1.0	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	180486	178643	192149	192149	-5434	-10104	563	-2.9	-5.4	0.3
Nuclear energy	57306	72364	75638	58750	23166		-244	-17136	-52727	-0.3	-22.6	-69.5
Solids	1141	1241	283	0	0		-3322	-2381	-1157	-92.1	-100.0	-100.0
Oil (including refinery gas)	1828	1004	252	132	3		-244	-66	-1	-49.2	-33.4	-17.3
Gas (including derived gases)	1714	1394	186	82	40		-3558	-3952	-3827	-95.0	-98.0	-99.0
Biomass-waste	4508	8607	22330	36813	56452		-2239	8529	24696	-9.1	30.2	77.8
Hydro (pumping excluded)	78570	72795	72939	73027	73027		235	13	13	0.3	0.0	0.0
Wind	457	936	8853	9832	39447		3936	4889	33566	80.1	98.9	570.8
Solar	0	0	5	7	14		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	32460	33376	36762	36809	52616	52616	518	-206	12464	1.4	-0.6	31.0
<u>Nuclear energy</u>	9584	9630	9446	9449	9449		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	19038	19418	30659		1494	1855	12838	8.5	10.6	72.0
Hydro (pumping excluded)	15625	15651	15651	15651	15576		0	0	0	0.0	0.0	0.0
Wind	231	493	3365	3735	15022		1494	1855	12838	79.8	98.6	587.9
Solar	0	4	22	32	61		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	8277	7942	12509		-976	-2061	-374	-10.6	-20.6	-2.9
of which cogeneration units	3791	4762	3811	4265	5010		-1257	-1169	-888	-24.8	-21.5	-15.0
Solids fired	847	868	290	232	133		-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	504	465	2452		-793	-2531	-2811	-61.1	-84.5	-53.4
Oil fired	4271	4366	3022	1586	1485		0	0	-434	0.0	0.0	-22.6
Biomass-waste fired	1389	1842	4462	5659	8440		251	904	3000	6.0	19.0	55.1
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.4	53.5	40.2		-2.3	-2.7	-12.3			
Efficiency of gross thermal power generation (%)	24.4	23.6	49.6	58.2	79.8		5.3	9.8	22.4			
% of gross electricity from CHP	5.9	7.5	10.8	14.5	16.8		-2.6	-0.6	-0.2			
Carbon free gross electricity generation (%)	96.8	97.7	99.6	99.9	100.0		3.8	3.4	2.6			
- nuclear	39.4	45.7	41.9	32.9	12.1		1.1	-7.3	-27.6			
- renewable energy forms	57.4	52.0	57.7	67.0	87.9		2.7	10.7	30.2			
Transport sector												
Passenger transport activity (Gpkm)												
	120.6	134.0	142.2	166.4	177.1	198.3	-2.3	-3.9	-5.5	-1.4	-2.2	-2.7
Public road transport	8.0	9.5	9.0	9.4	9.9	10.7	0.1	0.2	0.2	1.1	1.8	2.2
Private cars and motorcycles	87.6	93.3	99.4	113.6	119.5	132.0	-2.4	-3.8	-5.2	-2.0	-3.1	-3.8
Rail	8.6	10.2	11.0	14.1	15.2	17.2	0.5	0.6	0.6	4.0	3.8	3.9
Aviation	8.1	13.8	15.6	21.9	24.9	30.6	-0.5	-0.8	-1.2	-2.4	-3.2	-3.6
Inland navigation	8.3	7.2	7.2	7.3	7.5	7.8	-0.1	-0.1	-0.1	-1.0	-0.8	-0.6
Freight transport activity (Gtkm)												
	53.9	62.0	67.3	81.6	87.7	99.4	-1.1	-1.8	-2.6	-1.3	-2.1	-2.6
Trucks	26.5	35.6	38.6	45.1	48.0	54.9	-2.1	-3.1	-4.1	-4.4	-6.0	-6.9
Rail	19.1	19.5	21.7	28.7	31.3	35.5	1.0	1.3	1.5	3.7	4.2	4.4
Inland navigation	8.3	6.9	7.0	7.8	8.3	9.0	0.0	0.0	0.0	-0.6	-0.4	-0.3
Energy demand in transport (ktoe)												
	7263	8128	8643	9101	9236	9565	-426	-695	-895	-4.5	-7.0	-8.6
Public road transport	230	189	156	143	144	142	-2	-5	-9	-1.3	-3.1	-6.0
Private cars and motorcycles	4004	4086	4472	4470	4487	4360	-163	-249	-339	-3.5	-5.3	-7.2
Trucks	1872	2471	2695	2888	2887	3086	-232	-385	-448	-7.4	-11.8	-12.7
Rail	252	299	332	389	387	379	0	-4	-11	0.1	-1.0	-2.7
Aviation	760	928	846	1065	1181	1445	-28	-50	-84	-2.5	-4.0	-5.5
Inland navigation	143	154	141	146	150	153	-2	-3	-4	-1.3	-1.7	-2.5

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: EC proposal with JI/CDM & without RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	107.2	93.4	81.4	72.9	68.4	-1.5	-3.0	-2.7	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.31	2.22	2.16	2.01	1.95	-1.3	-0.2	-0.7	-1.0
Import Dependency %	2.8	-16.3	-16.7	13.9	22.2	47.3	61.9	63.3	63.3				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	150.7	171.5	194.0	210.5	221.1		0.8	2.6	1.3
as % of GDP			8.7	7.4	7.4	7.5	7.6	7.4	7.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.8	88.0	81.8	76.5	73.3	-0.6	-0.6	-1.4	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	72.8	63.9	55.3	49.0	43.8	-1.4	-3.1	-2.7	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	63.1	54.6	47.6	42.6	38.8	-2.2	-4.5	-2.8	-2.0
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.5	42.5	41.2	37.6	37.1	0.3	-0.8	-0.5	-1.1
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.0	57.6	55.5	53.6	52.2	-0.5	1.2	-0.4	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.39	0.32	0.27	0.21	0.20	-4.0	-1.3	-3.5	-3.0
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.15	2.11	2.03	1.94	1.87	-0.8	-0.2	-0.6	-0.8
Industry	2.34	2.24	1.96	1.93	1.94	1.91	1.81	1.74	1.69	-1.7	-0.1	-0.7	-0.6
Residential	2.05	1.95	1.90	1.84	1.83	1.75	1.63	1.44	1.22	-0.7	-0.4	-1.2	-2.8
Tertiary	1.77	1.69	1.31	1.27	1.21	1.16	1.13	1.07	1.00	-3.0	-0.8	-0.6	-1.3
Transport	2.91	2.91	2.92	2.93	2.80	2.74	2.67	2.64	2.62	0.0	-0.4	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	6.3	10.5	15.0	17.8	19.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	6.0	9.1	12.7	13.7	14.4				
Gross Electricity generation by source (in GWh)													
			374308	397522	374781	380300	400005	456233	511610		0.0	0.7	2.5
Nuclear energy			85048	81603	72657	61709	29140	53272	77209		-1.6	-8.7	10.2
Solids			118129	134618	114245	88847	58364	67737	80159		-0.3	-6.5	3.2
Oil (including refinery gas)			7147	7622	104	104	590	1587	940		-34.5	19.0	4.8
Gas (including derived gases)			153298	152495	139434	142762	194288	187080	191963		-0.9	3.4	-0.1
Biomass-waste			4653	13308	11765	17680	35805	50206	55446		9.7	11.8	4.5
Hydro (pumping excluded)			5085	4960	6076	6076	6076	6076	6076		1.8	0.0	0.0
Wind			947	2907	30477	60867	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	2205	4292	5466	6912				4.9
Net Generation Capacity in MW_e			84356	90824	101845	115377	104683	118067	131668		1.9	0.3	2.3
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	7059	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	11864	24185	29331	35036	38772		21.0	9.5	2.8
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10374	21501	25510	30514	33358		38.3	9.4	2.7
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	1144	2227	2836	3586				4.9
<u>Thermal power</u>			69560	75978	79259	81927	70940	75971	83694		1.3	-1.1	1.7
of which cogeneration units			6116	8041	7067	9421	12550	15260	15669		1.5	5.9	2.2
Solids fired			30684	30627	28669	23771	7478	8834	9691		-0.7	-12.6	2.6
Gas fired			27319	33944	38217	41623	40608	42190	49732		3.4	0.6	2.0
Oil fired			10540	9879	9357	9164	7715	3367	1717		-1.2	-1.9	-13.9
Biomass-waste fired			1017	1528	3015	7368	15139	21582	22554		11.5	17.5	4.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	40.4	36.4	42.2	42.4	42.7				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.6	48.8	52.0	56.4	57.5				
% of gross electricity from CHP			9.0	8.5	11.4	16.0	21.2	22.0	19.9				
Carbon free gross electricity generation (%)			25.6	25.9	32.3	39.1	36.7	43.8	46.6				
- nuclear			22.7	20.5	19.4	16.2	7.3	11.7	15.1				
- renewable energy forms			2.9	5.3	12.9	22.8	29.4	32.1	31.5				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	971.1	1030.7	1084.9	1141.8	1190.6	1.3	1.5	1.1	0.9
Public road transport	46.2	44.3	47.0	48.8	50.7	52.1	54.0	55.4	56.4	0.2	0.8	0.6	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	727.1	760.1	789.4	824.1	853.8	0.9	1.2	0.8	0.8
Rail	39.9	37.1	46.7	51.8	57.0	62.3	67.8	74.0	80.2	1.6	2.0	1.7	1.7
Aviation	49.3	66.8	94.0	110.0	129.8	149.6	167.0	181.6	193.3	6.7	3.3	2.6	1.5
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.6	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	259.9	269.6	277.7	284.8	288.7	1.1	0.6	0.7	0.4
Trucks	145.7	161.5	165.6	167.5	173.2	181.3	187.5	193.3	196.4	1.3	0.4	0.8	0.5
Rail	16.0	13.3	18.1	22.1	24.5	26.1	27.4	28.5	29.1	1.2	3.1	1.1	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.3	62.8	63.0	63.1	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57372	59340	60156	58249	59180	1.4	0.9	0.5	-0.2
Public road transport	514	493	518	490	480	482	488	488	485	0.1	-0.8	0.2	-0.1
Private cars and motorcycles	25438	25836	27031	25783	25877	26149	26027	25652	25964	0.6	-0.4	0.1	0.0
Trucks	10387	10366	11277	13316	13392	13754	13721	13797	13863	0.8	1.7	0.2	0.1
Rail	1063	1233	1464	1532	1599	1450	1286	1092	848	3.2	0.9	-2.2	-4.1
Aviation	6779	7822	11115	12847	14744	16233	17382	15990	16811	5.1	2.9	1.7	-0.3
Inland navigation	1269	1117	920	1269	1280	1272	1253	1229	1210	-3.2	3.4	-0.2	-0.3

Source: PRIMES

United Kingdom: EC proposal with JI/CDM & without RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	113620	80119	77722	5553	4681	6966	5.1	6.2	9.8
Solids	54125	18577	12172	8953	6779	6000	-47	-1221	0	-0.5	-15.3	0.0
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Renewable energy sources	1070	2635	4048	13749	16824	21426	5601	5902	5925	68.7	54.0	38.2
Hydro	436	437	427	523	523	523	87	70	0	19.9	15.6	0.0
Biomass & Waste	627	2104	3340	6263	7829	9899	289	477	214	4.8	6.5	2.2
Wind	1	81	250	5235	6138	7970	3875	3657	3611	285.0	147.4	82.8
Solar and others	5	11	30	1725	2326	3024	1348	1690	2091	357.1	266.0	224.2
Geothermal	1	1	1	4	8	11	2	7	9	176.7	364.5	352.3
Net Imports	5932	-39030	32641	102181	130349	134094	-23647	-22399	-25423	-18.8	-14.7	-15.9
Solids	9122	14577	27467	17963	12725	12116	-15883	-18612	-15417	-46.9	-59.4	-56.0
Oil	-10396	-45515	-2171	40066	57608	61853	-3688	-7628	-12989	-8.4	-11.7	-17.4
- Crude oil and Feedstocks	-4537	-39025	4856	45311	63765	69266	-3718	-6759	-10881	-7.6	-9.6	-13.6
- Oil products	-5858	-6490	-7027	-5245	-6157	-7413	30	-869	-2109	-0.6	16.4	39.8
Natural gas	6178	-9311	5973	38677	50071	48187	-7452	-3825	-6634	-16.2	-7.1	-12.1
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	213730	208377	209703	-18084	-17696	-18428	-7.8	-7.8	-8.1
Solids	64305	36816	38186	26916	19504	18116	-15930	-19833	-15417	-37.2	-50.4	-46.0
Oil	80903	81357	82701	82996	80517	77740	-3678	-7606	-12960	-4.2	-8.6	-14.3
Natural gas	47203	87399	84898	68677	74071	63187	-7452	-3825	-6634	-9.8	-4.9	-9.5
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	18298	25935	32947	8976	13568	15542	96.3	109.7	89.3
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	12.6	9.4	8.6	-5.9	-8.0	-6.1			
Oil	38.3	35.2	35.6	38.8	38.6	37.1	1.4	-0.3	-2.7			
Natural gas	22.4	37.8	36.6	32.1	35.5	30.1	-0.7	1.1	-0.5			
Nuclear	7.9	9.5	9.1	7.4	3.6	8.2	0.6	0.3	1.1			
Renewable energy forms	0.5	1.1	2.0	8.6	12.4	15.7	4.5	7.0	8.1			
Gross Electricity Generation in GWh_e	316937	374308	397522	380300	400005	511610	-51215	-51491	32386	-11.9	-11.4	6.8
Self consumption and grid losses	44516	48246	50822	43514	45654	62819	-7324	-10547	2266	-14.4	-18.8	3.7
Fuel Inputs to Thermal Power Generation	56319	55481	61996	43961	47795	49132	-21278	-17131	-5665	-32.6	-26.4	-10.3
Solids	47267	27232	30920	20164	13232	13495	-15958	-19645	-14839	-44.2	-59.8	-52.4
Oil (including refinery gas)	7172	806	815	0	92	107	0	92	107		15571.5	43147.5
Gas (including derived gases)	1668	26033	26807	19991	26389	23100	-5864	-1705	2244	-22.7	-6.1	10.8
Biomass & Waste	212	1410	3455	3805	8082	12430	544	4127	6823	16.7	104.4	121.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	99738	100080	98568	-1454	-3948	-8742	-1.4	-3.8	-8.1
Refineries	89882	89299	87320	89593	88541	87443	-3717	-6759	-10881	-4.0	-7.1	-11.1
Biofuels and hydrogen production	0	0	80	4961	6825	7563	2378	2983	2479	92.0	77.7	48.7
District heating	0	3354	1976	616	526	274	-280	-264	-362	-31.2	-33.4	-56.9
Derived gases, cokeries etc.	9263	7682	5436	4567	4188	3288	165	92	22	3.8	2.2	0.7
Energy Branch Consumption	12836	15039	15383	12504	12528	11765	-926	-1072	-1206	-6.9	-7.9	-9.3
Non-Energy Uses	11173	11152	11510	12179	12592	13361	-9	-7	-1	-0.1	-0.1	0.0
Final Energy Demand	136947	151665	151580	151482	150840	148348	-4152	-7595	-13810	-2.7	-4.8	-8.5
by sector												
Industry	34962	35909	33889	34551	34747	35522	-595	-1152	-1155	-1.7	-3.2	-3.2
- energy intensive industries	19483	19215	16289	16651	16474	16248	-189	-523	-424	-1.1	-3.1	-2.5
- other industrial sectors	15479	16694	17600	17900	18273	19274	-406	-629	-731	-2.2	-3.3	-3.7
Residential	37939	43072	43284	39971	38497	36278	-764	-1825	-3283	-1.9	-4.5	-8.3
Tertiary	18596	20359	19170	17620	17441	17368	-1371	-1791	-2134	-7.2	-9.3	-10.9
Transport	45451	52324	55236	59340	60156	59180	-1421	-2827	-7238	-2.3	-4.5	-10.9
by fuel												
Solids	12266	5683	4422	4726	4446	3231	105	-234	-220	2.3	-5.0	-6.4
Oil	58770	62437	65731	66849	64017	61075	-3640	-7544	-12404	-5.2	-10.5	-16.9
Gas	41893	52180	49853	42532	41240	34744	-697	-1304	-8012	-1.6	-3.1	-18.7
Electricity	23597	28325	29686	29074	30567	38192	-3767	-3501	2629	-11.5	-10.3	7.4
Heat (from CHP and District Heating)	0	2439	1317	1268	1653	1989	114	344	423	9.9	26.3	27.0
Renewable energy forms	421	600	572	7026	8902	9097	3734	4643	3776	113.4	109.0	71.0
Other	0	0	0	7	15	20	0	1	-4	6.5	8.4	-16.3
RES in Gross Final Energy Consumption ^(A)		1537	2483	16345	23245	29503	9314	13118	14419	132.5	129.5	95.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	595.0	567.9	491.1	-95.5	-116.4	-121.3	-13.8	-17.0	-19.8
CO₂ Emissions (energy related)	566.9	546.0	559.7	475.3	449.7	408.6	-91.0	-110.2	-115.2	-16.1	-19.7	-22.0
Power generation/District heating	214.2	181.2	193.8	128.3	115.8	108.6	-77.5	-82.1	-54.6	-37.7	-41.5	-33.5
Energy Branch	27.9	33.1	34.6	27.9	27.9	23.3	-1.5	-1.2	-3.7	-5.2	-4.2	-13.7
Industry	81.8	70.5	65.5	66.0	62.8	60.1	-0.5	-4.5	-4.6	-0.8	-6.7	-7.2
Residential	77.8	81.9	79.7	69.8	62.7	44.3	-0.7	-5.5	-20.5	-1.0	-8.1	-31.7
Tertiary	32.9	26.7	24.3	20.4	19.8	17.3	-1.2	-1.5	-3.5	-5.6	-7.1	-17.0
Transport	132.4	152.7	161.8	162.9	160.7	155.0	-9.6	-15.4	-28.2	-5.6	-8.7	-15.4
CO₂ Emissions (non energy related)	27.5	23.7	26.8	27.0	27.2	27.0	-0.3	-0.5	-1.2	-1.1	-2.0	-4.2
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	92.8	91.0	55.4	-4.2	-5.7	-4.9	-4.3	-5.9	-8.1
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	76.7	73.2	63.3	-12.3	-15.0	-15.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: EC proposal with JI/CDM & without RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	93.4	81.4	68.4	-7.9	-6.9	-6.0	-7.8	-7.8	-8.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.22	2.16	1.95	-0.22	-0.32	-0.35	-9.0	-12.9	-15.1
Import Dependency %	2.8	-16.7	13.9	47.3	61.9	63.3	-6.4	-5.0	-6.0			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	171.5	194.0	221.1	7.6	12.9	14.9	4.6	7.1	7.2
as % of GDP		8.7	7.4	7.5	7.6	7.2	0.3	0.5	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				7.7	13.0	14.9						
as % of GDP				0.33	0.51	0.49						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	88.0	81.8	73.3	-1.5	-2.7	-2.4	-1.7	-3.2	-3.2
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	63.9	55.3	43.8	-1.2	-2.6	-4.0	-1.9	-4.5	-8.3
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	54.6	47.6	38.8	-4.2	-4.9	-4.8	-7.2	-9.3	-10.9
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.5	41.2	37.1	-0.4	-0.8	-4.2	-1.0	-2.0	-10.1
Freight transport (toe/Mtkm)	54.4	51.5	59.8	57.6	55.5	52.2	-0.8	-2.0	-1.8	-1.3	-3.5	-3.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.32	0.27	0.20	-0.14	-0.15	-0.12	-29.9	-34.9	-38.1
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.11	2.03	1.87	-0.02	-0.07	-0.19	-1.0	-3.4	-9.3
Industry	2.34	1.96	1.93	1.91	1.81	1.69	0.02	-0.07	-0.07	0.9	-3.6	-4.1
Residential	2.05	1.90	1.84	1.75	1.63	1.22	0.02	-0.06	-0.42	0.9	-3.7	-25.5
Tertiary	1.77	1.31	1.27	1.16	1.13	1.00	0.02	0.03	-0.07	1.7	2.5	-6.8
Transport	2.91	2.92	2.93	2.74	2.67	2.62	-0.09	-0.12	-0.14	-3.3	-4.4	-5.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	10.5	15.0	19.2	6.1	8.8	10.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	9.1	12.7	14.4	4.5	5.8	5.3			
Gross Electricity generation by source (in GWh_e)												
Total	374308	397522	380300	400005	511610	511610	-51215	-51491	32386	-11.9	-11.4	6.8
Nuclear energy	85048	81603	61709	29140	77209	77209	0	0	4674	0.0	0.0	6.4
Solids	118129	134618	88847	58364	80159	80159	-70172	-114637	-81215	-44.1	-66.3	-50.3
Oil (including refinery gas)	7147	7622	104	590	940	940	0	483	851	0.0	451.7	952.3
Gas (including derived gases)	153298	152495	142762	194288	191963	191963	-32370	13	33094	-18.5	0.0	20.8
Biomass-waste	4653	13308	17680	35805	55446	55446	3058	16260	29459	20.9	83.2	113.4
Hydro (pumping excluded)	5085	4960	6076	6076	6076	6076	1007	818	0	19.9	15.6	0.0
Wind	947	2907	60867	71371	92670	92670	45058	42524	41988	285.0	147.4	82.8
Solar	1	8	50	79	236	236	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	2205	4292	6912	6912	2205	3049	3535	245.4	104.7	104.7
Net Generation Capacity in MW_e	84356	90824	115377	104683	131668	131668	20579	8508	22871	21.7	8.8	21.0
<u>Nuclear energy</u>	13038	11837	9265	4412	9202	9202	0	0	540	0.0	0.0	6.2
<u>Renewable energy</u>	1758	3009	24185	29331	38772	38772	17057	16836	17128	239.3	134.7	79.1
Hydro (pumping excluded)	1350	1437	1475	1489	1514	1514	0	0	0	0.0	0.0	0.0
Wind	406	1562	21501	25510	33358	33358	15990	15254	15294	290.1	148.7	84.7
Solar	2	11	66	105	313	313	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	1144	2227	3586	3586	1067	1582	1834	1385.6	245.4	104.7
<u>Thermal power</u>	69560	75978	81927	70940	83694	83694	3522	-8328	5203	4.5	-10.5	6.6
of which cogeneration units	6116	8041	9421	12550	15669	15669	1017	2877	2733	12.1	29.7	21.1
Solids fired	30684	30627	23771	7478	9691	9691	0	-13286	-11113	0.0	-64.0	-53.4
Gas fired	27319	33944	41623	40608	49732	49732	-1057	-5580	1009	-2.5	-12.1	2.1
Oil fired	10540	9879	9164	7715	1717	1717	0	0	-2440	0.0	0.0	-58.7
Biomass-waste fired	1017	1528	7368	15139	22554	22554	4579	10538	17747	164.2	229.1	369.2
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	48.4	47.7	36.4	42.2	42.7	42.7	-13.7	-9.1	-5.3			
Efficiency of gross thermal power generation (%)	43.9	42.7	48.8	52.0	57.5	57.5	2.8	0.8	3.1			
% of gross electricity from CHP	9.0	8.5	16.0	21.2	19.9	19.9	3.5	7.1	4.2			
Carbon free gross electricity generation (%)	25.6	25.9	39.1	36.7	46.6	46.6	16.5	18.1	13.5			
- nuclear	22.7	20.5	16.2	7.3	15.1	15.1	1.9	0.8	0.0			
- renewable energy forms	2.9	5.3	22.8	29.4	31.5	31.5	14.6	17.2	13.5			
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1030.7	1084.9	1190.6	-12.0	-23.2	-31.1	-1.1	-2.1	-2.5
Public road transport	46.2	47.0	48.8	52.1	54.0	56.4	0.5	0.9	1.2	0.9	1.8	2.1
Private cars and motorcycles	591.1	644.9	684.7	760.1	789.4	853.8	-10.0	-20.3	-30.4	-1.3	-2.5	-3.4
Rail	39.9	46.7	51.8	62.3	67.8	80.2	0.3	0.2	3.0	0.4	0.4	3.9
Aviation	49.3	94.0	110.0	149.6	167.0	193.3	-2.6	-4.1	-4.8	-1.7	-2.4	-2.4
Inland navigation	8.1	6.6	6.5	6.6	6.6	6.8	-0.1	0.0	0.0	-0.8	-0.6	-0.5
Freight transport activity (Gtkm)	217.5	243.7	250.8	269.6	277.7	288.7	-4.2	-7.0	-8.7	-1.5	-2.5	-2.9
Trucks	145.7	165.6	167.5	181.3	187.5	196.4	-4.4	-7.5	-9.5	-2.4	-3.8	-4.6
Rail	16.0	18.1	22.1	26.1	27.4	29.1	0.4	0.5	0.8	1.4	1.8	2.8
Inland navigation	55.8	60.0	61.2	62.3	62.8	63.1	-0.2	0.0	0.0	-0.3	0.0	0.0
Energy demand in transport (ktoe)	45451	52324	55236	59340	60156	59180	-1421	-2827	-7238	-2.3	-4.5	-10.9
Public road transport	514	518	490	482	488	485	0	0	-13	0.1	0.0	-2.7
Private cars and motorcycles	25438	27031	25783	26149	26027	25964	-479	-909	-1680	-1.8	-3.4	-6.1
Trucks	10387	11277	13316	13754	13721	13863	-506	-1009	-1049	-3.5	-6.8	-7.0
Rail	1063	1464	1532	1450	1286	848	21	17	43	1.5	1.4	5.4
Aviation	6779	11115	12847	16233	17382	16811	-447	-916	-4521	-2.7	-5.0	-21.2
Inland navigation	1269	920	1269	1272	1253	1210	-10	-11	-17	-0.8	-0.9	-1.4

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 4: EC Proposal with RES trading

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

SUMMARY ENERGY BALANCE AND INDICATORS (B)										EU27: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	144.7	126.4	113.0	103.5	96.4	-1.8	-1.6	-2.4	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.11	1.99	1.88	1.81	1.70	-0.9	-0.6	-1.1	-1.0
Import Dependency %	44.4	43.3	46.7	52.4	54.9	57.8	59.2	59.5	59.3				
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1248.0	1429.9	1607.2	1738.8	1849.1		2.5	2.6	1.4
as % of GDP			9.7	9.9	10.0	10.2	10.2	10.1	9.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.6	79.9	72.8	67.5	64.1	-2.7	-1.3	-1.8	-1.3
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	87.9	77.3	70.3	63.9	58.7	-1.3	-1.3	-2.2	-1.8
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	86.7	74.4	66.6	60.7	55.9	-2.3	-1.4	-2.6	-1.7
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.2	33.4	31.5	30.3	0.1	-0.7	-1.0	-1.0
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.3	47.6	44.7	43.0	41.5	0.3	-0.1	-1.2	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.31	0.25	0.21	0.19	0.16	-2.0	-2.0	-3.6	-3.0
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.01	1.96	1.87	1.79	1.72	-0.8	-0.4	-0.8	-0.8
Industry	2.18	2.10	1.95	1.85	1.84	1.81	1.69	1.59	1.50	-1.1	-0.6	-0.8	-1.2
Residential	1.92	1.72	1.62	1.57	1.51	1.42	1.32	1.21	1.10	-1.7	-0.7	-1.3	-1.8
Tertiary	1.91	1.70	1.50	1.47	1.43	1.35	1.29	1.21	1.14	-2.4	-0.5	-1.1	-1.2
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.69	2.66	2.64	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	11.7	15.2	20.2	23.2	25.4				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.1	6.9	10.1	10.9	11.7				
Gross Electricity generation by source (in GWh)													
			2992030	3275359	3316862	3359433	3536772	3911837	4278762		1.0	0.6	1.9
Nuclear energy			944823	997519	951111	948863	854066	840200	879844		0.1	-1.1	0.3
Solids			900381	918139	916946	779105	659556	707734	769888		0.2	-3.2	1.6
Oil (including refinery gas)			176516	150480	51627	28634	28418	29694	28054		-11.6	-5.8	-0.1
Gas (including derived gases)			535039	721024	753179	776136	847984	921887	957615		3.5	1.2	1.2
Biomass-waste			54964	101813	111668	199496	392863	534795	614944		7.3	13.4	4.6
Hydro (pumping excluded)			353182	306902	344343	343396	346258	349826	352231		-0.3	0.1	0.2
Wind			22246	70469	175263	265840	372272	480066	595471		22.9	7.8	4.8
Solar			117	1489	3731	6424	18691	28991	60223		41.4	17.5	12.4
Geothermal and other renewables			4762	7525	8995	11538	16665	18644	20492		6.6	6.4	2.1
Net Generation Capacity in MW_e			680864	739517	832789	866089	907812	983630	1100219		2.0	0.9	1.9
<u>Nuclear energy</u>			135806	134187	125500	123772	112702	103164	108061		-0.8	-1.1	-0.4
<u>Renewable energy</u>			120596	151902	199086	238293	294763	348900	425241		5.1	4.0	3.7
Hydro (pumping excluded)			107638	109284	111439	113149	114402	115067	115609		0.3	0.3	0.1
Wind			12786	40822	83585	117395	161416	206288	258965		20.7	6.8	4.8
Solar			172	1797	3782	6271	14901	22565	44671		36.2	14.7	11.6
Other renewables (tidal etc.)			0	0	280	1477	4044	4980	5997			30.6	4.0
<u>Thermal power</u>			424462	453429	508203	504024	500347	531566	566917		1.8	-0.2	1.3
of which cogeneration units			123462	133684	114923	125811	151372	166790	173516		-0.7	2.8	1.4
Solids fired			191258	188695	184257	178891	149771	137453	125755		-0.4	-2.1	-1.7
Gas fired			149738	181031	232729	233276	233543	255670	292083		4.5	0.0	2.3
Oil fired			71858	67498	64855	45411	34325	23616	16380		-1.0	-6.2	-7.1
Biomass-waste fired			10810	15216	25359	45409	81629	113719	131442		8.9	12.4	4.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			798	988	1003	1036	1079	1107	1256		2.3	0.7	1.5
Avg. Load factor of net power capacity (%)			47.4	47.8	43.3	42.4	42.6	43.4	42.2				
Efficiency of gross thermal power generation (%)			37.6	38.6	43.9	47.4	49.6	51.4	52.4				
% of gross electricity from CHP			12.7	12.8	16.1	18.6	22.5	23.2	23.1				
Carbon free gross electricity generation (%)			46.1	45.4	48.1	52.9	56.6	57.6	59.0				
- nuclear			31.6	30.5	28.7	28.2	24.1	21.5	20.6				
- renewable energy forms			14.5	14.9	19.4	24.6	32.4	36.1	38.4				
Transport sector													
Passenger transport activity (Gpkm)	4784.5	5221.8	5819.7	6245.4	6739.2	7207.4	7680.2	8162.5	8582.2	2.0	1.5	1.3	1.1
Public road transport	555.6	498.3	514.0	529.0	546.5	569.5	597.8	620.2	638.9	-0.8	0.6	0.9	0.7
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5069.1	5363.8	5646.7	5939.1	6181.1	2.4	1.5	1.1	0.9
Rail	464.8	412.0	438.5	446.8	473.8	516.5	567.1	625.0	687.7	-0.6	0.8	1.8	1.9
Aviation	247.9	325.9	442.0	506.3	600.7	708.0	817.7	925.9	1021.2	6.0	3.1	3.1	2.2
Inland navigation	57.0	55.4	49.4	48.9	49.1	49.6	51.0	52.3	53.3	-1.4	-0.1	0.4	0.5
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2743.7	2983.3	3208.2	3416.0	3572.9	1.5	2.4	1.6	1.1
Trucks	1096.9	1279.3	1507.5	1790.0	2013.3	2184.2	2349.1	2510.3	2628.7	3.2	2.9	1.6	1.1
Rail	524.8	385.0	396.1	393.9	434.7	482.9	522.7	555.7	582.7	-2.8	0.9	1.9	1.1
Inland navigation	257.2	264.7	271.3	280.1	295.6	316.1	336.4	350.0	361.5	0.5	0.9	1.3	0.7
Energy demand in transport (ktoe)	279440	299758	339129	361705	385228	395483	399684	403635	408306	2.0	1.3	0.4	0.2
Public road transport	5216	4538	4464	4316	4284	4222	4132	4030	3984	-1.5	-0.4	-0.4	-0.4
Private cars and motorcycles	148125	159084	174735	175721	181227	181870	180903	180508	180500	1.7	0.4	0.0	0.0
Trucks	80641	85832	99349	116963	126985	130343	131880	135725	138704	2.1	2.5	0.4	0.5
Rail	9605	9409	9710	9605	9980	10125	9690	9179	7824	0.1	0.3	-0.3	-2.1
Aviation	28947	34014	45368	49744	57178	63149	67144	68223	71326	4.6	2.3	1.6	0.6
Inland navigation	6905	6881	5503	5356	5574	5773	5935	5970	5968	-2.2	0.1	0.6	0.1

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						EU27: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	126.4	113.0	96.4	-10.7	-12.5	-10.9	-7.8	-9.9	-10.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	1.99	1.88	1.70	-0.17	-0.28	-0.43	-7.7	-12.9	-20.1
Import Dependency %	44.4	46.7	52.4	57.8	59.2	59.3	-3.4	-5.0	-7.3			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1429.9	1607.2	1849.1	60.9	91.4	139.6	4.4	6.0	8.2
as % of GDP		9.7	9.9	10.2	10.2	9.9	0.4	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				62.4	94.1	143.0						
as % of GDP				0.44	0.60	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	79.9	72.8	64.1	-1.4	-2.7	-3.1	-1.8	-3.6	-4.7
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	77.3	70.3	58.7	-5.3	-5.6	-6.8	-6.5	-7.4	-10.4
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	74.4	66.6	55.9	-11.7	-13.0	-13.1	-13.6	-16.3	-18.9
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.2	33.4	30.3	-0.9	-1.5	-2.3	-2.4	-4.3	-6.9
Freight transport (toe/Mtkm)	49.2	50.5	51.7	47.6	44.7	41.5	-2.5	-4.4	-5.5	-5.1	-9.0	-11.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.25	0.21	0.16	-0.07	-0.10	-0.13	-22.0	-32.4	-46.0
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.96	1.87	1.72	-0.01	-0.06	-0.15	-0.3	-3.3	-8.2
Industry	2.18	1.95	1.85	1.81	1.69	1.50	0.03	-0.04	-0.14	1.8	-2.3	-8.6
Residential	1.92	1.62	1.57	1.42	1.32	1.10	-0.06	-0.12	-0.30	-3.9	-8.3	-21.6
Tertiary	1.91	1.50	1.47	1.35	1.29	1.14	0.02	0.00	-0.08	1.4	0.3	-7.0
Transport	2.90	2.91	2.90	2.77	2.69	2.64	-0.03	-0.08	-0.08	-1.2	-2.8	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.2	20.2	25.4	3.9	7.6	10.8			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	6.9	10.1	11.7	1.2	2.7	2.2			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3359433	3536772	4278762	479975	-479975	-541466	-129272	-12.5	-13.3	-2.9
Nuclear energy	944823	997519	948863	854066	879844	154	154	-11510	7582	0.0	-1.3	0.9
Solids	900381	918139	779105	659556	769888	-357742	-357742	-581890	-604307	-31.5	-46.9	-44.0
Oil (including refinery gas)	176516	150480	28634	28418	28054	-59513	-59513	-51634	-44632	-67.5	-64.5	-61.4
Gas (including derived gases)	535039	721024	776136	847984	957615	-198255	-198255	-219284	-126057	-20.3	-20.5	-11.6
Biomass-waste	54964	101813	199496	392863	614944	54266	54266	196464	333090	37.4	100.0	118.2
Hydro (pumping excluded)	353182	306902	343396	346258	352231	13932	13932	9866	1272	4.2	2.9	0.4
Wind	22246	70469	265840	372272	595471	63844	63844	101102	253176	31.6	37.3	74.0
Solar	117	1489	6424	18691	60223	203	203	9222	43678	3.3	97.4	264.0
Geothermal and other renewables	4762	7525	11538	16665	20492	3134	3134	6199	6926	37.3	59.2	51.1
Net Generation Capacity in MW_e												
	680864	739517	866089	907812	1100219	4464	4464	6584	134100	0.5	0.7	13.9
<u>Nuclear energy</u>	135806	134187	123772	112702	108061	119	119	13	5617	0.1	0.0	5.5
<u>Renewable energy</u>	120596	151902	238293	294763	425241	26557	26557	49919	145984	12.5	20.4	52.3
Hydro (pumping excluded)	107638	109284	113149	114402	115609	110	110	100	89	0.1	0.1	0.1
Wind	12786	40822	117395	161416	258965	25158	25158	41041	113024	27.3	34.1	77.4
Solar	172	1797	6271	14901	44671	129	129	5923	29277	2.1	66.0	190.2
Other renewables (tidal etc.)	0	0	1477	4044	5997	1160	1160	2855	3594	365.9	240.2	149.5
<u>Thermal power</u>	424462	453429	504024	500347	566917	-22212	-22212	-43349	-17501	-4.2	-8.0	-3.0
of which cogeneration units	123462	133684	125811	151372	173516	-12697	-12697	-6948	3468	-9.2	-4.4	2.0
Solids fired	191258	188695	178891	149771	125755	-9552	-9552	-36502	-62590	-5.1	-19.6	-33.2
Gas fired	149738	181031	233276	233543	292083	-27824	-27824	-48292	-21310	-10.7	-17.1	-6.8
Oil fired	71858	67498	45411	34325	16380	-4778	-4778	-3998	-14338	-9.5	-10.4	-46.7
Biomass-waste fired	10810	15216	45409	81629	131442	19907	19907	45395	80741	78.1	125.3	159.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	798	988	1036	1079	1256	35	35	49	-4	3.5	4.8	-0.3
Avg. Load factor of net power capacity (%)	47.4	47.8	42.4	42.6	42.2	-6.2	-6.2	-6.7	-7.3			
Efficiency of gross thermal power generation (%)	37.6	38.6	47.4	49.6	52.4	1.5	1.5	1.7	1.2			
% of gross electricity from CHP	12.7	12.8	18.6	22.5	23.1	0.7	0.7	2.1	2.0			
Carbon free gross electricity generation (%)	46.1	45.4	52.9	56.6	59.0	10.1	10.1	15.1	16.4			
- nuclear	31.6	30.5	28.2	24.1	20.6	3.5	3.5	2.9	0.8			
- renewable energy forms	14.5	14.9	24.6	32.4	38.4	6.6	6.6	12.2	15.6			
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7207.4	7680.2	8582.2	-142.6	-216.9	-278.6	-1.9	-2.7	-3.1
Public road transport	555.6	514.0	529.0	569.5	597.8	638.9	12.0	17.7	21.5	2.2	3.0	3.5
Private cars and motorcycles	3459.2	4375.8	4714.4	5363.8	5646.7	6181.1	-134.8	-202.6	-260.3	-2.5	-3.5	-4.0
Rail	464.8	438.5	446.8	516.5	567.1	687.7	7.2	10.9	20.1	1.4	2.0	3.0
Aviation	247.9	442.0	506.3	708.0	817.7	1021.2	-26.5	-42.3	-59.4	-3.6	-4.9	-5.5
Inland navigation	57.0	49.4	48.9	49.6	51.0	53.3	-0.5	-0.5	-0.5	-1.1	-0.9	-0.9
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	2983.3	3208.2	3572.9	-78.1	-113.2	-144.3	-2.6	-3.4	-3.9
Trucks	1096.9	1507.5	1790.0	2184.2	2349.1	2628.7	-94.7	-136.4	-174.2	-4.2	-5.5	-6.2
Rail	524.8	396.1	393.9	482.9	522.7	582.7	13.4	18.2	23.7	2.9	3.6	4.2
Inland navigation	257.2	271.3	280.1	316.1	336.4	361.5	3.2	5.0	6.2	1.0	1.5	1.7
Energy demand in transport (ktoe)												
	279440	339129	361705	395483	399684	408306	-22821	-38958	-54773	-5.5	-8.9	-11.8
Public road transport	5216	4464	4316	4222	4132	3984	-53	-204	-296	-1.2	-4.7	-6.9
Private cars and motorcycles	148125	174735	175721	181870	180903	180500	-7899	-12440	-13348	-4.2	-6.4	-6.9
Trucks	80641	99349	116963	130343	131880	138704	-11697	-19961	-26597	-8.2	-13.1	-16.1
Rail	9605	9710	9605	10125	9690	7824	120	2	139	1.2	0.0	1.8
Aviation	28947	45368	49744	63149	67144	71326	-3261	-6288	-14578	-4.9	-8.6	-17.0
Inland navigation	6905	5503	5356	5773	5935	5968	-32	-68	-93	-0.6	-1.1	-1.5

Source: PRIMES

Austria: EC proposal with RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10767	12023	13029	13533	13910	1.6	1.2	1.9	0.7	
Solids	644	305	293	0	0	0	0	0	0	-7.6				
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1301	1143	400	431	489	3.4	-1.6	-11.1	2.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8616	10260	12349	12872	13231	2.6	2.6	3.7	0.7	
Hydro	2709	3187	3598	3085	3279	3175	3297	3297	3297	2.9	-0.9	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4827	6090	7900	8355	8660	2.0	5.0	5.0	0.9	
Wind	0	0	6	114	267	398	427	461	490		46.8	4.8	1.4	
Solar and others	15	36	64	92	235	584	708	742	767	15.7	13.9	11.7	0.8	
Geothermal	4	3	14	35	8	13	16	17	16	14.2	-5.5	7.5	0.1	
Net Imports	17086	17769	18853	24392	23351	21411	19338	18925	18838	1.0	2.2	-1.9	-0.3	
Solids	3112	2543	3064	3958	3960	4135	2660	2484	2151	-0.2	2.6	-3.9	-2.1	
Oil	9521	10012	10703	13028	12861	11657	11190	10578	10022	1.2	1.9	-1.4	-1.1	
- Crude oil and Feedstocks	7878	8068	7704	7964	8140	7886	7942	7750	7567	-0.2	0.6	-0.2	-0.5	
- Oil products	1643	1944	3000	5064	4721	3771	3249	2827	2455	6.2	4.6	-3.7	-2.8	
Natural gas	4443	5404	5253	7288	6360	5587	5573	6006	6814	1.7	1.9	-1.3	2.0	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	34118	33434	32367	32458	32748	1.3	1.8	-0.5	0.1	
Solids	4042	3336	3637	4050	3960	4135	2660	2484	2151	-1.1	0.9	-3.9	-2.1	
Oil	10596	11196	11882	14125	13711	12277	11470	10808	10212	1.2	1.4	-1.8	-1.2	
Natural gas	5184	6374	6519	8263	7661	6730	5973	6437	7303	2.3	1.6	-2.5	2.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8486	10096	12136	12646	12997	2.4	2.5	3.6	0.7	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.6	12.4	8.2	7.7	6.6					
Oil	42.4	41.9	41.7	41.6	40.2	36.7	35.4	33.3	31.2					
Natural gas	20.7	23.9	22.9	24.3	22.5	20.1	18.5	19.8	22.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	24.9	30.2	37.5	39.0	39.7					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62169	64963	67406	76042	83599	2.0	0.3	0.8	2.2	
Self consumption and grid losses	4886	4995	5404	7536	6325	6333	6514	7779	8868	1.0	1.6	0.3	3.1	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3333	3898	3609	4885	5832	-0.2	-1.6	0.8	4.9	
Solids	1510	1055	1236	1510	1327	1648	331	268	0	-2.0	0.7	-13.0		
Oil (including refinery gas)	488	489	287	270	104	0	0	1	0	-5.2	-9.6			
Gas (including derived gases)	1776	2276	1974	2901	1494	762	324	941	1981	1.1	-2.7	-14.2	19.9	
Biomass & Waste	237	455	428	786	406	1481	2945	3666	3841	6.1	-0.5	21.9	2.7	
Geothermal heat	0	0	0	2	3	7	8	9	10			12.5	1.9	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12720	11809	11258	10715	10557	-0.2	1.2	-1.2	-0.6	
Refineries	9123	9170	8765	9080	8991	8507	8222	7981	7757	-0.4	0.3	-0.9	-0.6	
Biofuels and hydrogen production	2	5	9	42	335	562	856	935	1053	17.5	44.0	9.8	2.1	
District heating	347	438	566	612	1273	719	304	40	0	5.0	8.5	-13.3	-51.7	
Derived gases, cokeries etc.	1971	1790	1910	2009	2120	2022	1875	1760	1746	-0.3	1.0	-1.2	-0.7	
Energy Branch Consumption	1639	1703	1750	2134	1898	1737	1604	1565	1534	0.7	0.8	-1.7	-0.4	
Non-Energy Uses	1401	1145	1386	1381	1408	1463	1512	1553	1583	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	28680	28090	27871	27595	27448	1.9	2.3	-0.3	-0.2	
by sector														
Industry	6153	6474	7528	8825	9358	9454	9376	9354	9393	2.0	2.2	0.0	0.0	
- energy intensive industries	4048	4038	4982	5533	5787	5789	5649	5547	5488	2.1	1.5	-0.2	-0.3	
- other industrial sectors	2105	2436	2546	3293	3572	3666	3727	3807	3906	1.9	3.4	0.4	0.5	
Residential	5755	6222	6042	6548	6740	6595	6587	6533	6490	0.5	1.1	-0.2	-0.1	
Tertiary	2544	3062	3304	3942	4129	3829	3834	3791	3712	2.6	2.3	-0.7	-0.3	
Transport	4603	5161	6038	7994	8453	8212	8074	7918	7853	2.7	3.4	-0.5	-0.3	
by fuel														
Solids	1718	1535	1415	1458	1453	1345	1239	1154	970	-1.9	0.3	-1.6	-2.4	
Oil	7896	8728	9402	11774	11607	10600	9929	9409	9084	1.8	2.1	-1.5	-0.9	
Gas	2968	3607	4254	4936	5307	5392	5139	4930	4661	3.7	2.2	-0.3	-1.0	
Electricity	3669	3953	4474	4884	4991	5131	5261	5854	6413	2.0	1.1	0.5	2.0	
Heat (from CHP and District Heating)	614	848	1052	1260	1351	1182	1238	1256	1218	5.5	2.5	-0.9	-0.2	
Renewable energy forms	2192	2248	2316	2996	3971	4438	5062	4989	5099	0.6	5.5	2.5	0.1	
Other	0	0	0	0	1	2	3	4	4			17.8	1.8	
RES in Gross Final Energy Consumption ^(A)			6285	6788	8182	9594	11489	11942	12243	2.7	3.5	0.6		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	94.4	86.1	75.2	72.3	70.3	0.5	1.1	-2.3	-0.7	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	70.4	64.4	54.3	52.6	51.3	1.0	1.5	-2.6	-0.6	
Power generation/District heating	12.8	12.1	11.6	15.0	11.6	9.5	2.9	3.9	5.2	-1.0	0.1	-12.9	5.9	
Energy Branch	3.8	4.0	4.2	4.6	4.3	3.8	3.5	3.2	3.1	1.0	0.3	-2.2	-1.1	
Industry	12.7	13.6	15.5	17.5	17.9	18.4	17.2	16.7	16.0	2.0	1.5	-0.4	-0.7	
Residential	9.8	9.7	8.8	9.0	8.3	6.9	6.5	5.8	5.2	-1.1	-0.6	-2.5	-2.2	
Tertiary	3.4	4.0	3.7	4.5	4.5	3.4	3.0	2.3	1.8	0.8	2.0	-4.1	-4.6	
Transport	12.7	14.6	17.2	23.1	23.7	22.4	21.3	20.6	20.0	3.1	3.3	-1.1	-0.6	
CO₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.5	9.0	8.9	8.7	0.2	1.6	-0.7	-0.3	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.2	11.9	10.8	10.3	-1.1	-0.7	-1.9	-1.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	117.5	107.2	93.5	90.0	87.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: EC proposal with RES trading				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1	
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4	
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	123.0	109.2	96.5	89.4	84.7	-1.2	-0.2	-2.4	-1.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.06	1.93	1.68	1.62	1.57	-0.3	-0.3	-2.0	-0.7	
Import Dependency %	68.4	66.5	66.1	71.8	68.4	64.0	59.7	58.3	57.5					
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.6	30.7	34.8	37.2	38.9		3.4	2.7	1.1	
as % of GDP			8.4	9.5	9.6	10.0	10.4	10.2	10.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	100.0	90.9	82.1	75.4	71.0	-0.6	0.0	-2.0	-1.4	
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.4	83.1	76.1	69.9	65.4	-1.6	-0.7	-2.0	-1.5	
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.5	85.8	78.3	71.3	65.5	0.1	0.2	-2.7	-1.8	
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	36.9	35.1	32.3	30.7	0.1	2.3	-1.0	-1.3	
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	52.5	48.1	45.6	43.9	-0.8	2.4	-1.8	-0.9	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.15	0.12	0.04	0.04	0.05	-3.4	-0.7	-13.2	4.1	
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.90	1.82	1.72	1.65	1.57	-0.3	-0.4	-1.0	-0.9	
Industry	2.06	2.10	2.06	1.98	1.91	1.94	1.84	1.79	1.71	0.0	-0.7	-0.4	-0.7	
Residential	1.71	1.55	1.46	1.37	1.24	1.05	0.98	0.88	0.80	-1.6	-1.6	-2.3	-2.0	
Tertiary	1.34	1.32	1.12	1.15	1.09	0.90	0.77	0.62	0.50	-1.8	-0.2	-3.4	-4.3	
Transport	2.75	2.82	2.85	2.89	2.81	2.73	2.64	2.60	2.55	0.3	-0.1	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	27.9	33.4	40.3	42.2	43.3					
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.4	10.1	11.5	13.3					
Gross Electricity generation by source (in GWh)														
			60150	62969	62169	64963	67406	76042	83599		0.3	0.8	2.2	
Nuclear energy			0	0	0	0	0	0	0					
Solids			4642	5863	6114	7583	1540	1335	0		2.8	-12.9		
Oil (including refinery gas)			1220	1452	1200	490	376	278	0		-0.2	-11.0	-54.2	
Gas (including derived gases)			10541	14513	9876	6713	5731	10752	17962		-0.6	-5.3	12.1	
Biomass-waste			1845	3929	3700	8532	16281	19718	21240		7.2	16.0	2.7	
Hydro (pumping excluded)			41832	35868	38128	36922	38342	38342	38342		-0.9	0.1	0.0	
Wind			67	1328	3109	4632	4969	5363	5701		46.8	4.8	1.4	
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1	
Geothermal and other renewables			0	3	4	9	11	12	13			10.0	1.7	
Net Generation Capacity in MW_e			16771	17685	20042	21728	23301	24037	24778		1.8	1.5	0.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			10792	11287	12000	13461	14334	15026	16057		1.1	1.8	1.1	
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3	
Wind			77	817	1350	2153	2383	2748	3484		33.2	5.8	3.9	
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5978	6397	8041	8267	8966	9011	8720		3.0	1.1	-0.3	
of which cogeneration units			3067	3657	3440	4058	5242	5964	5782		1.2	4.3	1.0	
Solids fired			1600	1587	1460	1460	1460	570	0		-0.9	0.0		
Gas fired			2916	3267	4707	4509	4288	4789	5001		4.9	-0.9	1.6	
Oil fired			1167	1158	1076	757	201	122	12		-0.8	-15.4	-24.5	
Biomass-waste fired			295	384	798	1540	3015	3527	3704		10.4	14.2	2.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	1	1	2	2	3	3			7.5	1.5	
Avg. Load factor of net power capacity (%)			39.8	38.3	33.8	32.8	31.8	34.7	37.1					
Efficiency of gross thermal power generation (%)			40.0	40.5	53.9	51.5	57.0	56.5	57.8					
% of gross electricity from CHP			12.3	20.6	24.5	25.7	35.2	37.1	38.2					
Carbon free gross electricity generation (%)			72.7	65.3	72.3	77.2	88.7	83.7	78.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			72.7	65.3	72.3	77.2	88.7	83.7	78.5					
Transport sector														
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	135.3	141.4	147.8	152.6	1.9	1.3	0.8	0.8	
Public road transport	14.2	14.8	14.8	15.1	16.0	16.7	17.4	18.0	18.3	0.4	0.7	0.9	0.5	
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	93.3	95.6	98.3	99.9	2.2	1.2	0.4	0.4	
Rail	11.5	12.7	11.8	12.3	13.4	14.7	15.9	16.8	17.6	0.3	1.3	1.7	1.0	
Aviation	4.1	5.4	6.6	7.3	8.8	10.5	12.4	14.6	16.8	5.0	2.9	3.5	3.1	
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.5	0.7	
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	61.2	64.8	68.8	72.1	4.7	0.8	1.0	1.1	
Trucks	20.3	26.5	35.1	37.0	38.3	38.6	40.0	42.3	44.2	5.6	0.9	0.4	1.0	
Rail	12.2	13.2	16.6	17.1	18.5	20.7	22.7	24.3	25.7	3.2	1.1	2.1	1.3	
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.3	3.9	-3.1	1.6	0.8	
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8212	8074	7918	7853	2.7	3.4	-0.5	-0.3	
Public road transport	80	83	80	107	111	108	101	93	89	-0.1	3.4	-0.9	-1.2	
Private cars and motorcycles	2499	2643	2865	3890	4126	3951	3837	3569	3399	1.4	3.7	-0.7	-1.2	
Trucks	1350	1675	2167	3004	3087	2908	2822	2850	2905	4.8	3.6	-0.9	0.3	
Rail	357	292	333	310	322	327	310	305	280	-0.7	-0.3	-0.4	-1.0	
Aviation	310	461	586	675	798	909	995	1091	1170	6.6	3.1	2.2	1.6	
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.1	0.4	

Source: PRIMES

Austria: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	12023	13029	13910	1750	3455	3636	17.0	36.1	35.4
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1143	400	489	-127	0	103	-10.0	0.0	26.8
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	5168	6654	7422	10260	12349	13231	1895	3473	3550	22.7	39.1	36.7
Hydro	2709	3598	3085	3175	3297	3297	178	0	0	5.9	0.0	0.0
Biomass & Waste	2440	2973	4097	6090	7900	8660	1273	2987	3000	26.4	60.8	53.0
Wind	0	6	114	398	427	490	74	39	96	22.8	10.0	24.3
Solar and others	15	64	92	584	708	767	366	443	455	168.6	167.3	145.9
Geothermal	4	14	35	13	16	16	4	4	0	39.2	29.2	-1.5
Net Imports	17086	18853	24392	21411	19338	18838	-5269	-8964	-9546	-19.7	-31.7	-33.6
Solids	3112	3064	3958	4135	2660	2151	-162	-2120	-3442	-3.8	-44.4	-61.5
Oil	9521	10703	13028	11657	11190	10022	-2261	-2763	-3605	-16.2	-19.8	-26.5
- Crude oil and Feedstocks	7878	7704	7964	7886	7942	7567	-857	-1043	-1371	-9.8	-11.6	-15.3
- Oil products	1643	3000	5064	3771	3249	2455	-1404	-1720	-2234	-27.1	-34.6	-47.6
Natural gas	4443	5253	7288	5587	5573	6814	-2812	-4000	-2418	-33.5	-41.8	-26.2
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	33434	32367	32748	-3519	-5509	-5911	-9.5	-14.5	-15.3
Solids	4042	3637	4050	4125	2660	2151	-179	-2138	-3460	-4.2	-44.6	-61.7
Oil	10596	11882	14125	12277	11470	10212	-2261	-2763	-3605	-15.6	-19.4	-26.1
Natural gas	5184	6519	8263	6730	5973	7303	-2939	-4000	-2315	-30.4	-40.1	-24.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	10096	12136	12997	1861	3392	3469	22.6	38.8	36.4
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.4	8.2	6.6	0.7	-4.5	-7.9			
Oil	42.4	41.7	41.6	36.7	35.4	31.2	-2.6	-2.1	-4.6			
Natural gas	20.7	22.9	24.3	20.1	18.5	22.3	-6.0	-7.9	-2.6			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	30.2	37.5	39.7	7.9	14.4	15.0			
Gross Electricity Generation in GWh_e	49287	60150	62969	64963	67406	83599	-7528	-10939	-2273	-10.4	-14.0	-2.6
Self consumption and grid losses	4886	5404	7536	6333	6514	8868	-536	-967	-69	-7.8	-12.9	-0.8
Fuel Inputs to Thermal Power Generation	4011	3925	5469	3898	3609	5832	-1743	-2237	-678	-30.9	-38.3	-10.4
Solids	1510	1236	1510	1648	331	0	7	-1841	-2934	0.4	-84.7	-100.0
Oil (including refinery gas)	488	287	270	0	0	0	-547	-315	-326	-100.0	-100.0	-100.0
Gas (including derived gases)	1776	1974	2901	762	324	1981	-2304	-2516	-427	-75.1	-88.6	-17.7
Biomass & Waste	237	428	786	1481	2945	3841	1097	2433	3008	285.8	474.3	361.1
Geothermal heat	0	0	2	7	8	10	3	2	0	79.3	35.2	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	11809	11258	10557	-859	-1324	-1837	-6.8	-10.5	-14.8
Refineries	9123	8765	9080	8507	8222	7757	-857	-1043	-1371	-9.2	-11.3	-15.0
Biofuels and hydrogen production	2	9	42	562	856	1053	70	152	10	14.2	21.7	0.9
District heating	347	566	612	719	304	0	-106	-409	-432	-12.9	-57.4	-100.0
Derived gases, cokeries etc.	1971	1910	2009	2022	1875	1746	35	-24	-43	1.7	-1.3	-2.4
Energy Branch Consumption	1639	1750	2134	1737	1604	1534	-209	-308	-322	-10.8	-16.1	-17.3
Non-Energy Uses	1401	1386	1381	1463	1512	1583	-2	-3	-7	-0.1	-0.2	-0.4
Final Energy Demand	19057	22913	27309	28090	27871	27448	-2615	-3774	-5062	-8.5	-11.9	-15.6
by sector												
Industry	6153	7528	8825	9454	9376	9393	-200	-420	-561	-2.1	-4.3	-5.6
- energy intensive industries	4048	4982	5533	5789	5649	5488	-64	-211	-303	-1.1	-3.6	-5.2
- other industrial sectors	2105	2546	3293	3666	3727	3906	-136	-209	-259	-3.6	-5.3	-6.2
Residential	5755	6042	6548	6595	6587	6490	-667	-933	-1271	-9.2	-12.4	-16.4
Tertiary	2544	3304	3942	3829	3834	3712	-938	-1140	-1404	-19.7	-22.9	-27.4
Transport	4603	6038	7994	8212	8074	7853	-810	-1282	-1826	-9.0	-13.7	-18.9
by fuel												
Solids	1718	1415	1458	1345	1239	970	-93	-141	-288	-6.5	-10.2	-22.9
Oil	7896	9402	11774	10600	9929	9084	-1623	-2295	-3026	-13.3	-18.8	-25.0
Gas	2968	4254	4936	5392	5139	4661	-486	-1083	-1658	-8.3	-17.4	-26.2
Electricity	3669	4474	4884	5131	5261	6413	-592	-845	-171	-10.4	-13.8	-2.6
Heat (from CHP and District Heating)	614	1052	1260	1182	1238	1218	-311	-326	-323	-20.9	-20.9	-20.9
Renewable energy forms	2192	2316	2996	4438	5062	5099	488	914	402	12.4	22.0	8.6
Other	0	0	0	2	3	4	1	1	1	109.4	43.0	31.7
RES in Gross Final Energy Consumption ^(A)		6285	6788	9594	11489	12243	1842	3047	3070	23.8	36.1	33.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	86.1	75.2	70.3	-16.3	-29.1	-33.3	-15.9	-27.9	-32.1
CO₂ Emissions (energy related)	55.2	61.0	73.7	64.4	54.3	51.3	-14.5	-26.2	-30.1	-18.4	-32.5	-36.9
Power generation/District heating	12.8	11.6	15.0	9.5	2.9	5.2	-7.6	-15.3	-14.9	-44.4	-83.9	-74.2
Energy Branch	3.8	4.2	4.6	3.8	3.5	3.1	-0.6	-0.8	-0.9	-13.0	-19.3	-22.8
Industry	12.7	15.5	17.5	18.4	17.2	16.0	0.1	-1.2	-1.8	0.4	-6.4	-10.0
Residential	9.8	8.8	9.0	6.9	6.5	5.2	-2.1	-2.6	-3.9	-23.2	-28.4	-43.2
Tertiary	3.4	3.7	4.5	3.4	3.0	1.8	-1.7	-2.1	-2.9	-33.7	-41.0	-60.9
Transport	12.7	17.2	23.1	22.4	21.3	20.0	-2.6	-4.3	-5.7	-10.5	-16.7	-22.1
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.5	9.0	8.7	-0.1	-0.6	-1.0	-1.5	-6.2	-10.5
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.2	11.9	10.3	-1.7	-2.3	-2.2	-12.0	-16.5	-17.8
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	107.2	93.5	87.5	-20.3	-36.3	-41.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	109.2	96.5	84.7	-11.5	-16.4	-15.3	-9.5	-14.5	-15.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	1.93	1.68	1.57	-0.21	-0.45	-0.54	-9.8	-21.1	-25.6
Import Dependency %	68.4	66.1	71.8	64.0	59.7	57.5	-8.2	-15.0	-15.9			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	30.7	34.8	38.9	1.5	2.8	3.6	5.0	8.8	10.2
as % of GDP		8.4	9.5	10.0	10.4	10.1	0.5	0.8	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				1.5	2.9	3.7						
as % of GDP				0.49	0.86	0.95						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	90.9	82.1	71.0	-1.9	-3.7	-4.2	-2.1	-4.3	-5.6
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	83.1	76.1	65.4	-8.4	-10.8	-12.8	-9.2	-12.4	-16.4
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	85.8	78.3	65.5	-21.0	-23.3	-24.8	-19.7	-22.9	-27.4
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	36.9	35.1	30.7	-1.3	-2.0	-3.4	-3.4	-5.4	-9.9
Freight transport (toe/Mtkm)	49.4	45.7	59.0	52.5	48.1	43.9	-5.5	-9.0	-11.1	-9.5	-15.8	-20.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.12	0.04	0.05	-0.07	-0.15	-0.14	-36.4	-81.0	-72.6
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.82	1.72	1.57	-0.05	-0.11	-0.19	-2.8	-6.2	-11.0
Industry	2.06	2.06	1.98	1.94	1.84	1.71	0.05	-0.04	-0.08	2.5	-2.2	-4.6
Residential	1.71	1.46	1.37	1.05	0.98	0.80	-0.19	-0.22	-0.38	-15.5	-18.3	-32.0
Tertiary	1.34	1.12	1.15	0.90	0.77	0.50	-0.19	-0.24	-0.43	-17.4	-23.5	-46.2
Transport	2.75	2.85	2.89	2.73	2.64	2.55	-0.05	-0.10	-0.10	-1.7	-3.5	-3.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	26.8	24.2	33.4	40.3	43.3	43.3	8.7	14.2	15.8			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.4	10.1	13.3	1.3	3.0	2.9			
Gross Electricity generation by source (in GWh_e)												
Total	60150	62969	64963	67406	67406	83599	-7528	-10939	-2273	-10.4	-14.0	-2.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7583	1540	0	0	-57	-8735	-15752	-0.8	-85.0	-100.0
Oil (including refinery gas)	1220	1452	490	376	0	0	-3675	-2555	-2857	-88.2	-87.2	-100.0
Gas (including derived gases)	10541	14513	6713	5731	17962	17962	-11329	-11500	756	-62.8	-66.7	4.4
Biomass-waste	1845	3929	8532	16281	21240	21240	4604	11397	14466	117.2	233.3	213.5
Hydro (pumping excluded)	41832	35868	36922	38342	38342	38342	2066	0	0	5.9	0.0	0.0
Wind	67	1328	4632	4969	5701	5701	860	452	1114	22.8	10.0	24.3
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	9	11	13	13	4	3	0	62.8	30.1	0.0
Net Generation Capacity in MW_e												
Total	16771	17685	21728	23301	24778	24778	-678	-253	-377	-3.0	-1.1	-1.5
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13461	14334	16057	16057	476	212	775	3.7	1.5	5.1
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2153	2383	3484	3484	476	212	775	28.4	9.8	28.6
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8267	8966	8720	8720	-1154	-465	-1153	-12.2	-4.9	-11.7
of which cogeneration units	3067	3657	4058	5242	5782	5782	-604	74	168	-13.0	1.4	3.0
Solids fired	1600	1587	1460	1460	0	0	0	-88	-1874	0.0	-5.7	-100.0
Gas fired	2916	3267	4509	4288	5001	5001	-1581	-1695	-1165	-26.0	-28.3	-18.9
Oil fired	1167	1158	757	201	12	12	-671	-714	-573	-47.0	-78.0	-97.9
Biomass-waste fired	295	384	1540	3015	3704	3704	1097	2031	2458	248.0	206.3	197.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	2	3	3	1	0	0	46.1	24.1	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	32.8	31.8	37.1	37.1	-2.9	-4.9	-0.5			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.5	57.0	57.8	57.8	0.0	5.1	1.6			
% of gross electricity from CHP	12.3	20.6	25.7	35.2	38.2	38.2	-6.2	2.6	2.0			
Carbon free gross electricity generation (%)	72.7	65.3	77.2	88.7	78.5	78.5	18.4	27.5	20.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	77.2	88.7	78.5	78.5	18.4	27.5	20.2			
Transport sector												
Passenger transport activity (Gpkm)												
Total	95.0	114.6	120.6	135.3	141.4	152.6	-4.0	-5.8	-7.5	-2.9	-4.0	-4.7
Public road transport	14.2	14.8	15.1	16.7	17.4	18.3	0.3	0.5	0.6	1.7	2.7	3.3
Private cars and motorcycles	65.2	81.3	85.8	93.3	95.6	99.9	-4.4	-6.3	-7.9	-4.5	-6.2	-7.3
Rail	11.5	11.8	12.3	14.7	15.9	17.6	0.5	0.7	0.7	3.3	4.4	4.2
Aviation	4.1	6.6	7.3	10.5	12.4	16.8	-0.4	-0.6	-0.9	-3.6	-4.8	-5.3
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.9	-0.7	-0.5
Freight transport activity (Gtkm)												
Total	34.1	54.2	55.9	61.2	64.8	72.1	-2.5	-3.5	-4.7	-3.9	-5.1	-6.1
Trucks	20.3	35.1	37.0	38.6	40.0	44.2	-3.6	-4.9	-6.3	-8.5	-11.0	-12.5
Rail	12.2	16.6	17.1	20.7	22.7	25.7	1.1	1.5	1.6	5.5	6.9	6.7
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.3	0.0	0.0	0.0	0.8	1.3	1.9
Energy demand in transport (ktoe)												
Total	4603	6038	7994	8212	8074	7853	-810	-1282	-1826	-9.0	-13.7	-18.9
Public road transport	80	80	107	108	101	89	-3	-10	-12	-2.5	-9.1	-11.5
Private cars and motorcycles	2499	2865	3890	3951	3837	3399	-284	-413	-640	-6.7	-9.7	-15.8
Trucks	1350	2167	3004	2908	2822	2905	-476	-764	-1032	-14.1	-21.3	-26.2
Rail	357	333	310	327	310	280	-6	-22	-26	-1.8	-6.5	-8.6
Aviation	310	586	675	909	995	1170	-41	-73	-116	-4.3	-6.8	-9.0
Inland navigation	7	6	9	10	10	11	0	0	0	-0.5	-1.3	-2.7

Source: PRIMES

Belgium: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	12529	11336	13366	14064	14864	14953	13701	7735	5437	0.6	1.1	-0.8	-8.8	
Solids	1085	269	191	57	11	9	9	15	13	-16.0	-25.0	-1.8	3.6	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	1929	3240	4624	5080	5424	0.3	9.9	9.1	1.6	
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.2	-0.2	
Biomass & Waste	702	694	706	1675	1662	2526	3383	3713	3961	0.0	8.9	7.4	1.6	
Wind	1	1	1	20	197	389	696	799	809	7.9	65.3	13.5	1.5	
Solar and others	1	1	1	3	38	292	509	533	619	2.1	43.4	29.7	2.0	
Geothermal	1	1	4	1	2	2	3	3	3	14.0	-7.0	6.1	0.2	
Net Imports	38857	43775	48651	48968	48568	46949	47729	51333	52985	2.3	0.0	-0.2	1.1	
Solids	9492	9343	7566	5511	4963	4319	4827	7262	9169	-2.2	-4.1	-0.3	6.6	
Oil	21468	23579	27331	28425	28762	27467	26859	26460	26156	2.4	0.5	-0.7	-0.3	
- Crude oil and Feedstocks	26116	25674	32658	30565	31876	31312	31069	30960	30821	2.3	-0.2	-0.3	-0.1	
- Oil products	-4648	-2096	-5328	-2141	-3114	-3845	-4210	-4500	-4665					
Natural gas	8217	10418	13278	14191	13936	14110	14927	16469	16515	4.9	0.5	0.7	1.0	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	55652	53826	52944	50168	49148	1.9	-0.3	-0.5	-0.7	
Solids	10244	8551	8200	5450	4974	4328	4836	7277	9182	-2.2	-4.9	-0.3	6.6	
Oil	17730	19794	21949	20547	20982	19391	18373	17560	16882	2.2	-0.5	-1.3	-0.8	
Natural gas	8169	10611	13369	14113	13936	14110	14927	16469	16515	5.0	0.4	0.7	1.0	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2226	3691	5228	5743	6131	1.6	10.0	8.9	1.6	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	8.0	9.1	14.5	18.7					
Oil	37.5	39.2	38.4	37.4	37.7	36.0	34.7	35.0	34.4					
Natural gas	17.3	21.0	23.4	25.7	25.0	26.2	28.2	32.8	33.6					
Nuclear	22.7	20.5	21.7	22.3	23.2	21.7	17.1	5.3	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.0	6.9	9.9	11.4	12.5					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88248	93426	101393	115518	125692	1.6	0.7	1.4	2.2	
Self consumption and grid losses	7382	7778	7813	8244	7520	7922	8570	11158	12677	0.6	-0.4	1.3	4.0	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6171	6774	9194	14607	17667	1.3	-1.9	4.1	6.7	
Solids	3875	3764	3025	1889	1818	1326	2117	4662	6670	-2.4	-5.0	1.5	12.2	
Oil (including refinery gas)	318	232	172	411	0	0	5	4	125	-6.0			37.2	
Gas (including derived gases)	1983	2721	3790	4612	3364	3838	4910	7447	8044	6.7	-1.2	3.9	5.1	
Biomass & Waste	368	465	466	1388	989	1610	2161	2494	2828	2.4	7.8	8.1	2.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38291	37517	37119	36703	36447	1.5	-0.6	-0.3	-0.2	
Refineries	29036	28632	37085	35792	34899	33959	33462	33053	32810	2.5	-0.6	-0.4	-0.2	
Biofuels and hydrogen production	0	0	0	0	235	566	982	1068	1137			15.4	1.5	
District heating	10	5	41	27	69	49	40	38	33	15.2	5.4	-5.4	-1.7	
Derived gases, cokeries etc.	6109	4320	3612	3173	3089	2943	2635	2544	2467	-5.1	-1.6	-1.6	-0.7	
Energy Branch Consumption	2310	2273	2370	2127	1908	1835	1786	1838	1854	0.3	-2.1	-0.7	0.4	
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3985	3947	7.8	-3.1	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	37161	36508	36222	35477	34877	1.7	0.1	-0.3	-0.4	
by sector														
Industry	11886	12110	13636	11605	11802	11664	11444	11253	11259	1.4	-1.4	-0.3	-0.2	
- energy intensive industries	9285	9192	10043	8751	8876	8786	8535	8348	8255	0.8	-1.2	-0.4	-0.3	
- other industrial sectors	2600	2918	3593	2854	2926	2877	2909	2905	3004	3.3	-2.0	-0.1	0.3	
Residential	8337	9295	9465	9914	9786	9436	9441	8981	8574	1.3	0.3	-0.4	-1.0	
Tertiary	3370	4604	4158	5005	5082	4882	4819	4777	4709	2.1	2.0	-0.5	-0.2	
Transport	7704	8480	9672	9880	10491	10527	10519	10466	10334	2.3	0.8	0.0	-0.2	
by fuel														
Solids	3787	3306	3378	2080	1842	1754	1590	1553	1470	-1.1	-5.9	-1.5	-0.8	
Oil	14734	16248	16047	16443	16308	14998	14035	13425	12729	0.9	0.2	-1.5	-1.0	
Gas	7249	8517	10010	10009	10482	10149	9819	8662	8068	3.3	0.5	-0.7	-1.9	
Electricity	4986	5885	6667	6894	7257	7668	8215	9194	9905	2.9	0.9	1.2	1.9	
Heat (from CHP and District Heating)	213	220	490	427	341	420	444	464	493	8.7	-3.6	2.7	1.1	
Renewable energy forms	326	312	338	549	929	1517	2115	2176	2208	0.3	10.7	8.6	0.4	
Other	0	0	0	0	1	2	3	3	4			15.1	2.1	
RES in Gross Final Energy Consumption ^(A)			495	909	1894	3398	4804	5266	5602		14.4	9.8	1.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	139.7	128.5	127.2	138.2	143.9	0.4	-0.6	-0.9	1.2	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	102.5	96.2	97.2	108.2	113.9	0.8	-1.2	-0.5	1.6	
Power generation/District heating	21.8	23.1	22.5	20.6	16.1	15.2	20.8	36.8	46.4	0.3	-3.3	2.6	8.3	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.6	3.6	3.3	3.2	0.3	-3.8	-0.6	-0.9	
Industry	30.2	28.7	30.5	22.8	22.6	21.4	20.0	19.7	19.4	0.1	-3.0	-1.2	-0.3	
Residential	18.7	20.1	20.0	20.3	19.2	16.7	15.0	11.3	8.6	0.7	-0.4	-2.4	-5.4	
Tertiary	7.5	10.4	8.2	10.5	10.3	9.4	9.1	8.8	8.6	0.8	2.3	-1.2	-0.5	
Transport	22.6	24.9	28.6	29.4	30.6	29.8	28.7	28.3	27.6	2.4	0.7	-0.6	-0.4	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.2	10.0	9.9	9.7	0.9	-0.2	0.0	-0.4	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	22.2	20.0	20.1	20.3	-1.4	1.6	-3.0	0.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.2	90.4	89.5	97.2	101.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.7	144.1	129.4	112.8	102.9	-0.4	-2.1	-2.4	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.84	1.79	1.84	2.16	2.32	-1.1	-0.9	0.0	2.4
Import Dependency %	75.7	80.5	77.8	78.3	76.6	75.8	77.7	86.9	90.7				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.5	41.5	46.3	48.9	50.9		1.9	2.4	1.0
as % of GDP			10.9	10.6	10.9	11.1	11.3	11.0	10.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	70.7	64.5	59.1	55.2	-0.2	-2.4	-1.9	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	77.1	71.1	62.8	56.1	-0.9	-1.3	-2.1	-2.3
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.5	84.6	75.8	68.9	63.3	0.2	-0.2	-2.6	-1.8
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.4	41.2	38.2	35.4	0.1	-0.4	-1.0	-1.5
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.2	43.3	43.2	42.8	-0.7	0.0	-0.9	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.17	0.15	0.19	0.30	0.35	-1.7	-3.7	1.1	6.1
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.12	2.01	1.92	1.84	-0.7	-0.6	-1.0	-0.9
Industry	2.54	2.37	2.24	1.97	1.91	1.83	1.75	1.75	1.72	-1.3	-1.6	-0.9	-0.1
Residential	2.24	2.16	2.11	2.05	1.96	1.77	1.59	1.26	1.01	-0.6	-0.7	-2.1	-4.5
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.89	1.85	1.83	-1.3	0.3	-0.7	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.83	2.73	2.70	2.67	0.1	-0.2	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.0	9.1	13.0	14.4	15.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.5	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			82639	85694	88248	93426	101393	115518	125692		0.7	1.4	2.2
Nuclear energy			48148	47586	50094	45361	35148	10232	0		0.4	-3.5	
Solids			12953	8552	7999	6045	9609	27567	39606		-4.7	1.9	15.2
Oil (including refinery gas)			865	1871	80	690	687	146	733		-21.1	23.9	0.6
Gas (including derived gases)			18968	23608	22676	28026	36247	55006	61028		1.8	4.8	5.3
Biomass-waste			1231	3561	4734	8373	11166	12809	14396		14.4	9.0	2.6
Hydro (pumping excluded)			459	288	360	363	367	359	358		-2.4	0.2	-0.2
Wind			15	227	2287	4528	8098	9290	9411		65.3	13.5	1.5
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17877	18988	20438	23787	24671		2.1	1.3	1.9
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0		0.1	-3.5	
<u>Renewable energy</u>			319	467	1230	2142	3590	4316	4395		14.5	11.3	2.0
Hydro (pumping excluded)			306	298	300	303	304	304	304		-0.2	0.1	0.0
Wind			13	167	906	1788	3193	3871	3883		52.9	13.4	2.0
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10773	11573	12752	18278	20277		2.6	1.7	4.7
of which cogeneration units			1863	2324	2982	4134	4543	4711	4794		4.8	4.3	0.5
Solids fired			1680	1392	1258	1182	1209	3470	4606		-2.8	-0.4	14.3
Gas fired			5522	6360	7628	7845	8599	12094	13162		3.3	1.2	4.3
Oil fired			615	641	588	546	523	169	253		-0.5	-1.2	-7.0
Biomass-waste fired			515	551	1299	2000	2421	2545	2256		9.7	6.4	-0.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	54.3	54.3	55.0	53.3	55.8				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.5	54.8	54.0	56.2	56.4				
% of gross electricity from CHP			7.3	7.2	17.2	24.8	25.5	23.7	22.5				
Carbon free gross electricity generation (%)			60.3	60.3	65.1	62.8	54.1	28.4	19.4				
- nuclear			58.3	55.5	56.8	48.6	34.7	8.9	0.0				
- renewable energy forms			2.1	4.8	8.4	14.2	19.4	19.5	19.4				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	165.1	172.8	179.3	186.2	192.2	2.0	1.7	0.8	0.7
Public road transport	10.9	13.1	13.3	17.6	18.8	19.2	19.9	20.2	20.4	2.0	3.5	0.6	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	120.9	124.2	126.4	129.7	132.1	1.8	1.2	0.4	0.4
Rail	7.3	7.6	8.6	10.1	11.8	13.1	14.4	15.2	16.5	1.7	3.2	2.1	1.3
Aviation	4.6	6.4	9.3	10.8	13.3	15.9	18.3	20.7	22.8	7.2	3.6	3.2	2.2
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.3	0.3
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.3	67.1	72.2	77.6	82.5	3.2	-0.4	1.3	1.3
Trucks	34.2	45.6	51.0	43.8	45.4	48.2	52.5	57.5	62.1	4.1	-1.2	1.5	1.7
Rail	8.4	7.3	7.7	8.1	8.8	9.5	10.1	10.3	10.5	-0.9	1.4	1.3	0.4
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10491	10527	10519	10466	10334	2.3	0.8	0.0	-0.2
Public road transport	165	164	170	173	182	176	166	156	149	0.3	0.7	-0.9	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5692	5544	5375	5086	4832	1.6	1.7	-0.6	-1.1
Trucks	2205	2420	2858	2581	2657	2681	2772	2999	3198	2.6	-0.7	0.4	1.4
Rail	177	202	183	185	196	199	202	196	177	0.4	0.7	0.3	-1.3
Aviation	952	945	1530	1281	1536	1697	1771	1795	1744	4.9	0.0	1.4	-0.2
Inland navigation	129	247	136	217	227	231	233	234	233	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	14953	13701	5437	562	1383	1433	3.9	11.2	35.8
Solids	1085	191	57	9	9	13	-11	-9	0	-56.0	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	-64.4	-360.4	-257.7
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3240	4624	5424	573	1391	1433	21.5	43.0	35.9
Hydro	23	39	25	31	32	31	1	0	1	1.7	0.2	3.6
Biomass & Waste	702	706	1675	2526	3383	3961	297	764	707	13.3	29.2	21.7
Wind	1	1	20	389	696	809	55	238	279	16.5	51.8	52.7
Solar and others	1	1	3	292	509	619	219	388	443	301.2	319.1	252.3
Geothermal	1	4	1	2	3	3	1	2	2	79.9	132.6	142.8
Net Imports	38857	48651	48968	46949	47729	52985	-4082	-5833	-6361	-8.0	-10.9	-10.7
Solids	9492	7566	5511	4319	4827	9169	-1030	-1675	-1652	-19.3	-25.8	-15.3
Oil	21468	27331	28425	27467	26859	26156	-1684	-2389	-3490	-5.8	-8.2	-11.8
- Crude oil and Feedstocks	26116	32658	30565	31312	31069	30821	-941	-1346	-2004	-2.9	-4.2	-6.1
- Oil products	-4648	-5328	-2141	-3845	-4210	-4665	-742	-1043	-1486	23.9	32.9	46.8
Natural gas	8217	13278	14191	14110	14927	16515	-1422	-1906	-1345	-9.2	-11.3	-7.5
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	53826	52944	49148	-3517	-4438	-4906	-6.1	-7.7	-9.1
Solids	10244	8200	5450	4328	4836	9182	-1042	-1684	-1652	-19.4	-25.8	-15.2
Oil	17730	21949	20547	19391	18373	16882	-1680	-2377	-3468	-8.0	-11.5	-17.0
Natural gas	8169	13369	14113	14110	14927	16515	-1422	-1906	-1345	-9.2	-11.3	-7.5
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3691	5228	6131	626	1528	1559	20.4	41.3	34.1
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	8.0	9.1	18.7	-1.3	-2.2	-1.4			
Oil	37.5	38.4	37.4	36.0	34.7	34.4	-0.7	-1.5	-3.3			
Natural gas	17.3	23.4	25.7	26.2	28.2	33.6	-0.9	-1.1	0.6			
Nuclear	22.7	21.7	22.3	21.7	17.1	0.0	1.3	1.3	0.0			
Renewable energy forms	1.5	1.5	3.7	6.9	9.9	12.5	1.5	3.4	4.0			
Gross Electricity Generation in GWh_e	70202	82639	85694	93426	101393	125692	-7657	-7546	7944	-7.6	-6.9	6.7
Self consumption and grid losses	7382	7813	8244	7922	8570	12677	-711	-872	1000	-8.2	-9.2	8.6
Fuel Inputs to Thermal Power Generation	6544	7453	8299	6774	9194	17667	-1710	-1813	530	-20.2	-16.5	3.1
Solids	3875	3025	1889	1326	2117	6670	-1014	-1505	-1493	-43.3	-41.6	-18.3
Oil (including refinery gas)	318	172	411	0	5	125	-89	-75	27	-99.7	-93.4	27.7
Gas (including derived gases)	1983	3790	4612	3838	4910	8044	-896	-956	1144	-18.9	-16.3	16.6
Biomass & Waste	368	466	1388	1610	2161	2828	289	724	853	21.9	50.3	43.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37517	37119	36447	-816	-1238	-1953	-2.1	-3.2	-5.1
Refineries	29036	37085	35792	33959	33462	32810	-943	-1350	-2012	-2.7	-3.9	-5.8
Biofuels and hydrogen production	0	0	0	566	982	1137	64	194	82	12.7	24.7	7.8
District heating	10	41	27	49	40	33	1	-1	-9	2.5	-2.9	-21.8
Derived gases, cokeries etc.	6109	3612	3173	2943	2635	2467	62	-82	-14	2.2	-3.0	-0.6
Energy Branch Consumption	2310	2370	2127	1835	1786	1854	-80	-137	-156	-4.2	-7.1	-7.8
Non-Energy Uses	2739	5814	4583	4051	4024	3947	-3	-5	-12	-0.1	-0.1	-0.3
Final Energy Demand	31296	36931	36403	35508	36222	34877	-2430	-3391	-4994	-6.2	-8.6	-12.5
by sector												
Industry	11886	13636	11605	11664	11444	11259	-232	-464	-624	-2.0	-3.9	-5.3
- energy intensive industries	9285	10043	8751	8786	8535	8255	-115	-311	-417	-1.3	-3.5	-4.8
- other industrial sectors	2600	3593	2854	2877	2909	3004	-117	-153	-208	-3.9	-5.0	-6.5
Residential	8337	9465	9914	9436	9441	8574	-912	-1023	-1748	-8.8	-9.8	-16.9
Tertiary	3370	4158	5005	4882	4819	4709	-697	-892	-1036	-12.5	-15.6	-18.0
Transport	7704	9672	9880	10527	10519	10334	-590	-1012	-1585	-5.3	-8.8	-13.3
by fuel												
Solids	3787	3378	2080	1754	1590	1470	-72	-195	-210	-3.9	-10.9	-12.5
Oil	14734	16047	16443	14998	14035	12729	-1422	-2185	-3307	-8.7	-13.5	-20.6
Gas	7249	10010	10009	10149	9819	8068	-601	-956	-2472	-5.6	-8.9	-23.5
Electricity	4986	6667	6894	7668	8215	9905	-588	-559	623	-7.1	-6.4	6.7
Heat (from CHP and District Heating)	213	490	427	420	444	493	-17	-27	-40	-3.9	-5.7	-7.5
Renewable energy forms	326	338	549	1517	2115	2208	270	531	413	21.6	33.5	23.0
Other	0	0	0	2	3	4	1	0	-2	48.1	10.1	-29.5
RES in Gross Final Energy Consumption ^(A)		495	909	3398	4804	5602	925	1631	1578	37.4	51.4	39.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	128.5	127.2	143.9	-17.7	-25.3	-28.1	-12.1	-16.6	-16.3
CO₂ Emissions (energy related)	106.2	115.4	107.8	96.2	97.2	113.9	-12.6	-18.4	-20.2	-11.6	-15.9	-15.1
Power generation/District heating	21.8	22.5	20.6	15.2	20.8	46.4	-6.4	-8.4	-3.1	-29.5	-28.8	-6.3
Energy Branch	5.4	5.5	4.3	3.6	3.6	3.2	-0.2	-0.3	-0.4	-6.3	-7.1	-11.8
Industry	30.2	30.5	22.8	21.4	20.0	19.4	0.1	-0.6	-0.3	0.3	-2.8	-1.4
Residential	18.7	20.0	20.3	16.7	15.0	8.6	-2.8	-3.9	-9.3	-14.3	-20.8	-51.9
Tertiary	7.5	8.2	10.5	9.4	9.1	8.6	-1.3	-1.6	-1.7	-12.2	-14.6	-16.5
Transport	22.6	28.6	29.4	29.8	28.7	27.6	-2.0	-3.6	-5.3	-6.2	-11.3	-16.2
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.2	10.0	9.7	-0.1	-0.3	-0.5	-1.0	-2.7	-4.5
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	22.2	20.0	20.3	-4.9	-6.6	-7.4	-18.2	-24.8	-26.8
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	90.4	89.5	101.2	-12.4	-17.8	-19.8			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Belgium: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	144.1	129.4	102.9	-9.4	-10.8	-10.3	-6.1	-7.7	-9.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.79	1.84	2.32	-0.11	-0.18	-0.16	-5.8	-8.9	-6.6
Import Dependency %	75.7	77.8	78.3	75.8	77.7	90.7	-2.2	-3.6	-3.0			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	41.5	46.3	50.9	2.3	3.4	4.4	5.8	7.9	9.4
as % of GDP		10.9	10.6	11.1	11.3	10.7	0.6	0.8	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				2.4	3.5	4.6						
as % of GDP				0.63	0.86	0.96						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	70.7	64.5	55.2	-1.4	-2.6	-3.1	-2.0	-3.9	-5.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	77.1	71.1	56.1	-7.5	-7.7	-11.4	-8.8	-9.8	-16.9
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	84.6	75.8	63.3	-12.1	-14.0	-13.9	-12.5	-15.6	-18.0
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.4	41.2	35.4	-1.2	-1.9	-3.3	-2.6	-4.5	-8.6
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.2	43.3	42.8	-2.7	-4.6	-6.2	-5.6	-9.6	-12.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.15	0.19	0.35	-0.05	-0.06	-0.05	-23.9	-23.5	-11.6
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.12	2.01	1.84	-0.02	-0.07	-0.19	-1.0	-3.5	-9.2
Industry	2.54	2.24	1.97	1.83	1.75	1.72	0.04	0.02	0.07	2.3	1.1	4.1
Residential	2.24	2.11	2.05	1.77	1.59	1.01	-0.11	-0.22	-0.73	-6.0	-12.2	-42.1
Tertiary	2.23	1.96	2.09	1.93	1.89	1.83	0.01	0.02	0.03	0.3	1.2	1.8
Transport	2.94	2.96	2.97	2.83	2.73	2.67	-0.03	-0.08	-0.09	-1.0	-2.7	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.1	13.0	15.6	2.9	5.1	5.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.5	11.2	0.9	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	93426	101393	125692	125692	-7657	-7546	7944	-7.6	-6.9	6.7
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	
Solids	12953	8552	6045	9609	39606	39606	-4350	-7891	-7622	-41.8	-45.1	-16.1
Oil (including refinery gas)	865	1871	690	687	733	733	-447	-343	-134	-39.3	-33.3	-15.5
Gas (including derived gases)	18968	23608	28026	36247	61028	61028	-5096	-5544	8763	-15.4	-13.3	16.8
Biomass-waste	1231	3561	8373	11166	14396	14396	1588	3468	3679	23.4	45.0	34.3
Hydro (pumping excluded)	459	288	363	367	358	358	6	1	12	1.7	0.2	3.6
Wind	15	227	4528	8098	9411	9411	642	2764	3246	16.5	51.8	52.7
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	14452	15254	18988	20438	24671	24671	101	-160	2563	0.5	-0.8	11.6
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	
<u>Renewable energy</u>	319	467	2142	3590	4395	4395	216	965	1312	11.2	36.8	42.6
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1788	3193	3883	3883	216	965	1312	13.7	43.3	51.0
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11573	12752	20277	20277	-114	-1125	1251	-1.0	-8.1	6.6
of which cogeneration units	1863	2324	4134	4543	4794	4794	-401	-665	-558	-8.8	-12.8	-10.4
Solids fired	1680	1392	1182	1209	4606	4606	-292	-959	-1050	-19.8	-44.2	-18.6
Gas fired	5522	6360	7845	8599	13162	13162	-531	-1060	1494	-6.3	-11.0	12.8
Oil fired	615	641	546	523	253	253	-4	0	1	-0.7	0.0	0.5
Biomass-waste fired	515	551	2000	2421	2256	2256	712	894	806	55.3	58.5	55.6
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	54.3	55.0	55.8	55.8	-4.8	-3.4	-2.2			
Efficiency of gross thermal power generation (%)	39.3	39.0	54.8	54.0	56.4	56.4	2.6	0.8	0.6			
% of gross electricity from CHP	7.3	7.2	24.8	25.5	22.5	22.5	1.2	0.5	-4.5			
Carbon free gross electricity generation (%)	60.3	60.3	62.8	54.1	19.4	19.4	7.0	9.5	4.6			
- nuclear	58.3	55.5	48.6	34.7	0.0	0.0	3.7	2.4	0.0			
- renewable energy forms	2.1	4.8	14.2	19.4	19.4	19.4	3.3	7.1	4.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	113.7	139.3	153.2	172.8	179.3	192.2	-3.1	-4.9	-6.6	-1.8	-2.7	-3.3
Private cars and motorcycles	10.9	13.3	17.6	19.2	19.9	20.4	0.4	0.6	0.7	2.1	3.0	3.6
Rail	90.1	107.7	114.4	124.2	126.4	132.1	-3.1	-4.9	-6.2	-2.5	-3.8	-4.5
Aviation	7.3	8.6	10.1	13.1	14.4	16.5	0.3	0.5	0.3	2.3	3.3	1.7
Inland navigation	4.6	9.3	10.8	15.9	18.3	22.8	-0.6	-1.0	-1.3	-3.8	-5.1	-5.4
Freight transport activity (Gtkm)	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.7	-0.5	-0.4
Freight transport activity (Gtkm)	48.0	65.9	60.5	67.1	72.2	82.5	-1.5	-2.5	-3.8	-2.2	-3.3	-4.4
Trucks	34.2	51.0	43.8	48.2	52.5	62.1	-2.2	-3.4	-4.8	-4.3	-6.1	-7.1
Rail	8.4	7.7	8.1	9.5	10.1	10.5	0.5	0.7	0.7	5.8	7.6	7.7
Inland navigation	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.2	0.2	1.3	2.0	2.4
Energy demand in transport (ktoe)												
Public road transport	7704	9672	9880	10527	10519	10334	-590	-1012	-1585	-5.3	-8.8	-13.3
Private cars and motorcycles	165	170	173	176	166	149	-2	-10	-13	-1.1	-5.7	-8.2
Trucks	4075	4794	5442	5544	5375	4832	-243	-371	-432	-4.2	-6.4	-8.2
Rail	2205	2858	2581	2681	2772	3198	-256	-465	-718	-8.7	-14.4	-18.3
Aviation	177	183	185	199	202	177	3	9	16	1.6	4.7	10.1
Inland navigation	952	1530	1281	1697	1771	1744	-92	-176	-441	-5.1	-9.0	-20.2
Inland navigation	129	136	217	231	233	233	0	0	4	0.2	-0.1	1.8

Source: PRIMES

Bulgaria: EC proposal with RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	9136	10192	9845	10611	9116	8393	9841	11315	11565	0.8	-0.8	0.8	1.6		
Solids	5121	5287	4310	4178	3602	2392	1422	507	211	-1.7	-1.8	-8.9	-17.4		
Oil	60	43	42	30	34	37	39	41	41	-3.5	-2.2	1.4	0.6		
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Renewable energy sources	161	370	792	1207	1723	2226	2738	3273	3841	17.2	8.1	4.7	3.4		
Hydro	161	151	230	373	304	318	323	331	341	3.6	2.8	0.6	0.6		
Biomass & Waste	0	219	562	801	1202	1502	1878	2347	2786		7.9	4.6	4.0		
Wind	0	0	0	0	33	83	156	179	253			16.7	5.0		
Solar and others	0	0	0	0	10	52	99	138	183			25.2	6.4		
Geothermal	0	0	0	33	173	271	283	276	278			5.0	-0.2		
Net Imports	17823	13475	8681	9416	9901	10288	10955	11533	12643	-6.9	1.3	1.0	1.4		
Solids	3527	2424	2258	2550	2744	2474	2338	2010	2684	-4.4	2.0	-1.6	1.4		
Oil	8540	6511	4081	5086	5391	5880	6198	6680	6864	-7.1	2.8	1.4	1.0		
- Crude oil and Feedstocks	8247	8003	5346	6328	7212	7842	8257	8875	9117	-4.2	3.0	1.4	1.0		
- Oil products	292	-1492	-1265	-1242	-1821	-1962	-2059	-2195	-2253						
Natural gas	5430	4563	2742	2458	2007	2159	2375	2556	2678	-6.6	-3.1	1.7	1.2		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Gross Inland Consumption	27964	23305	18610	19885	18883	18527	20629	22669	24023	-4.0	0.1	0.9	1.5		
Solids	8706	7673	6417	6892	6346	4865	3761	2517	2894	-3.0	-0.1	-5.1	-2.6		
Oil	9593	6245	4181	4847	5291	5764	6069	6543	6720	-8.0	2.4	1.4	1.0		
Natural gas	5395	4584	2932	2804	2244	2358	2544	2699	2800	-5.9	-2.6	1.3	1.0		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Renewable energy forms	161	363	788	1181	1690	2254	3435	4271	5025	17.2	7.9	7.3	3.9		
as % in Gross Inland Consumption															
Solids	31.1	32.9	34.5	34.7	33.6	26.3	18.2	11.1	12.0						
Oil	34.3	26.8	22.5	24.4	28.0	31.1	29.4	28.9	28.0						
Natural gas	19.3	19.7	15.8	14.1	11.9	12.7	12.3	11.9	11.7						
Nuclear	13.5	19.1	25.2	24.2	18.6	19.1	26.5	32.4	30.6						
Renewable energy forms	0.6	1.6	4.2	5.9	9.0	12.2	16.6	18.8	20.9						
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	33581	36008	43885	48491	52688	-0.4	-1.9	2.7	1.8		
Self consumption and grid losses	8456	8102	7245	7081	4928	4792	4889	4968	5841	-1.5	-3.8	-0.1	1.8		
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	4788	3617	3411	2681	3497	-4.6	-2.7	-3.3	0.2		
Solids	6800	6734	5245	5675	4619	3338	2237	984	1393	-2.6	-1.3	-7.0	-4.6		
Oil (including refinery gas)	951	613	160	149	13	13	13	14	8	-16.3	-22.0	0.0	-4.7		
Gas (including derived gases)	2352	1835	884	697	156	117	92	78	71	-9.3	-15.9	-5.1	-2.6		
Biomass & Waste	0	0	3	2	0	149	1069	1605	2025				6.6		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	13079	11635	7612	8839	9003	9576	9885	10538	10769	-5.3	1.7	0.9	0.9		
Refineries	8341	8023	5406	6586	7440	8070	8483	9090	9309	-4.2	3.2	1.3	0.9		
Biofuels and hydrogen production	0	0	0	0	34	75	123	222	360			13.8	11.4		
District heating	2779	1544	324	370	575	609	588	594	528	-19.3	5.9	0.2	-1.1		
Derived gases, cokeries etc.	1960	2069	1882	1883	954	822	692	632	573	-0.4	-6.6	-3.2	-1.9		
Energy Branch Consumption	1359	1458	1146	1279	1378	1369	1422	1478	1554	-1.7	1.9	0.3	0.9		
Non-Energy Uses	1427	1236	1261	1059	987	1048	1181	1291	1360	-1.2	-2.4	1.8	1.4		
Final Energy Demand	16138	11575	8861	9682	10624	11604	12793	14070	15084	-5.8	1.8	1.9	1.7		
by sector															
Industry	8966	6032	3637	3673	3639	3805	4166	4622	5116	-8.6	0.0	1.4	2.1		
- energy intensive industries	5579	4837	2814	2809	2810	2900	3111	3400	3692	-6.6	0.0	1.0	1.7		
- other industrial sectors	3387	1195	823	864	829	905	1055	1222	1423	-13.2	0.1	2.4	3.0		
Residential	2264	2378	2363	2268	2425	2576	2833	3064	3274	0.4	0.3	1.6	1.5		
Tertiary	2389	1189	1044	1181	1427	1561	1650	1769	1832	-7.9	3.2	1.5	1.1		
Transport	2518	1976	1817	2560	3133	3662	4144	4615	4862	-3.2	5.6	2.8	1.6		
by fuel															
Solids	1477	1280	860	936	1167	1134	1166	1198	1187	-5.3	3.1	0.0	0.2		
Oil	4967	2893	2981	3599	4307	4782	5103	5577	5771	-5.0	3.7	1.7	1.2		
Gas	2066	1787	1231	1025	997	1093	1282	1378	1542	-5.0	-2.1	2.5	1.9		
Electricity	3085	2639	2358	2383	2122	2295	2540	2846	3074	-2.7	-1.0	1.8	1.9		
Heat (from CHP and District Heating)	4543	2798	877	939	768	806	1101	1231	1453	-15.2	-1.3	3.7	2.8		
Renewable energy forms	0	178	555	800	1262	1493	1600	1839	2056		8.6	2.4	2.5		
Other	0	0	0	0	0	1	1	2	2			16.2	3.8		
RES in Gross Final Energy Consumption ^(A)			786	1182	1672	2191	3225	3965	4633		7.8	6.8	3.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	60.9	54.9	50.9	43.8	41.4	-5.4	-0.3	-1.8	-2.1		
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	42.7	38.4	35.0	31.6	31.9	-5.3	0.1	-2.0	-0.9		
Power generation/District heating	44.8	38.2	24.9	26.2	20.9	15.6	10.9	5.7	5.1	-5.7	-1.8	-6.3	-7.2		
Energy Branch	1.6	1.4	1.3	1.6	1.8	1.2	1.0	1.0	1.0	-2.1	3.2	-5.1	-0.6		
Industry	11.2	9.3	8.3	7.6	8.3	8.1	7.9	8.3	8.7	-2.9	-0.1	-0.4	0.9		
Residential	3.0	2.2	1.2	1.2	1.3	1.2	1.3	1.4	1.4	-8.9	1.3	-1.1	1.4		
Tertiary	4.7	1.4	1.2	1.1	1.4	1.8	2.1	2.3	2.4	-13.0	2.0	4.0	1.1		
Transport	7.1	5.6	5.2	7.4	9.0	10.5	11.8	12.9	13.3	-3.0	5.7	2.7	1.2		
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.4	4.7	5.2	5.9	6.6	-4.2	0.1	1.7	2.4		
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3		
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	55.7	50.2	46.6	40.0	37.8						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	676.4	503.7	418.6	347.8	282.9	-2.3	-4.8	-4.7	-3.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.26	2.07	1.70	1.39	1.33	-1.3	0.0	-2.8	-2.4
Import Dependency %	63.6	57.2	46.5	47.1	52.1	55.1	52.7	50.5	52.2				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	7.9	9.7	12.1	14.6	17.1		3.0	4.4	3.5
as % of GDP			34.7	28.7	28.2	26.4	24.5	22.4	20.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.6	43.7	34.4	27.9	23.1	-3.0	-5.4	-5.0	-3.9
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	60.6	49.4	41.1	34.0	28.1	1.5	-4.9	-3.8	-3.7
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	84.2	70.0	55.7	45.8	36.7	-4.0	-1.7	-4.0	-4.1
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.5	30.4	29.6	27.6	2.5	1.9	-0.6	-0.9
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.5	61.7	60.0	60.0	59.9	2.1	-1.4	-0.7	0.0
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.43	0.30	0.17	0.08	0.07	0.2	-0.6	-8.8	-9.0
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.89	1.86	1.80	1.77	1.71	1.1	0.5	-0.5	-0.5
Industry	1.25	1.55	2.29	2.06	2.27	2.13	1.91	1.80	1.70	6.2	-0.1	-1.7	-1.1
Residential	1.33	0.92	0.50	0.53	0.55	0.48	0.43	0.41	0.43	-9.3	1.0	-2.6	0.0
Tertiary	1.98	1.16	1.13	0.91	1.01	1.12	1.29	1.33	1.29	-5.5	-1.1	2.5	0.0
Transport	2.81	2.84	2.87	2.91	2.89	2.87	2.85	2.80	2.74	0.2	0.1	-0.1	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	14.9	18.0	24.2	27.2	29.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.2	3.2	5.2	8.1				
Gross Electricity generation by source (in GWh)													
			40639	43965	33581	36008	43885	48491	52688		-1.9	2.7	1.8
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	14334	14991	9185	3306	6474		-1.6	-4.4	-3.4
Oil (including refinery gas)			590	825	61	61	61	67	38		-20.3	0.0	-4.7
Gas (including derived gases)			2368	1963	1279	1130	1078	791	479		-6.0	-1.7	-7.8
Biomass-waste			10	70	332	1437	5747	7672	7984		42.4	33.0	3.3
Hydro (pumping excluded)			2673	4336	3537	3701	3751	3854	3968		2.8	0.6	0.6
Wind			0	2	387	965	1810	2083	2945			16.7	5.0
Solar			0	0	2	5	9	19	101			17.5	26.9
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9946	11344	11918	13271	13561		-0.9	1.8	1.3
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2456	2994	3711	3969	4981		2.5	4.2	3.0
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	277	788	1487	1698	2481			18.3	5.3
Solar			0	0	2	4	8	15	97			17.5	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5605	6440	5337	5486	4764		0.2	-0.5	-1.1
of which cogeneration units			2163	2183	687	1189	1862	2113	2511		-10.8	10.5	3.0
Solids fired			4536	4527	4398	5196	3726	3711	2768		-0.3	-1.6	-2.9
Gas fired			603	625	783	640	313	238	153		2.6	-8.8	-6.9
Oil fired			355	355	372	346	274	54	23		0.5	-3.0	-21.9
Biomass-waste fired			11	11	53	258	1023	1482	1820		17.3	34.4	5.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	35.6	33.8	39.7	39.7	41.7				
Efficiency of gross thermal power generation (%)			27.0	27.7	28.7	41.9	40.5	38.0	36.8				
% of gross electricity from CHP			12.0	14.3	7.9	16.5	23.3	24.0	22.7				
Carbon free gross electricity generation (%)			51.3	52.4	53.3	55.1	76.5	91.4	86.7				
- nuclear			44.7	42.4	40.6	38.1	50.7	63.3	58.3				
- renewable energy forms			6.6	10.0	12.7	17.0	25.8	28.1	28.5				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	44.9	52.2	60.1	68.1	74.9		-1.7	2.9	2.9
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8		-6.1	-2.8	-0.7
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	48.9	54.0		11.2	6.6	3.7
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0		-7.8	-3.3	3.4
Aviation	0.8	0.9	0.9	1.6	2.5	3.4	4.4	5.3	6.0		0.6	10.6	5.9
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-23.0	-2.4	-0.7
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.2	32.7	38.6	43.4	46.7		-7.9	7.9	4.0
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.5	33.1	35.6		-6.1	11.9	4.1
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4		-8.9	-0.1	3.5
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7		-15.1	12.0	3.9
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3133	3662	4144	4615	4862		-3.2	5.6	2.8
Public road transport	318	152	158	97	82	72	68	66	62		-6.8	-6.4	-1.9
Private cars and motorcycles	231	175	639	928	1096	1241	1363	1488	1491		10.7	5.5	2.2
Trucks	1459	1223	842	1274	1629	1951	2245	2526	2726		-5.4	6.8	3.3
Rail	216	144	77	60	61	72	75	77	69		-9.8	-2.3	2.1
Aviation	276	276	101	200	263	324	390	456	511		-9.6	10.1	4.0
Inland navigation	18	6	1	2	2	3	3	3	3		-25.5	8.4	3.4

Source: PRIMES

Bulgaria: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8393	9841	11565	-1686	-2130	-1458	-16.7	-17.8	-11.2
Solids	5121	4310	4178	2392	1422	211	-2587	-3445	-3357	-52.0	-70.8	-94.1
Oil	60	42	30	37	39	41	1	-1	0	3.4	-2.4	0.0
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	2226	2738	3841	899	1316	1899	67.7	92.6	97.8
Hydro	161	230	373	318	323	341	33	27	0	11.7	9.2	0.0
Biomass & Waste	0	562	801	1502	1878	2786	552	859	1342	58.1	84.3	93.0
Wind	0	0	0	83	156	253	47	113	175	128.5	267.7	223.4
Solar and others	0	0	0	52	99	183	38	73	133	277.6	281.6	269.7
Geothermal	0	0	33	271	283	278	229	244	248	542.0	622.1	844.8
Net Imports	17823	8681	9416	10288	10955	12643	48	-204	-112	0.5	-1.8	-0.9
Solids	3527	2258	2550	2474	2338	2684	-240	-446	-158	-8.8	-16.0	-5.6
Oil	8540	4081	5086	5880	6198	6864	205	-153	-170	3.6	-2.4	-2.4
- Crude oil and Feedstocks	8247	5346	6328	7842	8257	9117	258	-193	-214	3.4	-2.3	-2.3
- Oil products	292	-1265	-1242	-1962	-2059	-2253	-53	40	44	2.8	-1.9	-1.9
Natural gas	5430	2742	2458	2159	2375	2678	24	-335	-1014	1.1	-12.4	-27.5
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18527	20629	24023	-1638	-2334	-1569	-8.1	-10.2	-6.1
Solids	8706	6417	6892	4865	3761	2894	-2827	-3890	-3514	-36.8	-50.8	-54.8
Oil	9593	4181	4847	5764	6069	6720	207	-154	-169	3.7	-2.5	-2.5
Natural gas	5395	2932	2804	2358	2544	2800	26	-335	-1014	1.1	-11.6	-26.6
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	2254	3435	5025	957	2045	3129	73.8	147.2	165.0
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	26.3	18.2	12.0	-11.9	-15.1	-13.0			
Oil	34.3	22.5	24.4	31.1	29.4	28.0	3.6	2.3	1.1			
Natural gas	19.3	15.8	14.1	12.7	12.3	11.7	1.2	-0.2	-3.2			
Nuclear	13.5	25.2	24.2	19.1	26.5	30.6	1.6	2.7	1.9			
Renewable energy forms	0.6	4.2	5.9	12.2	16.6	20.9	5.7	10.6	13.5			
Gross Electricity Generation in GWh_e	42133	40639	43965	36008	43885	52688	-10115	-12889	-14020	-21.9	-22.7	-21.0
Self consumption and grid losses	8456	7245	7081	4792	4889	5841	-2129	-2694	-2414	-30.8	-35.5	-29.2
Fuel Inputs to Thermal Power Generation	10103	6292	6523	3617	3411	3497	-2640	-3189	-2570	-42.2	-48.3	-42.4
Solids	6800	5245	5675	3338	2237	1393	-2737	-3995	-3646	-45.1	-64.1	-72.4
Oil (including refinery gas)	951	160	149	13	13	8	13	13	-3			-28.8
Gas (including derived gases)	2352	884	697	117	92	71	-66	-271	-744	-36.1	-74.7	-91.3
Biomass & Waste	0	3	2	149	1069	2025	149	1063	1823		20390.7	904.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	9576	9885	10769	383	-109	-126	4.2	-1.1	-1.2
Refineries	8341	5406	6586	8070	8483	9309	256	-197	-216	3.3	-2.3	-2.3
Biofuels and hydrogen production	0	0	0	75	123	360	11	32	69	16.9	34.9	23.6
District heating	2779	324	370	609	588	528	104	64	18	20.7	12.3	3.6
Derived gases, cokeries etc.	1960	1882	1883	822	692	573	12	-8	3	1.5	-1.1	0.5
Energy Branch Consumption	1359	1146	1279	1369	1422	1554	-93	-159	-173	-6.4	-10.1	-10.0
Non-Energy Uses	1427	1261	1059	1048	1181	1360	-14	-14	-11	-1.3	-1.2	-0.8
Final Energy Demand	16138	8861	9682	11604	12793	15084	71	-59	-17	0.6	-0.5	-0.1
by sector												
Industry	8966	3637	3673	3805	4166	5116	-63	-168	-166	-1.6	-3.9	-3.1
- energy intensive industries	5579	2814	2809	2900	3111	3692	-53	-143	-115	-1.8	-4.4	-3.0
- other industrial sectors	3387	823	864	905	1055	1423	-10	-26	-51	-1.1	-2.4	-3.5
Residential	2264	2363	2268	2576	2833	3274	85	106	173	3.4	3.9	5.6
Tertiary	2389	1044	1181	1561	1650	1832	64	41	48	4.3	2.5	2.7
Transport	2518	1817	2560	3662	4144	4862	-16	-37	-72	-0.4	-0.9	-1.5
by fuel												
Solids	1477	860	936	1134	1166	1187	30	103	130	2.7	9.7	12.3
Oil	4967	2981	3599	4782	5103	5771	158	-157	-161	3.4	-3.0	-2.7
Gas	2066	1231	1025	1093	1282	1542	62	142	46	6.0	12.4	3.0
Electricity	3085	2358	2383	2295	2540	3074	-690	-879	-1001	-23.1	-25.7	-24.6
Heat (from CHP and District Heating)	4543	877	939	806	1101	1453	-53	123	92	-6.1	12.5	6.8
Renewable energy forms	0	555	800	1493	1600	2056	563	610	877	60.5	61.6	74.4
Other	0	0	0	1	1	2	0	0	0	0.7	1.1	2.1
RES in Gross Final Energy Consumption ^(A)		786	1182	2191	3225	4633	910	1859	2824	71.1	136.1	156.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	54.9	50.9	41.4	-11.1	-17.5	-19.7	-16.8	-25.6	-32.2
CO₂ Emissions (energy related)	72.4	42.1	45.1	38.4	35.0	31.9	-11.0	-17.3	-19.3	-22.3	-33.1	-37.8
Power generation/District heating	44.8	24.9	26.2	15.6	10.9	5.1	-11.2	-16.9	-18.7	-41.8	-60.9	-78.5
Energy Branch	1.6	1.3	1.6	1.2	1.0	1.0	-0.6	-0.6	-0.7	-32.1	-36.7	-42.9
Industry	11.2	8.3	7.6	8.1	7.9	8.7	0.3	-0.4	-0.7	4.2	-5.3	-7.3
Residential	3.0	1.2	1.2	1.2	1.2	1.4	0.1	0.2	0.3	13.3	17.9	31.5
Tertiary	4.7	1.2	1.1	1.8	2.1	2.4	0.3	0.7	0.8	24.7	48.5	55.7
Transport	7.1	5.2	7.4	10.5	11.8	13.3	-0.1	-0.2	-0.4	-0.7	-1.7	-2.8
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.7	5.2	6.6	-0.1	-0.2	-0.3	-2.5	-3.7	-5.0
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	11.9	10.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	50.2	46.6	37.8	-10.1	-16.0	-18.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: EC proposal with RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	503.7	418.6	282.9	-44.5	-47.4	-18.5	-8.1	-10.2	-6.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.07	1.70	1.33	-0.38	-0.58	-0.67	-15.4	-25.5	-33.7
Import Dependency %	63.6	46.5	47.1	55.1	52.7	52.2	4.7	4.4	2.7			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	9.7	12.1	17.1	0.0	0.5	1.2	0.1	4.6	7.3
as % of GDP		34.7	28.7	26.4	24.5	20.2	0.0	1.1	1.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.5	1.2						
as % of GDP				0.05	1.09	1.40						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	43.7	34.4	23.1	-0.7	-1.4	-0.8	-1.6	-3.9	-3.1
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	49.4	41.1	28.1	1.6	1.5	1.5	3.4	3.9	5.6
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	70.0	55.7	36.7	2.9	1.4	1.0	4.3	2.5	2.7
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.5	30.4	27.6	-0.2	-0.3	-0.4	-0.6	-1.0	-1.5
Freight transport (toe/Mtkm)	60.4	74.4	65.7	61.7	60.0	59.9	0.0	-0.1	-0.1	0.0	-0.2	-0.2
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.30	0.17	0.07	-0.13	-0.20	-0.20	-29.4	-53.6	-74.8
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.86	1.80	1.71	0.05	0.03	0.01	3.0	1.5	0.5
Industry	1.25	2.29	2.06	2.13	1.91	1.70	0.12	-0.03	-0.08	6.0	-1.5	-4.2
Residential	1.33	0.50	0.53	0.48	0.43	0.43	0.04	0.05	0.08	9.5	13.5	24.6
Tertiary	1.98	1.13	0.91	1.12	1.29	1.29	0.18	0.40	0.44	19.6	44.8	51.6
Transport	2.81	2.87	2.91	2.87	2.85	2.74	-0.01	-0.02	-0.04	-0.3	-0.8	-1.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	18.0	24.2	29.6	7.6	14.2	18.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.2	3.2	8.1	0.3	0.8	1.6			
Gross Electricity generation by source (in GWh_e)												
	40639	43965	36008	43885	52688	52688	-10115	-12889	-14020	-21.9	-22.7	-21.0
Nuclear energy	18175	18650	13718	22242	30700		0	0	0	0.0	0.0	0.0
Solids	16824	18120	14991	9185	6474		-11395	-17141	-17495	-43.2	-65.1	-73.0
Oil (including refinery gas)	590	825	61	61	38		61	61	9			30.5
Gas (including derived gases)	2368	1963	1130	1078	479		-964	-2944	-5772	-46.0	-73.2	-92.3
Biomass-waste	10	70	1437	5747	7984		1252	5502	7136	676.0	2244.1	841.9
Hydro (pumping excluded)	2673	4336	3701	3751	3968		388	315	0	11.7	9.2	0.0
Wind	0	2	965	1810	2945		543	1318	2035	128.5	267.7	223.4
Solar	0	0	5	9	101		0	0	68	0.0	0.0	205.8
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	10900	10201	11344	11918	13561		269	1412	1002	2.4	13.4	8.0
<u>Nuclear energy</u>	3473	2678	1910	2870	3817		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	2994	3711	4981		480	1128	1895	19.1	43.7	61.4
Hydro (pumping excluded)	1921	2004	2202	2217	2403		0	0	0	0.0	0.0	0.0
Wind	0	1	788	1487	2481		480	1128	1825	155.7	315.1	277.9
Solar	0	0	4	8	97		0	0	70	0.0	0.0	265.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	5505	5517	6440	5337	4764		-210	284	-893	-3.2	5.6	-15.8
of which cogeneration units	2163	2183	1189	1862	2511		-376	226	-19	-24.0	13.8	-0.8
Solids fired	4536	4527	5196	3726	2768		-346	-346	-1097	-6.2	-8.5	-28.4
Gas fired	603	625	640	313	153		-104	-365	-1262	-14.0	-53.8	-89.2
Oil fired	355	355	346	274	23		12	12	-168	3.6	4.6	-87.9
Biomass-waste fired	11	11	258	1023	1820		228	983	1634	743.7	2439.5	880.7
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	33.8	39.7	41.7		-10.0	-17.7	-15.1			
Efficiency of gross thermal power generation (%)	27.0	27.7	41.9	40.5	36.8		2.5	0.7	-7.3			
% of gross electricity from CHP	12.0	14.3	16.5	23.3	22.7		-1.8	4.9	0.5			
Carbon free gross electricity generation (%)	51.3	52.4	55.1	76.5	86.7		16.8	29.9	32.1			
- nuclear	44.7	42.4	38.1	50.7	58.3		8.4	11.5	12.2			
- renewable energy forms	6.6	10.0	17.0	25.8	28.5		8.5	18.4	19.8			
Transport sector												
Passenger transport activity (Gpkm)	40.3	33.8	38.7	52.2	60.1	74.9	-0.2	-0.3	-0.6	-0.3	-0.5	-0.9
Public road transport	26.0	13.9	11.5	9.9	9.7	9.8	0.0	0.0	0.0	0.1	0.2	0.4
Private cars and motorcycles	5.4	15.5	23.1	36.0	42.5	54.0	0.0	0.0	-0.3	0.0	-0.1	-0.5
Rail	7.8	3.5	2.4	2.8	3.5	5.0	0.0	0.0	0.0	-0.1	-0.2	0.2
Aviation	0.8	0.9	1.6	3.4	4.4	6.0	-0.2	-0.3	-0.4	-4.3	-5.9	-6.3
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3
Freight transport activity (Gtkm)	27.8	12.3	20.3	32.7	38.6	46.7	0.0	-0.1	-0.3	-0.1	-0.2	-0.6
Trucks	12.0	6.4	14.3	24.9	29.5	35.6	0.0	-0.1	-0.3	-0.1	-0.2	-0.9
Rail	14.1	5.5	5.2	6.6	7.7	9.4	0.0	0.0	0.0	-0.2	-0.2	0.2
Inland navigation	1.6	0.3	0.8	1.2	1.4	1.7	0.0	0.0	0.0	0.1	0.2	0.5
Energy demand in transport (ktoe)	2518	1817	2560	3662	4144	4862	-16	-37	-72	-0.4	-0.9	-1.5
Public road transport	318	158	97	72	68	62	0	0	0	0.1	0.2	0.4
Private cars and motorcycles	231	639	928	1241	1363	1491	0	-1	-6	0.0	-0.1	-0.4
Trucks	1459	842	1274	1951	2245	2726	-1	-5	-23	-0.1	-0.2	-0.8
Rail	216	77	60	72	75	69	0	-5	0	0.2	-6.6	0.0
Aviation	276	101	200	324	390	511	-15	-27	-43	-4.3	-6.4	-7.7
Inland navigation	18	1	2	3	3	3	0	0	0	0.1	0.2	0.5

Source: PRIMES

Cyprus: EC proposal with RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	106	160	206	228	270	23.0	9.1	6.8	2.7	
Solids	0	0	0	0	1	0	0	0	0			-3.2	0.0	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	106	160	206	228	270	23.0	9.1	6.9	2.7	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6	
Wind	0	0	0	0	9	11	45	61	88			17.3	7.0	
Solar and others	0	31	35	41	82	130	138	138	146		8.8	5.3	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			6.5	-0.6	
Net Imports	1554	2017	2537	2808	2949	2725	2758	2778	2714	5.0	1.5	-0.7	-0.2	
Solids	68	17	36	44	34	33	32	32	33	-6.3	-0.6	-0.4	0.2	
Oil	1486	2000	2502	2764	2772	2205	2199	2106	1949	5.3	1.0	-2.3	-1.2	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.2	-0.6	
- Oil products	761	1207	1353	2764	2769	2203	2197	2104	1947	5.9	7.4	-2.3	-1.2	
Natural gas	0	0	0	0	142	476	501	568	642			13.4	2.5	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2721	2547	2624	2663	2639	4.7	1.3	-0.4	0.1	
Solids	60	13	35	36	34	34	33	33	34	-5.3	-0.2	-0.4	0.2	
Oil	1434	1914	2302	2374	2437	1867	1859	1763	1604	4.8	0.6	-2.7	-1.5	
Natural gas	0	0	0	0	142	476	501	568	642			13.4	2.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	107	170	231	299	359	23.0	9.2	8.0	4.5	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.3	1.3	1.3	1.2	1.3					
Oil	95.6	97.2	96.7	96.5	89.6	73.3	70.8	66.2	60.8					
Natural gas	0.0	0.0	0.0	0.0	5.2	18.7	19.1	21.3	24.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	3.9	6.7	8.8	11.2	13.6					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4344	4514	5209	5925	6490	5.5	2.6	1.8	2.2	
Self consumption and grid losses	207	236	353	410	427	325	367	405	418	5.5	1.9	-1.5	1.3	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1026	777	826	882	850	5.7	1.5	-2.2	0.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	884	299	316	263	138	5.7	0.0	-9.8	-7.9	
Gas (including derived gases)	0	0	0	0	142	476	501	567	642			13.4	2.5	
Biomass & Waste	0	0	0	0	0	2	8	52	70				23.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	7	15	27	34	42	4.9	-40.4	15.1	4.7	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.2	-0.6	
Biofuels and hydrogen production	0	0	0	0	4	13	24	32	40			19.6	5.1	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	23	13	14	14	12	4.3	-8.1	-5.1	-1.1	
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6	
Final Energy Demand	1013	1306	1527	1691	1834	1926	1961	1975	1991	4.2	1.8	0.7	0.2	
by sector														
Industry	281	201	229	201	201	203	215	224	231	-2.0	-1.3	0.7	0.7	
- energy intensive industries	246	125	117	78	74	73	70	69	68	-7.2	-4.5	-0.5	-0.2	
- other industrial sectors	35	76	113	122	127	130	145	155	162	12.3	1.2	1.3	1.1	
Residential	102	172	215	234	260	274	277	263	266	7.8	1.9	0.7	-0.4	
Tertiary	151	186	233	289	312	350	366	383	393	4.4	2.9	1.6	0.7	
Transport	479	747	850	967	1062	1100	1103	1105	1101	5.9	2.3	0.4	0.0	
by fuel														
Solids	76	13	35	36	34	34	33	33	34	-7.5	-0.2	-0.4	0.2	
Oil	781	1068	1190	1263	1367	1379	1342	1292	1252	4.3	1.4	-0.2	-0.7	
Gas	0	0	0	0	0	0	0	0	0			7.5	6.5	
Electricity	151	191	258	340	336	360	416	474	522	5.5	2.7	2.1	2.3	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	97	154	170	176	183	23.0	8.1	5.8	0.8	
Other	0	0	0	0	0	0	0	0	0			15.4	1.4	
RES in Gross Final Energy Consumption ^(A)			44	51	106	166	221	261	309		9.1	7.6	3.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.5	7.3	7.3	7.0	6.6	3.1	0.8	-1.5	-1.0	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.4	6.3	6.3	6.2	5.8	4.3	1.1	-1.5	-0.8	
Power generation/District heating	1.6	2.1	2.8	3.5	3.2	2.1	2.2	2.2	1.9	5.7	1.1	-3.6	-1.2	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.2	0.3	0.3	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.7	-5.2	-13.4	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	4.3	1.9	-2.1	-5.4	
Transport	1.4	2.2	2.5	2.9	3.1	3.2	3.2	3.2	3.1	6.0	2.2	0.2	-0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-1.1	-2.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	147.4	127.0	127.0	122.1	115.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Cyprus: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Int. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	166.4	130.3	112.3	99.3	88.1	0.2	-2.0	-3.9	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.71	2.48	2.41	2.31	2.20	-0.4	-0.3	-1.2	-0.9
Import Dependency %	100.1	99.1	98.8	100.7	96.5	94.5	93.0	92.4	90.9				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.3	2.6	2.7		5.4	2.3	1.6
as % of GDP			9.3	11.4	11.3	10.4	9.9	9.6	9.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.2	59.7	54.1	50.3	-3.1	-2.8	-2.3	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.7	73.5	62.1	51.6	47.3	1.6	-1.8	-2.9	-2.7
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	94.4	87.6	76.4	69.4	63.4	-1.4	-0.6	-2.1	-1.8
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	42.9	40.8	39.0	37.4	2.1	0.2	-0.8	-0.9
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	255.8	244.3	238.0	235.6	3.5	-0.7	-0.6	-0.4
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.42	0.37	0.30	0.2	-1.4	-5.4	-3.3
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.29	2.20	2.11	2.02	1.94	-0.8	-0.5	-0.8	-0.8
Industry	3.07	2.67	2.72	2.48	2.47	2.43	2.37	2.31	2.28	-1.2	-0.9	-0.4	-0.4
Residential	1.51	1.15	1.05	0.82	0.73	0.57	0.40	0.22	0.10	-3.6	-3.5	-5.8	-13.1
Tertiary	1.37	1.55	1.35	1.18	1.22	1.04	0.84	0.61	0.45	-0.1	-1.0	-3.6	-6.1
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.90	2.88	2.85	0.0	-0.1	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	5.7	8.5	11.1	13.0	15.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.4	1.4	2.7	3.6	4.6				
Gross Electricity generation by source (in GWh)													
			3369	4377	4344	4514	5209	5925	6490		2.6	1.8	2.2
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3683	1406	1472	1266	669	0.9	-8.8	-7.6	
Gas (including derived gases)			0	0	554	2966	3136	3650	4341		18.9	3.3	
Biomass-waste			0	0	0	10	43	252	340				23.1
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	130	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	0	0	47				65.4
Net Generation Capacity in MW_e			930	1155	1402	1392	1534	1712	2086		4.2	0.9	3.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	60	225	298	451		52.3	14.8	7.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	59	202	266	384			13.7	6.6
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	0	0	24				65.4
<u>Thermal power</u>			929	1154	1346	1332	1309	1414	1635		3.8	-0.3	2.3
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	454	615	939				7.5
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	3	8	67	78				25.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	33.2	35.8	37.6	38.5	34.8				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.5	48.5	48.4	50.4	54.1				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.5	3.1	11.5	17.0	22.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.5	3.1	11.5	17.0	22.8				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.6	17.7	18.5	19.1	3.5	3.4	1.4	0.8
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.7	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	4.9	5.1	2.5	3.9	0.9	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.5	11.3	11.9	12.3	4.0	3.3	1.5	0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1062	1100	1103	1105	1101	5.9	2.3	0.4	0.0
Public road transport	8	14	16	16	18	18	19	18	18	6.4	1.2	0.9	-0.8
Private cars and motorcycles	117	145	177	288	322	332	329	323	313	4.2	6.2	0.2	-0.5
Trucks	201	321	368	364	378	387	381	381	386	6.2	0.3	0.1	0.1
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	363	374	382	385	6.6	1.7	0.8	0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	160	206	270	52	53	70	48.0	34.9	35.1
Solids	0	0	0	0	0	0	0	-1	-4	-55.2	-73.0	-89.9
Oil	0	0	0	0	0	0	0	0	0	-179.4	163.2	
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	6	44	51	160	206	270	52	54	74	48.4	36.0	37.7
Hydro	0	0	0	0	0	0	0	0	0	0	0	0
Biomass & Waste	6	9	10	18	23	35	0	0	0	0.0	0.0	0.0
Wind	0	0	0	11	45	88	2	4	24	22.3	10.4	38.2
Solar and others	0	35	41	130	138	146	50	50	49	62.3	57.1	51.1
Geothermal	0	0	0	0	0	0	0	0	0	64.2	139.5	173.3
Net Imports	1554	2537	2808	2725	2758	2714	-343	-396	-500	-11.2	-12.5	-15.5
Solids	68	36	44	33	32	33	-1	-2	-2	-3.1	-4.9	-4.8
Oil	1486	2502	2764	2205	2199	1949	-301	-294	-322	-12.0	-11.8	-14.2
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.9	-3.8	-5.1
- Oil products	761	1353	2764	2203	2197	1947	-301	-294	-322	-12.0	-11.8	-14.2
Natural gas	0	0	0	476	501	642	-42	-101	-163	-8.0	-16.7	-20.2
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-150.0
Gross Inland Consumption	1500	2381	2461	2547	2624	2639	-291	-342	-429	-10.3	-11.5	-14.0
Solids	60	35	36	34	33	34	-1	-3	-5	-3.9	-7.8	-13.8
Oil	1434	2302	2374	1867	1859	1604	-301	-293	-322	-13.9	-13.6	-16.7
Natural gas	0	0	0	476	501	642	-42	-101	-163	-8.0	-16.7	-20.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	0	0	0	0	0	0	0	0	0	-100.0		-150.0
Renewable energy forms	6	44	51	170	231	359	53	55	61	45.0	31.0	20.3
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.3	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	73.3	70.8	60.8	-3.1	-1.7	-2.0			
Natural gas	0.0	0.0	0.0	18.7	19.1	24.3	0.5	-1.2	-1.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	6.7	8.8	13.6	2.5	2.9	3.9			
Gross Electricity Generation in GWh_e	1974	3369	4377	4514	5209	6490	-1203	-1304	-1233	-21.0	-20.0	-16.0
Self consumption and grid losses	207	353	410	325	367	418	-111	-102	-109	-25.5	-21.8	-20.6
Fuel Inputs to Thermal Power Generation	509	884	1077	777	826	850	-289	-272	-275	-27.1	-24.7	-24.5
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	299	316	138	-245	-165	-96	-45.0	-34.3	-41.0
Gas (including derived gases)	0	0	0	476	501	642	-42	-101	-163	-8.0	-16.7	-20.2
Biomass & Waste	0	0	0	2	8	70	-2	-6	-17	-51.4	-42.0	-19.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	15	27	42	1	5	3	10.7	23.4	8.9
Refineries	725	1167	0	2	2	2	0	0	0	-3.9	-3.8	-5.1
Biofuels and hydrogen production	0	0	0	13	24	40	2	5	4	13.8	26.6	9.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	14	12	-5	-4	-4	-28.7	-22.2	-26.3
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1926	1961	1991	-98	-182	-285	-4.9	-8.5	-12.5
by sector												
Industry	281	229	201	203	215	231	-5	-9	-13	-2.4	-4.1	-5.4
- energy intensive industries	246	117	78	73	70	68	-1	-2	-1	-1.3	-2.2	-1.7
- other industrial sectors	35	113	122	130	145	162	-4	-8	-12	-2.9	-5.0	-6.9
Residential	102	215	234	274	277	266	-1	-8	-27	-0.2	-2.8	-9.4
Tertiary	151	233	289	350	366	393	-53	-93	-138	-13.1	-20.3	-26.0
Transport	479	850	967	1100	1103	1101	-40	-72	-107	-3.5	-6.1	-8.8
by fuel												
Solids	76	35	36	34	33	34	-1	-3	-5	-3.9	-7.8	-13.8
Oil	781	1190	1263	1379	1342	1252	-56	-129	-226	-3.9	-8.7	-15.3
Gas	0	0	0	0	0	0	0	0	0	13.0	9.1	41.2
Electricity	151	258	340	360	416	522	-94	-103	-97	-20.7	-19.9	-15.6
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	34.9	445.5	4306.0
Renewable energy forms	6	44	51	154	170	183	53	53	43	51.8	44.8	30.3
Other	0	0	0	0	0	0	0	0	0	6.6	8.4	-5.4
RES in Gross Final Energy Consumption ^(A)		44	51	166	221	309	54	57	69	47.7	34.8	28.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.3	7.3	6.6	-1.1	-1.3	-1.5	-13.5	-14.9	-18.4
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.3	6.3	5.8	-1.1	-1.2	-1.4	-14.3	-15.5	-19.3
Power generation/District heating	1.6	2.8	3.5	2.1	2.2	1.9	-0.9	-0.8	-0.7	-29.9	-25.9	-26.2
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-3.5	-7.8	-13.7
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	-0.9	-17.3	-69.8
Tertiary	0.2	0.3	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-7.3	-23.7	-53.3
Transport	1.4	2.5	2.9	3.2	3.2	3.1	-0.1	-0.2	-0.4	-3.8	-6.9	-10.1
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-7.7	-10.8	-11.6
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	127.0	127.0	115.0	-19.8	-22.3	-26.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Cyprus: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	130.3	112.3	88.1	-14.9	-14.6	-14.3	-10.3	-11.5	-14.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.48	2.41	2.20	-0.12	-0.11	-0.14	-4.6	-4.5	-6.2
Import Dependency %	100.1	98.8	100.7	94.5	93.0	90.9	-2.1	-2.3	-3.2			
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.3	2.7	0.0	0.0	0.0	0.9	0.7	0.0
as % of GDP		9.3	11.4	10.4	9.9	9.0	0.1	0.1	0.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.10	0.07	0.01						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.2	59.7	50.3	-1.6	-2.5	-2.9	-2.4	-4.1	-5.4
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	73.5	62.1	47.3	-0.2	-1.8	-4.9	-0.2	-2.8	-9.4
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	87.6	76.4	63.4	-13.2	-19.5	-22.2	-13.1	-20.3	-26.0
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	42.9	40.8	37.4	-0.4	-0.8	-1.5	-0.8	-2.0	-4.0
Freight transport (toe/Mtkm)	199.1	280.6	261.2	255.8	244.3	235.6	-8.8	-17.2	-24.4	-3.3	-6.6	-9.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.42	0.30	-0.06	-0.03	-0.04	-11.2	-7.4	-12.1
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.20	2.11	1.94	0.02	-0.01	-0.06	1.0	-0.3	-3.2
Industry	3.07	2.72	2.48	2.43	2.37	2.28	-0.03	-0.09	-0.22	-1.1	-3.8	-8.8
Residential	1.51	1.05	0.82	0.57	0.40	0.10	0.00	-0.07	-0.20	-0.7	-15.0	-66.7
Tertiary	1.37	1.35	1.18	1.04	0.84	0.45	0.07	-0.04	-0.26	6.7	-4.3	-37.0
Transport	2.97	2.98	2.97	2.94	2.90	2.85	-0.01	-0.02	-0.04	-0.3	-0.8	-1.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	8.5	11.1	15.2	3.1	3.6	4.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	1.4	2.7	4.6	0.2	0.7	0.9			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		3369	4377	4514	5209	6490	-1203	-1304	-1233	-21.0	-20.0	-16.0
Solids		0	0	0	0	0	0	0	0			
Oil (including refinery gas)		3369	4376	1406	1472	669	-955	-642	-464	-40.4	-30.4	-41.0
Gas (including derived gases)		0	0	2966	3136	4341	-259	-712	-1065	-8.0	-18.5	-19.7
Biomass-waste		0	0	10	43	340	-13	-33	-99	-54.8	-43.7	-22.6
Hydro (pumping excluded)		0	0	0	0	0	0	0	0			
Wind		0	0	130	522	1029	24	49	284	22.3	10.4	38.2
Solar		0	1	1	35	65	0	34	64	0.0	3301.2	6192.9
Geothermal and other renewables		0	0	0	0	47	0	0	47			20782.5
Net Generation Capacity in MW_e		930	1155	1392	1534	2086	11	-146	21	0.8	-8.7	1.0
<u>Nuclear energy</u>		0	0	0	0	0	0	0	0			
<u>Renewable energy</u>		1	1	60	225	451	10	12	136	20.1	5.9	43.3
Hydro (pumping excluded)		0	0	0	0	0	0	0	0			
Wind		0	0	59	202	384	10	-10	70	20.4	-4.7	22.4
Solar		1	1	1	23	43	0	22	42	0.0	2641.3	4955.0
Other renewables (tidal etc.)		0	0	0	0	24	0	0	24			20782.5
<u>Thermal power</u>		929	1154	1332	1309	1635	0	-158	-116	0.0	-10.8	-6.6
of which cogeneration units		0	0	0	0	0	0	0	0			
Solids fired		0	0	0	0	0	0	0	0			
Gas fired		0	0	429	454	939	0	-151	-123	0.0	-24.9	-11.6
Oil fired		929	1154	899	846	618	0	0	0	0.0	0.0	0.0
Biomass-waste fired		0	0	3	8	78	1	-8	8	18.1	-48.6	11.0
Fuel Cells		0	0	0	0	0	0	0	0			
Geothermal heat		0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)		39.3	40.8	35.8	37.6	34.8	-9.7	-5.3	-6.9			
Efficiency of gross thermal power generation (%)		32.8	35.0	48.5	48.4	54.1	3.2	1.1	0.8			
% of gross electricity from CHP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)		0.0	0.0	3.1	11.5	22.8	0.9	3.1	7.5			
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms		0.0	0.0	3.1	11.5	22.8	0.9	3.1	7.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	7.9	11.1	13.5	16.6	17.7	19.1	-0.3	-0.4	-0.6	-1.7	-2.4	-2.9
Private cars and motorcycles	0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	3.0	4.0	4.7
Rail	2.3	3.0	3.9	4.6	4.8	5.1	0.0	-0.1	-0.1	-0.6	-1.1	-1.7
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	4.7	7.0	8.4	10.5	11.3	12.3	-0.3	-0.4	-0.6	-2.7	-3.8	-4.3
Freight transport activity (Gtkm)	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-2.1	-2.9	-3.4
Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.1	-2.9	-3.4
Rail	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	479	850	967	1100	1103	1101	-40	-72	-107	-3.5	-6.1	-8.8
Private cars and motorcycles	8	16	16	18	19	18	0	0	-1	0.5	-0.9	-5.3
Trucks	117	177	288	332	329	313	-7	-12	-21	-2.0	-3.6	-6.3
Rail	201	368	364	387	381	386	-22	-39	-55	-5.3	-9.3	-12.5
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	152	290	299	363	374	385	-11	-21	-30	-3.1	-5.2	-7.1
	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Czech Republic: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	38484	31733	29788	32779	28231	25616	25637	27050	24578	-2.5	-0.5	-1.0	-0.4	
Solids	34715	27481	25002	23520	17097	13340	12023	11000	10000	-3.2	-3.7	-3.5	-1.8	
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0	
Natural gas	201	198	169	154	172	177	175	173	172	-1.7	0.2	0.2	-0.2	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2	
Renewable energy sources	100	627	727	2142	3283	4307	5399	6691	7269	22.0	16.3	5.1	3.0	
Hydro	100	172	151	205	222	223	225	226	230	4.2	3.9	0.2	0.2	
Biomass & Waste	0	455	576	1933	2900	3625	4531	5664	6131		17.5	4.6	3.1	
Wind	0	0	0	2	79	127	179	206	247			8.6	3.3	
Solar and others	0	0	0	2	82	332	463	594	660			18.9	3.6	
Geothermal	0	0	0	0	0	0	0	0	0			10.3	4.8	
Net Imports	7630	8417	9297	12271	18625	19450	21348	22460	26525	2.0	7.2	1.4	2.2	
Solids	-5685	-5784	-4751	-3489	623	-209	79	147	4000			-18.6	48.0	
Oil	8589	7742	7428	9499	10799	11711	12378	12947	13217	-1.4	3.8	1.4	0.7	
- Crude oil and Feedstocks	7382	6798	5492	7539	8634	9323	9826	10255	10456	-2.9	4.6	1.3	0.6	
- Oil products	1207	944	1936	1960	2166	2388	2553	2692	2761	4.8	1.1	1.7	0.8	
Natural gas	4786	6424	7482	7535	8442	8674	8594	8462	8430	4.6	1.2	0.2	-0.2	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Gross Inland Consumption	47380	40801	40307	44798	46856	45066	46985	49510	51103	-1.6	1.5	0.0	0.8	
Solids	29882	22556	21645	20099	17719	13131	12103	11148	14000	-3.2	-2.0	-3.7	1.5	
Oil	8964	7876	7790	9748	10999	11911	12578	13147	13417	-1.4	3.5	1.4	0.6	
Natural gas	5248	6552	7500	7703	8614	8851	8769	8634	8602	3.6	1.4	0.2	-0.2	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Renewable energy forms	100	627	727	1955	3458	4851	6801	9075	9849	22.0	16.9	7.0	3.8	
as % in Gross Inland Consumption														
Solids	63.1	55.3	53.7	44.9	37.8	29.1	25.8	22.5	27.4					
Oil	18.9	19.3	19.3	21.8	23.5	26.4	26.8	26.6	26.3					
Natural gas	11.1	16.1	18.6	17.2	18.4	19.6	18.7	17.4	16.8					
Nuclear	6.9	7.7	8.7	14.2	16.0	16.8	16.7	18.1	13.6					
Renewable energy forms	0.2	1.5	1.8	4.4	7.4	10.8	14.5	18.3	19.3					
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	82077	84020	88325	100578	114331	1.6	1.2	0.7	2.6	
Self consumption and grid losses	8541	8837	10601	11632	10387	10029	10704	12155	17443	2.2	-0.2	0.3	5.0	
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13424	10029	10320	11447	14943	3.7	-1.7	-2.6	3.8	
Solids	9947	13571	14031	13955	12371	7815	7165	6541	9250	3.5	-1.3	-5.3	2.6	
Oil (including refinery gas)	741	311	203	126	80	28	27	3	1	-12.2	-8.9	-10.4	-27.0	
Gas (including derived gases)	300	573	1270	1286	835	1188	883	603	700	15.5	-4.1	0.6	-2.3	
Biomass & Waste	0	119	369	224	139	998	2246	4300	4992		-9.3	32.1	8.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	18634	14422	11312	13108	14080	14312	14721	14687	14725	-4.9	2.2	0.4	0.0	
Refineries	7946	7026	6047	7957	8890	9604	10125	10562	10775	-2.7	3.9	1.3	0.6	
Biofuels and hydrogen production	0	11	0	3	396	630	1021	1143	1241			9.9	2.0	
District heating	2138	1404	999	909	1512	1029	846	378	281	-7.3	4.2	-5.6	-10.4	
Derived gases, cokeries etc.	8549	5982	4266	4239	3283	3050	2730	2605	2428	-6.7	-2.6	-1.8	-1.2	
Energy Branch Consumption	2124	1866	1919	1915	2211	2199	2244	2401	2826	-1.0	1.4	0.1	2.3	
Non-Energy Uses	1680	2132	1962	2419	2805	3172	3551	3857	4082	1.6	3.6	2.4	1.4	
Final Energy Demand	36267	25697	23905	25801	28402	30059	31466	32699	33549	-4.1	1.7	1.0	0.6	
by sector														
Industry	19215	12191	10031	9439	10049	10320	10574	10863	11087	-6.3	0.0	0.5	0.5	
- energy intensive industries	8050	6719	6276	6588	6971	7064	7066	7161	7261	-2.5	1.1	0.1	0.3	
- other industrial sectors	11165	5472	3755	2851	3078	3256	3508	3701	3826	-10.3	-2.0	1.3	0.9	
Residential	8625	5796	5260	6063	6831	7217	7431	7656	7777	-4.8	2.6	0.8	0.5	
Tertiary	5622	4871	3893	3730	3974	4176	4498	4787	5058	-3.6	0.2	1.2	1.2	
Transport	2804	2840	4721	6569	7548	8345	8963	9393	9628	5.3	4.8	1.7	0.7	
by fuel														
Solids	17789	6457	5164	3619	3684	3684	3459	3313	3575	-11.6	-3.3	-0.6	0.3	
Oil	6229	5018	5291	6913	7636	8258	8544	8817	8857	-1.6	3.7	1.1	0.4	
Gas	5146	6119	6419	6581	7236	7503	7772	8169	8006	2.2	1.2	0.7	0.3	
Electricity	4142	4129	4243	4750	4543	4889	5375	5929	6442	0.2	0.7	1.7	1.8	
Heat (from CHP and District Heating)	2959	3664	2624	2478	2521	2454	2463	2451	2596	-1.2	-0.4	-0.2	0.5	
Renewable energy forms	0	309	165	1460	2782	3269	3851	4016	4068		32.7	3.3	0.5	
Other	0	0	0	0	1	1	3	5	5			15.2	7.3	
RES in Gross Final Energy Consumption ^(A)			610	1832	3333	4580	6306	8289	8959		18.5	6.6	3.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	143.2	127.1	122.7	114.6	103.8	-3.1	-0.4	-1.5	-1.7	
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	113.2	97.3	93.9	89.1	80.9	-2.8	-0.3	-1.8	-1.5	
Power generation/District heating	48.8	60.4	62.1	61.0	54.9	36.7	32.9	26.9	17.8	2.4	-1.2	-5.0	-5.9	
Energy Branch	2.3	1.5	2.2	2.3	2.8	2.8	2.9	2.9	2.9	-0.5	2.3	0.1	0.5	
Industry	58.1	29.0	25.2	20.9	21.6	22.4	22.2	22.1	22.4	-8.0	-1.5	0.2	0.1	
Residential	24.0	10.6	7.9	7.1	8.0	8.0	7.8	7.9	7.9	-10.5	0.2	-0.3	0.2	
Tertiary	14.1	9.2	5.9	4.5	4.7	4.5	4.5	4.6	4.6	-8.4	-2.2	-0.5	0.2	
Transport	7.5	7.7	13.4	19.1	21.1	23.0	23.8	24.8	25.2	6.0	4.6	1.2	0.6	
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.5	11.5	11.4	11.4	-3.8	-0.8	0.1	-0.1	
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	70.1	62.3	60.1	56.1	50.9					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Czech Republic: EC proposal with RES trading						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	376.2	303.5	263.7	242.9	225.1	-1.9	-2.5	-3.5	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.42	2.16	2.00	1.80	1.58	-1.2	-1.8	-1.9	-2.3
Import Dependency %	16.1	20.6	23.1	27.4	39.7	43.2	45.4	45.4	51.9				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	19.9	23.8	28.1	32.0	35.0		2.7	3.5	2.3
as % of GDP			18.3	16.9	16.0	16.1	15.7	15.7	15.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.6	51.9	45.2	40.9	37.7	-7.3	-5.0	-2.7	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	88.6	78.4	67.1	60.6	55.5	-5.8	-1.2	-2.7	-1.9
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	70.2	61.5	54.7	50.8	48.0	-7.4	-3.5	-2.5	-1.3
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.8	32.5	31.3	29.6	27.6	4.0	2.5	-0.5	-1.2
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.7	58.8	57.4	55.6	53.9	7.5	4.2	0.0	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.45	0.30	0.26	0.19	0.12	1.8	-2.2	-5.4	-7.7
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.95	1.92	1.85	1.81	1.79	-2.6	-1.1	-0.5	-0.3
Industry	3.03	2.38	2.51	2.21	2.15	2.17	2.10	2.03	2.02	-1.8	-1.5	-0.3	-0.4
Residential	2.78	1.84	1.50	1.16	1.18	1.10	1.05	1.03	1.02	-6.0	-2.4	-1.2	-0.3
Tertiary	2.51	1.89	1.51	1.21	1.19	1.07	0.99	0.94	0.90	-5.0	-2.4	-1.7	-0.9
Transport	2.68	2.71	2.85	2.90	2.79	2.75	2.66	2.64	2.62	0.6	-0.2	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	11.2	14.6	19.3	24.4	25.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.8	6.9	10.5	11.2	11.9				
Gross Electricity generation by source (in GWh)													
			72898	81916	82077	84020	88325	100578	114331		1.2	0.7	2.6
Nuclear energy			13588	24724	28995	29433	30388	35583	28810		7.9	0.5	-0.5
Solids			50038	47938	42198	37307	35555	34729	50882		-1.7	-1.7	3.6
Oil (including refinery gas)			528	447	61	66	60	14	11		-19.5	-0.1	-15.5
Gas (including derived gases)			6087	5565	6192	8251	6923	5705	6461		0.2	1.1	-0.7
Biomass-waste			899	841	1141	4896	10689	19502	22594		2.4	25.1	7.8
Hydro (pumping excluded)			1758	2380	2576	2591	2618	2631	2677		3.9	0.2	0.2
Wind			0	22	913	1471	2085	2398	2876			8.6	3.3
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14857	17180	17954	18654	18523		2.1	1.9	0.3
<u>Nuclear energy</u>			1661	3504	3519	3534	3541	4141	3344		7.8	0.1	-0.6
<u>Renewable energy</u>			1148	1227	1960	2356	3023	3315	3790		5.5	4.4	2.3
Hydro (pumping excluded)			1142	1196	1253	1256	1259	1260	1265		0.9	0.0	0.0
Wind			7	30	704	1095	1752	2033	2496		59.1	9.5	3.6
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9378	11290	11390	11198	11389		0.2	2.0	0.0
of which cogeneration units			3030	3110	2472	3799	4592	5799	6391		-2.0	6.4	3.4
Solids fired			7747	7661	7663	8870	8113	6577	6227		-0.1	0.6	-2.6
Gas fired			1208	1302	1337	1438	1440	1299	1330		1.0	0.7	-0.8
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	253	865	1779	3292	3821		4.4	21.5	7.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	58.8	52.7	53.1	58.0	64.0				
Efficiency of gross thermal power generation (%)			31.2	30.2	31.8	43.3	44.4	45.0	46.0				
% of gross electricity from CHP			21.1	16.7	13.8	26.5	29.6	32.6	34.8				
Carbon free gross electricity generation (%)			22.3	34.1	41.0	45.7	51.8	59.8	49.8				
- nuclear			18.6	30.2	35.3	35.0	34.4	35.4	25.2				
- renewable energy forms			3.6	4.0	5.6	10.7	17.4	24.4	24.6				
Transport sector													
Passenger transport activity (Gpkm)	92.9	95.4	101.3	105.1	116.3	129.6	145.6	160.5	172.8	0.9	1.4	2.3	1.7
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.1	17.1	17.8	-3.7	-0.8	0.8	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	91.2	103.7	114.9	124.2	3.7	1.8	2.6	1.8
Rail	20.6	15.7	15.4	15.6	15.9	16.6	17.5	18.5	19.2	-2.9	0.4	1.0	0.9
Aviation	1.9	2.1	2.5	3.5	4.9	6.4	8.3	10.0	11.6	2.8	6.9	5.4	3.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	64.2	53.9	55.6	59.3	64.7	70.3	76.8	83.6	90.1	-1.4	1.5	1.7	1.6
Trucks	26.3	31.3	37.3	43.4	51.5	58.2	64.5	70.7	76.7	3.6	3.3	2.3	1.7
Rail	38.0	22.6	17.5	14.8	12.9	11.9	12.1	12.8	13.4	-7.5	-3.0	-0.6	1.0
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.1
Energy demand in transport (ktoe)													
	2804	2840	4721	6569	7548	8345	8963	9393	9628	5.3	4.8	1.7	0.7
Public road transport	132	110	98	111	111	112	111	109	105	-2.9	1.3	0.0	-0.6
Private cars and motorcycles	1271	1373	2257	2850	3192	3490	3742	3881	3865	5.9	3.5	1.6	0.3
Trucks	956	971	1868	2987	3536	3958	4244	4480	4713	6.9	6.6	1.8	1.1
Rail	272	200	295	271	237	214	199	199	181	0.8	-2.2	-1.7	-0.9
Aviation	174	185	197	346	471	570	666	725	764	1.3	9.1	3.5	1.4
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.2	-5.2	

Source: PRIMES

Czech Republic: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	25616	25637	24578	-4	1076	3077	0.0	4.4	14.3
Solids	34715	25002	23520	13340	12023	10000	-723	-17	-86	-5.1	-0.1	-0.9
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	177	175	172	10	7	-7	5.8	3.9	-4.0
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Renewable energy sources	100	727	2142	4307	5399	7269	709	1086	1832	19.7	25.2	33.7
Hydro	100	151	205	223	225	230	11	7	0	5.1	3.4	0.0
Biomass & Waste	0	576	1933	3625	4531	6131	396	636	1205	12.3	16.3	24.5
Wind	0	0	2	127	179	247	36	76	110	39.9	74.1	80.5
Solar and others	0	0	2	332	463	660	266	366	516	404.4	376.1	360.5
Geothermal	0	0	0	0	0	0	0	0	0	126.1	268.4	423.5
Net Imports	7630	9297	12271	19450	21348	26525	-1610	-3306	-3772	-7.6	-13.4	-12.4
Solids	-5685	-4751	-3489	-209	79	4000	-2701	-4894	-5581	-108.4	-98.4	-58.3
Oil	8589	7428	9499	11711	12378	13217	-142	-394	-739	-1.2	-3.1	-5.3
- Crude oil and Feedstocks	7382	5492	7539	9323	9826	10456	-108	-298	-558	-1.1	-2.9	-5.1
- Oil products	1207	1936	1960	2388	2553	2761	-34	-96	-181	-1.4	-3.6	-6.2
Natural gas	4786	7482	7535	8674	8594	8430	477	325	-356	5.8	3.9	-4.0
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	45066	46985	51103	-1613	-2230	-695	-3.5	-4.5	-1.3
Solids	29882	21645	20099	13131	12103	14000	-3423	-4910	-5667	-20.7	-28.9	-28.8
Oil	8964	7790	9748	11911	12578	13417	-142	-394	-739	-1.2	-3.0	-5.2
Natural gas	5248	7500	7703	8851	8769	8602	487	331	-363	5.8	3.9	-4.0
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	4851	6801	9849	1465	2743	4736	43.3	67.6	92.6
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	29.1	25.8	27.4	-6.3	-8.8	-10.6			
Oil	18.9	19.3	21.8	26.4	26.8	26.3	0.6	0.4	-1.1			
Natural gas	11.1	18.6	17.2	19.6	18.7	16.8	1.7	1.5	-0.5			
Nuclear	6.9	8.7	14.2	16.8	16.7	13.6	0.6	0.8	2.8			
Renewable energy forms	0.2	1.8	4.4	10.8	14.5	19.3	3.5	6.2	9.4			
Gross Electricity Generation in GWh_e	62260	72898	81916	84020	88325	114331	-15066	-16061	-12140	-15.2	-15.4	-9.6
Self consumption and grid losses	8541	10601	11632	10029	10704	17443	-2480	-2692	814	-19.8	-20.1	4.9
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10029	10320	14943	-2994	-3488	-2680	-23.0	-25.3	-15.2
Solids	9947	14031	13955	7815	7165	9250	-3867	-5139	-6467	-33.1	-41.8	-41.1
Oil (including refinery gas)	741	203	126	28	27	1	0	-1	1	0.0	-5.1	-1.1
Gas (including derived gases)	300	1270	1286	1188	883	700	-47	-204	-157	-3.8	-18.8	-18.3
Biomass & Waste	0	369	224	998	2246	4992	921	1856	3943	1182.1	476.6	376.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	14312	14721	14725	460	102	-591	3.3	0.7	-3.9
Refineries	7946	6047	7957	9604	10125	10775	-109	-300	-559	-1.1	-2.9	-4.9
Biofuels and hydrogen production	0	0	3	630	1021	1241	90	264	240	16.8	34.9	24.0
District heating	2138	999	909	1029	846	281	191	71	-256	22.7	9.1	-47.7
Derived gases, cokeries etc.	8549	4266	4239	3050	2730	2428	288	67	-16	10.4	2.5	-0.6
Energy Branch Consumption	2124	1919	1915	2199	2244	2826	-65	-99	276	-2.9	-4.2	10.8
Non-Energy Uses	1680	1962	2419	3172	3551	4082	-33	-40	-27	-1.0	-1.1	-0.6
Final Energy Demand	36267	23905	25801	30059	31466	33549	61	-179	-343	0.2	-0.6	-1.0
by sector												
Industry	19215	10031	9439	10320	10574	11087	-16	-231	-333	-0.2	-2.1	-2.9
- energy intensive industries	8050	6276	6588	7064	7066	7261	-6	-217	-254	-0.1	-3.0	-3.4
- other industrial sectors	11165	3755	2851	3256	3508	3826	-10	-14	-79	-0.3	-0.4	-2.0
Residential	8625	5260	6063	7217	7431	7777	178	235	305	2.5	3.3	4.1
Tertiary	5622	3893	3730	4176	4498	5058	-57	-61	-114	-1.4	-1.3	-2.2
Transport	2804	4721	6569	8345	8963	9628	-45	-121	-201	-0.5	-1.3	-2.0
by fuel												
Solids	17789	5164	3619	3684	3459	3575	233	38	670	6.8	1.1	23.1
Oil	6229	5291	6913	8258	8544	8857	-100	-332	-702	-1.2	-3.7	-7.3
Gas	5146	6419	6581	7503	7772	8006	455	575	138	6.5	8.0	1.8
Electricity	4142	4243	4750	4889	5375	6442	-1088	-1149	-1113	-18.2	-17.6	-14.7
Heat (from CHP and District Heating)	2959	2624	2478	2454	2463	2596	41	-103	57	1.7	-4.0	2.2
Renewable energy forms	0	165	1460	3269	3851	4068	518	792	607	18.8	25.9	17.5
Other	0	0	0	1	3	5	0	0	0	1.9	2.5	-0.5
RES in Gross Final Energy Consumption ^(A)		610	1832	4580	6306	8959	1334	2470	4186	41.1	64.4	87.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	127.1	122.7	103.8	-12.6	-20.2	-47.6	-9.0	-14.1	-31.4
CO₂ Emissions (energy related)	154.8	116.7	114.8	97.3	93.9	80.9	-12.8	-19.7	-46.5	-11.6	-17.4	-36.5
Power generation/District heating	48.8	62.1	61.0	36.7	32.9	17.8	-14.6	-20.3	-47.5	-28.5	-38.1	-72.7
Energy Branch	2.3	2.2	2.3	2.8	2.8	2.9	0.1	0.0	0.2	3.2	1.8	6.3
Industry	58.1	25.2	20.9	22.4	22.2	22.4	1.3	0.8	1.2	6.2	3.7	5.9
Residential	24.0	7.9	7.1	8.0	7.8	7.9	0.2	0.1	0.1	2.7	1.6	1.2
Tertiary	14.1	5.9	4.5	4.5	4.5	4.6	0.6	0.6	0.6	16.4	15.8	16.5
Transport	7.5	13.4	19.1	23.0	23.8	25.2	-0.4	-1.0	-1.2	-1.5	-4.2	-4.5
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.5	11.5	11.4	0.2	-0.4	-1.1	1.5	-3.7	-8.7
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	18.3	17.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	62.3	60.1	50.9	-6.2	-9.9	-23.3			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Czech Republic: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	303.5	263.7	225.1	-10.9	-12.5	-3.1	-3.5	-4.5	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.16	2.00	1.58	-0.20	-0.31	-0.88	-8.4	-13.4	-35.6
Import Dependency %	16.1	23.1	27.4	43.2	45.4	51.9	-2.0	-4.7	-6.6			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	23.8	28.1	35.0	0.3	0.9	2.3	1.2	3.1	7.1
as % of GDP		18.3	16.9	16.1	15.7	15.4	0.2	0.5	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.9	2.4						
as % of GDP				0.19	0.49	1.05						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	51.9	45.2	37.7	-0.1	-1.0	-1.1	-0.2	-2.1	-2.9
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	78.4	67.1	55.5	1.9	2.1	2.2	2.5	3.3	4.1
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	61.5	54.7	48.0	-0.8	-0.7	-1.1	-1.4	-1.3	-2.2
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	32.5	31.3	27.6	-0.2	-0.3	-0.6	-0.5	-1.1	-2.2
Freight transport (toe/Mtkm)	18.5	38.3	54.3	58.8	57.4	53.9	0.0	-0.1	-0.1	0.0	-0.3	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.30	0.26	0.12	-0.07	-0.11	-0.28	-20.0	-29.6	-70.6
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.92	1.85	1.79	0.06	0.03	0.04	3.0	1.4	2.4
Industry	3.03	2.51	2.21	2.17	2.10	2.02	0.13	0.12	0.17	6.3	5.9	9.1
Residential	2.78	1.50	1.16	1.10	1.05	1.02	0.00	-0.02	-0.03	0.1	-1.6	-2.8
Tertiary	2.51	1.51	1.21	1.07	0.99	0.90	0.16	0.15	0.15	18.0	17.4	19.1
Transport	2.68	2.85	2.90	2.75	2.66	2.62	-0.03	-0.08	-0.07	-1.0	-2.9	-2.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	14.6	19.3	25.4	4.3	7.7	12.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.9	10.5	11.9	1.0	2.8	2.4			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	84020	88325	114331	114331	-15066	-16061	-12140	-15.2	-15.4	-9.6
Nuclear energy	13588	24724	29433	30388	28810	28810	0	0	6090	0.0	0.0	26.8
Solids	50038	47938	37307	35555	50882	50882	-18973	-24277	-36806	-33.7	-40.6	-42.0
Oil (including refinery gas)	528	447	66	60	11	11	0	23	6	-0.1	61.5	134.4
Gas (including derived gases)	6087	5565	8251	6923	6461	6461	-607	-1044	-467	-6.9	-13.1	-6.7
Biomass-waste	899	841	4896	10689	22594	22594	3970	8265	17753	428.7	341.0	366.8
Hydro (pumping excluded)	1758	2380	2591	2618	2677	2677	125	86	0	5.1	3.4	0.0
Wind	0	22	1471	2085	2876	2876	420	888	1283	39.9	74.1	80.5
Solar	0	0	4	8	20	20	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	12048	13981	17180	17954	18523	18523	-365	322	-925	-2.1	1.8	-4.8
<u>Nuclear energy</u>	1661	3504	3534	3541	3344	3344	0	0	703	0.0	0.0	26.6
<u>Renewable energy</u>	1148	1227	2356	3023	3790	3790	389	941	1396	19.8	45.2	58.3
Hydro (pumping excluded)	1142	1196	1256	1259	1265	1265	10	9	3	0.8	0.7	0.2
Wind	7	30	1095	1752	2496	2496	379	932	1393	52.9	113.7	126.2
Solar	0	1	6	12	29	29	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	9239	9250	11290	11390	11389	11389	-753	-618	-3024	-6.3	-5.1	-21.0
of which cogeneration units	3030	3110	3799	4592	6391	6391	-217	21	798	-5.4	0.5	14.3
Solids fired	7747	7661	8870	8113	6227	6227	-1407	-1895	-5272	-13.7	-18.9	-45.8
Gas fired	1208	1302	1438	1440	1330	1330	-9	-42	-579	-0.6	-2.9	-30.3
Oil fired	118	122	118	57	11	11	0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	865	1779	3821	3821	662	1319	2929	326.8	286.3	328.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	63.9	61.7	52.7	53.1	64.0	64.0	-7.8	-10.4	-5.5			
Efficiency of gross thermal power generation (%)	31.2	30.2	43.3	44.4	46.0	46.0	-0.3	0.6	-2.5			
% of gross electricity from CHP	21.1	16.7	26.5	29.6	34.8	34.8	-0.1	1.6	8.4			
Carbon free gross electricity generation (%)	22.3	34.1	45.7	51.8	49.8	49.8	11.5	16.8	24.7			
- nuclear	18.6	30.2	35.0	34.4	25.2	25.2	5.3	5.3	7.2			
- renewable energy forms	3.6	4.0	10.7	17.4	24.6	24.6	6.2	11.5	17.4			
Transport sector												
Passenger transport activity (Gpkm)	92.9	101.3	105.1	129.6	145.6	172.8	-0.5	-1.3	-2.0	-0.4	-0.9	-1.1
Public road transport	23.6	16.2	14.7	15.4	16.1	17.8	0.0	0.1	0.1	0.1	0.5	0.6
Private cars and motorcycles	46.8	67.3	71.3	91.2	103.7	124.2	-0.2	-0.8	-1.5	-0.3	-0.8	-1.2
Rail	20.6	15.4	15.6	16.6	17.5	19.2	0.0	0.0	0.2	-0.1	0.2	1.2
Aviation	1.9	2.5	3.5	6.4	8.3	11.6	-0.3	-0.5	-0.8	-4.3	-5.9	-6.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	64.2	55.6	59.3	70.3	76.8	90.1	-0.1	-0.3	-0.5	-0.2	-0.4	-0.6
Trucks	26.3	37.3	43.4	58.2	64.5	76.7	-0.1	-0.4	-0.6	-0.2	-0.5	-0.8
Rail	38.0	17.5	14.8	11.9	12.1	13.4	0.0	0.0	0.1	-0.1	0.1	0.6
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.4
Energy demand in transport (ktoe)	2804	4721	6569	8345	8963	9628	-45	-121	-201	-0.5	-1.3	-2.0
Public road transport	132	98	111	112	111	105	0	1	0	0.2	0.5	0.1
Private cars and motorcycles	1271	2257	2850	3490	3742	3865	-6	-26	-40	-0.2	-0.7	-1.0
Trucks	956	1868	2987	3958	4244	4713	-6	-23	-38	-0.2	-0.5	-0.8
Rail	272	295	271	214	199	181	1	-8	1	0.3	-3.8	0.8
Aviation	174	197	346	570	666	764	-33	-65	-125	-5.4	-8.9	-14.1
Inland navigation	0	5	5	1	1	0	0	0	0	0.1	0.3	0.4

Source: PRIMES

Denmark: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	27912	22018	19401	18927	18248	10.6	0.1	-3.6	-0.6
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	8004	3726	3090	2857	2613	10.3	0.8	-9.1	-1.7
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3408	4292	5311	6070	6635	5.6	5.1	4.5	2.3
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.4	0.2	0.2
Biomass & Waste	1140	1423	1687	2313	2655	3288	4173	4726	5038	4.0	4.6	4.6	1.9
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	68	289	365	411	474	12.5	25.0	18.3	2.7
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.1	11.3	1.9
Net Imports	8605	7534	-7076	-10498	-7988	-4228	-1952	-1498	-821				
Solids	6216	7664	3784	3505	3705	3067	2438	2041	1763	-4.8	-0.2	-4.1	-3.2
Oil	2711	1429	-8094	-9381	-7651	-5886	-3478	-2783	-1952				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8738	-6579	-3866	-3021	-2112				
- Oil products	679	627	1512	1804	1087	693	388	238	160	8.3	-3.3	-9.8	-8.5
Natural gas	-928	-1496	-2882	-5010	-4251	-1979	-1641	-1518	-1388				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19074	16913	16547	16501	16471	1.0	-0.3	-1.4	0.0
Solids	6088	6498	3987	3715	3705	3067	2438	2041	1763	-4.1	-0.7	-4.1	-3.2
Oil	8144	9105	9043	8133	7999	7237	6620	6288	6092	1.1	-1.2	-1.9	-0.8
Natural gas	1818	3170	4449	4399	3753	1747	1449	1340	1225	9.4	-1.7	-9.1	-1.7
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3719	4677	5800	6624	7226	5.9	5.8	4.5	2.2
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.4	18.1	14.7	12.4	10.7				
Oil	45.6	45.0	46.0	41.6	41.9	42.8	40.0	38.1	37.0				
Natural gas	10.2	15.7	22.6	22.5	19.7	10.3	8.8	8.1	7.4				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	19.5	27.7	35.1	40.1	43.9				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	36862	28213	28553	32968	36588	3.4	0.2	-2.5	2.5
Self consumption and grid losses	3290	4659	4046	3775	3649	2922	3039	3603	4016	2.1	-1.0	-1.8	2.8
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6228	4393	4356	4624	4703	2.7	-2.3	-3.5	0.8
Solids	5541	6061	3667	3444	3477	2703	1877	1424	1131	-4.0	-0.5	-6.0	-4.9
Oil (including refinery gas)	237	1008	1344	344	272	18	9	6	5	19.0	-14.8	-28.5	-7.0
Gas (including derived gases)	174	975	2112	2003	1326	0	0	0	2	28.4	-4.5		
Biomass & Waste	65	378	699	1338	1153	1672	2470	3195	3566	26.9	5.1	7.9	3.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8698	8467	8332	8044	7893	-0.1	-0.3	-0.4	-0.5
Refineries	8027	9958	8452	7821	7762	7421	7134	6979	6888	0.5	-0.8	-0.8	-0.4
Biofuels and hydrogen production	0	0	0	0	193	366	548	557	598			11.0	0.9
District heating	1005	761	515	509	743	680	650	508	408	-6.5	3.7	-1.3	-4.6
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1128	768	684	673	655	4.7	-0.3	-4.9	-0.4
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15273	14280	14162	14066	14013	0.8	0.4	-0.8	-0.1
by sector													
Industry	2711	3026	2935	2831	2906	2878	2851	2850	2908	0.8	-0.1	-0.2	0.2
- energy intensive industries	1076	1121	1243	1152	1174	1177	1149	1136	1136	1.5	-0.6	-0.2	-0.1
- other industrial sectors	1636	1905	1692	1679	1733	1700	1702	1714	1771	0.3	0.2	-0.2	0.4
Residential	3946	4468	4154	4398	4317	3792	3920	3960	3958	0.5	0.4	-1.0	0.1
Tertiary	2822	2779	2801	2840	2605	2331	2317	2293	2243	-0.1	-0.7	-1.2	-0.3
Transport	4012	4447	4720	5254	5444	5278	5074	4963	4904	1.6	1.4	-0.7	-0.3
by fuel													
Solids	396	405	290	236	227	363	561	617	632	-3.1	-2.4	9.5	1.2
Oil	7097	7132	6950	7204	7024	6534	6082	5871	5700	-0.2	0.1	-1.4	-0.6
Gas	1159	1691	1667	1701	1752	1472	1169	1164	1068	3.7	0.5	-4.0	-0.9
Electricity	2517	2655	2791	2882	2723	2330	2404	2704	2938	1.0	-0.2	-1.2	2.0
Heat (from CHP and District Heating)	1758	2242	2255	2408	2369	2053	2210	2039	1909	2.5	0.5	-0.7	-1.5
Renewable energy forms	566	595	657	892	1178	1526	1734	1670	1765	1.5	6.0	3.9	0.2
Other	0	0	0	0	0	1	2	2	2			13.3	4.5
RES in Gross Final Energy Consumption ^(A)			1919	2512	3360	4232	5188	5829	6358		5.8	4.4	2.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.8	51.8	46.3	42.6	40.1	0.1	-1.2	-3.0	-1.4
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.3	36.8	31.9	29.1	27.2	0.1	-1.2	-3.7	-1.6
Power generation/District heating	24.5	30.2	24.0	19.7	17.9	10.8	7.5	5.6	4.5	-0.2	-2.9	-8.4	-5.0
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.4	1.0	0.5	0.5	4.9	-0.7	-7.2	-7.9
Industry	5.4	6.0	5.4	5.0	4.9	5.1	5.2	5.2	5.1	-0.1	-0.8	0.4	0.0
Residential	4.9	4.9	3.9	3.5	3.1	2.6	2.4	2.3	2.2	-2.3	-2.1	-2.8	-0.7
Tertiary	3.6	3.1	2.9	2.7	2.5	2.2	2.1	2.0	2.0	-2.1	-1.4	-1.7	-0.9
Transport	11.9	13.1	13.9	15.5	15.7	14.8	13.7	13.3	12.9	1.6	1.2	-1.3	-0.6
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.8	2.7	2.7	5.4	-0.2	-0.6	-0.3
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.2	11.7	10.8	10.3	-0.7	-1.2	-1.4	-1.3
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	89.9	74.2	66.3	61.1	57.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Denmark: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.2	65.2	58.8	54.7	51.3	-1.6	-2.1	-3.2	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.43	2.18	1.93	1.76	1.65	-0.8	-0.9	-2.3	-1.5
Import Dependency %	45.7	34.5	-33.7	-51.6	-40.1	-23.8	-11.2	-8.6	-4.7				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.9	20.4	23.0	24.7	26.3		1.6	2.5	1.4
as % of GDP			7.8	8.0	7.6	7.9	8.2	8.2	8.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	83.5	76.8	72.1	69.2	-1.1	-0.8	-1.8	-1.0
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.8	67.5	64.9	61.5	58.0	-1.4	-1.8	-2.5	-1.1
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.8	61.3	56.1	51.7	47.4	-2.7	-2.7	-3.0	-1.7
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	36.8	33.9	31.4	29.8	0.0	0.6	-1.2	-1.3
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	67.4	62.4	59.3	56.3	0.1	0.5	-1.5	-1.0
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.19	0.13	0.09	0.07	-3.1	-3.2	-6.6	-5.4
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.73	1.65	1.63	1.59	-0.7	-0.4	-0.4	-0.4
Industry	2.00	1.98	1.83	1.76	1.70	1.77	1.81	1.84	1.77	-0.9	-0.7	0.6	-0.2
Residential	1.24	1.09	0.93	0.80	0.73	0.68	0.60	0.59	0.56	-2.8	-2.5	-1.8	-0.8
Tertiary	1.27	1.12	1.04	0.94	0.97	0.95	0.92	0.89	0.87	-2.0	-0.7	-0.5	-0.6
Transport	2.96	2.95	2.95	2.96	2.88	2.79	2.70	2.68	2.64	0.0	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	20.8	28.3	35.1	39.8	43.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	7.1	11.5	12.2	13.2				
Gross Electricity generation by source (in GWh)													
			36043	36269	36862	28213	28553	32968	36588		0.2	-2.5	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids	14345	13553	15201	12170	9094	8057	7226			0.6	-5.0	-2.3	
Oil (including refinery gas)	5222	1525	1542	201	157	143	125			-11.5	-20.4	-2.3	
Gas (including derived gases)	9658	9549	8074	1530	936	1204	855			-1.8	-19.4	-0.9	
Biomass-waste	2548	5006	4081	5989	9352	12675	14897			4.8	8.6	4.8	
Hydro (pumping excluded)	30	23	31	32	32	32	32			0.4	0.2	0.2	
Wind	4240	6613	7928	8279	8957	10822	13019			6.5	1.2	3.8	
Solar	0	0	6	13	24	34	434					15.8	33.5
Geothermal and other renewables	0	0	0	0	0	0	0						
Net Generation Capacity in MW_e			11888	12794	12778	12662	12261	12749	12995		0.7	-0.4	0.6
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>	2311	3014	3662	3780	4023	4630	5637			4.7	0.9	3.4	
Hydro (pumping excluded)	10	11	11	11	11	14	14			1.5	0.0	2.4	
Wind	2300	3000	3635	3732	3944	4520	5096			4.7	0.8	2.6	
Solar	2	3	16	37	68	97	527			24.9	15.8	22.6	
Other renewables (tidal etc.)	0	0	0	0	0	0	0						
<u>Thermal power</u>	9577	9781	9116	8882	8238	8119	7358			-0.5	-1.0	-1.1	
of which cogeneration units	7504	8538	5752	4744	5077	4025	3968			-2.6	-1.2	-2.4	
Solids fired	5528	5566	4819	4425	3541	3032	2213			-1.4	-3.0	-4.6	
Gas fired	2328	2485	2395	2411	2132	1992	1854			0.3	-1.2	-1.4	
Oil fired	1271	1236	1182	988	911	894	783			-0.7	-2.6	-1.5	
Biomass-waste fired	450	494	720	1059	1654	2201	2509			4.8	8.7	4.3	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	0	0	0	0	0	0	0						
Avg. Load factor of net power capacity (%)			32.7	30.4	31.0	24.0	25.1	27.9	30.5				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.9	38.9	38.6	41.1	42.2				
% of gross electricity from CHP			63.9	68.3	61.3	63.8	64.3	58.4	52.8				
Carbon free gross electricity generation (%)			18.9	32.1	32.7	50.7	64.3	71.5	77.6				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	32.7	50.7	64.3	71.5	77.6				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	70.1	73.0	77.8	81.6	86.4	88.6	91.3	94.7	97.6	1.1	1.0	0.6	0.7
Private cars and motorcycles	6.4	7.3	7.4	7.4	7.5	7.7	8.0	8.2	8.5	1.4	0.1	0.6	0.6
Rail	47.8	49.0	51.9	54.4	57.0	56.7	57.1	58.2	59.2	0.8	0.9	0.0	0.4
Aviation	5.1	4.9	5.5	6.2	6.7	7.3	7.7	8.2	8.6	0.9	2.0	1.4	1.1
Inland navigation	5.5	7.0	9.0	9.8	11.4	13.1	14.6	15.9	17.1	5.0	2.4	2.5	1.6
Freight transport activity (Gtkm)	5.2	4.7	3.9	3.7	3.7	3.8	3.9	4.1	4.2	-2.9	-0.4	0.5	0.7
Trucks	21.7	26.7	27.5	27.0	29.1	30.0	31.6	33.6	35.5	2.4	0.5	0.8	1.2
Rail	18.1	22.4	24.0	23.3	25.0	25.4	26.6	28.1	29.7	2.9	0.4	0.6	1.1
Inland navigation	1.7	2.0	2.0	2.0	2.2	2.5	2.7	2.9	3.1	1.6	0.8	2.2	1.3
Energy demand in transport (ktoe)	1.9	2.3	1.5	1.7	1.9	2.2	2.4	2.5	2.7	-2.4	2.5	2.1	1.4
Public road transport	4012	4447	4720	5254	5444	5278	5074	4963	4904	1.6	1.4	-0.7	-0.3
Private cars and motorcycles	57	76	78	83	81	78	72	66	64	3.1	0.4	-1.2	-1.2
Trucks	1628	1709	1788	2034	2046	1902	1694	1528	1499	0.9	1.4	-1.9	-1.2
Rail	1374	1690	1816	1952	2021	1914	1867	1893	1947	2.8	1.1	-0.8	0.4
Aviation	113	117	103	106	109	112	109	99	52	-1.0	0.6	-0.1	-7.1
Inland navigation	690	675	820	944	1049	1133	1190	1231	1196	1.7	2.5	1.3	0.0
	150	181	115	136	138	140	142	145	146	-2.6	1.8	0.3	0.3

Source: PRIMES

Denmark: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22018	19401	18248	-1989	-813	-316	-8.3	-4.0	-1.7
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	3726	3090	2613	-2820	-2286	-2387	-43.1	-42.5	-47.7
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	4292	5311	6635	831	1473	2071	24.0	38.4	45.4
Hydro	2	3	2	3	3	3	0	0	0	4.4	2.6	0.0
Biomass & Waste	1140	1687	2313	3288	4173	5038	606	1235	1620	22.6	42.0	47.4
Wind	52	365	569	712	770	1120	25	0	151	3.7	0.0	15.6
Solar and others	2	7	10	289	365	474	199	239	299	223.0	189.1	170.3
Geothermal	2	3	3	0	0	0	0	0	0	54.2	221.9	279.3
Net Imports	8605	-7076	-10498	-4228	-1952	-821	-1235	-2924	-3258	41.3	-300.8	-133.7
Solids	6216	3784	3505	3067	2438	1763	-1319	-2315	-2191	-30.1	-48.7	-55.4
Oil	2711	-8094	-9381	-5886	-3478	-1952	-1134	-1680	-2040	23.9	93.5	-2341.4
- Crude oil and Feedstocks	2032	-9607	-11186	-6579	-3866	-2112	-633	-890	-1106	10.7	29.9	110.0
- Oil products	679	1512	1804	693	388	160	-500	-791	-933	-41.9	-67.1	-85.4
Natural gas	-928	-2882	-5010	-1979	-1641	-1388	1147	926	783	-36.7	-36.1	-36.1
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	16913	16547	16471	-3223	-3734	-3569	-16.0	-18.4	-17.8
Solids	6088	3987	3715	3067	2438	1763	-1319	-2315	-2191	-30.1	-48.7	-55.4
Oil	8144	9043	8133	7237	6620	6092	-1132	-1677	-2034	-13.5	-20.2	-25.0
Natural gas	1818	4449	4399	1747	1449	1225	-1673	-1360	-1604	-48.9	-48.4	-56.7
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4677	5800	7226	902	1618	2261	23.9	38.7	45.5
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	18.1	14.7	10.7	-3.6	-8.7	-9.0			
Oil	45.6	46.0	41.6	42.8	40.0	37.0	1.2	-0.9	-3.6			
Natural gas	10.2	22.6	22.5	10.3	8.8	7.4	-6.7	-5.1	-6.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	27.7	35.1	43.9	8.9	14.4	19.1			
Gross Electricity Generation in GWh_e	25733	36043	36269	28213	28553	36588	-10660	-11181	-5981	-27.4	-28.1	-14.0
Self consumption and grid losses	3290	4046	3775	2922	3039	4016	-1133	-1300	-814	-27.9	-30.0	-16.8
Fuel Inputs to Thermal Power Generation	6016	7822	7129	4393	4356	4703	-2213	-2213	-1643	-33.5	-33.7	-25.9
Solids	5541	3667	3444	2703	1877	1131	-1437	-2630	-2311	-34.7	-58.4	-67.2
Oil (including refinery gas)	237	1344	344	18	9	5	-260	-244	-188	-93.5	-96.3	-97.6
Gas (including derived gases)	174	2112	2003	0	0	2	-1018	-405	-646	-100.0	-100.0	-99.7
Biomass & Waste	65	699	1338	1672	2470	3566	502	1066	1502	42.9	75.9	72.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8467	8332	7893	-555	-744	-975	-6.2	-8.2	-11.0
Refineries	8027	8452	7821	7421	7134	6888	-633	-890	-1106	-7.9	-11.1	-13.8
Biofuels and hydrogen production	0	0	0	366	548	598	55	77	-12	17.8	16.4	-1.9
District heating	1005	515	509	680	650	408	23	68	143	3.5	11.8	54.3
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	768	684	655	-306	-290	-287	-28.5	-29.7	-30.4
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	14290	14162	14013	-2088	-2503	-2790	-12.8	-15.0	-16.6
by sector												
Industry	2711	2935	2831	2878	2851	2908	-126	-189	-191	-4.2	-6.2	-6.2
- energy intensive industries	1076	1243	1152	1177	1149	1136	-25	-55	-55	-2.0	-4.6	-4.6
- other industrial sectors	1636	1692	1679	1700	1702	1771	-102	-134	-136	-5.6	-7.3	-7.1
Residential	3946	4154	4398	3792	3920	3958	-798	-695	-659	-17.4	-15.1	-14.3
Tertiary	2822	2801	2840	2331	2317	2243	-662	-713	-792	-22.1	-23.5	-26.1
Transport	4012	4720	5254	5278	5074	4904	-502	-905	-1139	-8.7	-15.1	-18.9
by fuel												
Solids	396	290	236	363	561	632	118	315	120	48.1	128.0	23.4
Oil	7097	6950	7204	6534	6082	5700	-778	-1283	-1622	-10.6	-17.4	-22.2
Gas	1159	1667	1701	1472	1169	1068	-403	-718	-589	-21.5	-38.0	-35.5
Electricity	2517	2791	2882	2330	2404	2938	-817	-846	-439	-26.0	-26.0	-13.0
Heat (from CHP and District Heating)	1758	2255	2408	2053	2210	1909	-464	-290	-377	-18.4	-11.6	-16.5
Renewable energy forms	566	657	892	1526	1734	1765	256	319	128	20.2	22.6	7.8
Other	0	0	0	1	2	2	0	0	-1	55.9	3.2	-26.9
RES in Gross Final Energy Consumption ^(A)		1919	2512	4232	5188	6358	857	1538	2136	25.4	42.1	50.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	51.8	46.3	40.1	-13.8	-19.2	-20.3	-21.1	-29.3	-33.6
CO₂ Emissions (energy related)	51.7	52.4	48.9	36.8	31.9	27.2	-12.6	-17.4	-18.5	-25.4	-35.3	-40.6
Power generation/District heating	24.5	24.0	19.7	10.8	7.5	4.5	-9.0	-12.3	-11.5	-45.5	-62.2	-71.9
Energy Branch	1.5	2.4	2.5	1.4	1.0	0.5	-0.7	-0.8	-1.2	-34.0	-42.2	-72.9
Industry	5.4	5.4	5.0	5.1	5.2	5.1	0.1	0.2	-0.1	1.4	3.9	-1.6
Residential	4.9	3.9	3.5	2.6	2.4	2.2	-0.8	-1.0	-1.3	-22.7	-29.1	-37.8
Tertiary	3.6	2.9	2.7	2.2	2.1	2.0	-0.5	-0.6	-0.9	-18.4	-21.9	-31.2
Transport	11.9	13.9	15.5	14.8	13.7	12.9	-1.6	-2.9	-3.5	-10.1	-17.7	-21.4
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.8	2.8	2.7	-0.1	-0.1	-0.1	-2.1	-2.0	-2.5
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.2	11.7	10.3	-1.2	-1.8	-1.7	-9.2	-13.2	-13.9
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	74.2	66.3	57.5	-19.8	-27.5	-29.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	65.2	58.8	51.3	-12.4	-13.3	-11.1	-16.0	-18.4	-17.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.18	1.93	1.65	-0.27	-0.50	-0.63	-11.2	-20.7	-27.7
Import Dependency %	45.7	-33.7	-51.6	-23.8	-11.2	-4.7	-9.5	-15.8	-16.3			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	20.4	23.0	26.3	0.7	1.5	2.5	3.8	7.0	10.5
as % of GDP		7.8	8.0	7.9	8.2	8.2	0.3	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.6	2.6						
as % of GDP				0.30	0.56	0.80						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	83.5	76.8	69.2	-3.7	-5.1	-4.5	-4.2	-6.2	-6.2
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	67.5	64.9	58.0	-14.2	-11.5	-9.6	-17.4	-15.1	-14.3
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	61.3	56.1	47.4	-17.4	-17.3	-16.7	-22.1	-23.5	-26.1
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	36.8	33.9	29.8	-1.1	-2.9	-3.0	-2.9	-7.9	-9.1
Freight transport (toe/Mtkm)	68.3	69.2	75.8	67.4	62.4	56.3	-5.5	-9.8	-13.4	-7.5	-13.6	-19.2
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.19	0.13	0.07	-0.08	-0.14	-0.15	-29.1	-52.4	-67.2
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.73	1.65	1.59	0.05	-0.01	-0.08	2.8	-0.7	-5.0
Industry	2.00	1.83	1.76	1.77	1.81	1.77	0.10	0.18	0.08	5.8	10.7	4.8
Residential	1.24	0.93	0.80	0.68	0.60	0.56	-0.05	-0.12	-0.21	-6.4	-16.5	-27.4
Tertiary	1.27	1.04	0.94	0.95	0.92	0.87	0.04	0.02	-0.06	4.7	2.1	-6.9
Transport	2.96	2.95	2.96	2.79	2.70	2.64	-0.04	-0.08	-0.09	-1.5	-3.0	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	12.4	15.5	28.3	35.1	43.7	43.7	8.7	14.2	19.5			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	7.1	11.5	13.2	13.2	1.6	3.4	2.7			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	12170	9094	7226	5274	-5274	-9814	-8539	-30.2	-51.9	-54.2
Oil (including refinery gas)	5222	1525	201	157	125	1364	-1364	-1348	-1238	-87.2	-89.5	-90.8
Gas (including derived gases)	9658	9549	1530	936	855	6132	-6132	-3973	-4117	-80.0	-80.9	-82.8
Biomass-waste	2548	5006	5989	9352	14897	1812	3954	5760	43.4	73.2	63.0	
Hydro (pumping excluded)	30	23	32	32	32	1	1	0	4.4	2.6	0.0	
Wind	4240	6613	8279	8957	13019	296	0	1761	3.7	0.0	15.6	
Solar	0	0	13	24	434	0	0	392	0.0	0.0	925.9	
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	11888	12794	12662	12261	12995	-50	286	32	-0.4	2.4	0.2	
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4023	5637	93	0	980	2.5	0.0	21.0	
Hydro (pumping excluded)	10	11	11	11	14	0	0	3	0.0	0.0	26.4	
Wind	2300	3000	3732	3944	5096	93	0	570	2.6	0.0	12.6	
Solar	2	3	37	68	527	0	0	407	0.0	0.0	339.1	
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8882	8238	7358	-143	286	-948	-1.6	3.6	-11.4	
of which cogeneration units	7504	8538	4744	5077	3968	-1397	354	-163	-22.8	7.5	-4.0	
Solids fired	5528	5566	4425	3541	2213	0	0	-212	0.0	0.0	-8.7	
Gas fired	2328	2485	2411	2132	1854	-508	-508	-1511	-17.4	-19.2	-44.9	
Oil fired	1271	1236	988	911	783	0	0	-116	0.0	0.0	-12.9	
Biomass-waste fired	450	494	1059	1654	2509	364	794	891	52.5	92.3	55.1	
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	24.0	25.1	30.5	-9.0	-10.6	-5.0				
Efficiency of gross thermal power generation (%)	34.9	35.8	38.9	38.6	42.2	-1.2	-1.6	-0.1				
% of gross electricity from CHP	63.9	68.3	63.8	64.3	52.8	1.6	5.6	3.8				
Carbon free gross electricity generation (%)	18.9	32.1	50.7	64.3	77.6	19.3	28.1	29.5				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	18.9	32.1	50.7	64.3	77.6	19.3	28.1	29.5				
Transport sector												
Passenger transport activity (Gpkm)	70.1	77.8	81.6	88.6	91.3	97.6	-3.0	-4.2	-5.0	-3.3	-4.4	-4.9
Public road transport	6.4	7.4	7.4	7.7	8.0	8.5	0.3	0.4	0.5	3.7	5.1	5.7
Private cars and motorcycles	47.8	51.9	54.4	56.7	57.1	59.2	-2.9	-4.1	-4.9	-4.9	-6.7	-7.7
Rail	5.1	5.5	6.2	7.3	7.7	8.6	0.1	0.1	0.3	1.5	1.4	3.9
Aviation	5.5	9.0	9.8	13.1	14.6	17.1	-0.4	-0.6	-0.8	-3.0	-4.1	-4.6
Inland navigation	5.2	3.9	3.7	3.8	3.9	4.2	0.0	0.0	0.0	-1.2	-0.9	-1.0
Freight transport activity (Gtkm)	21.7	27.5	27.0	30.0	31.6	35.5	-1.7	-2.4	-3.0	-5.5	-7.0	-7.8
Trucks	18.1	24.0	23.3	25.4	26.6	29.7	-2.0	-2.8	-3.5	-7.5	-9.5	-10.6
Rail	1.7	2.0	2.0	2.5	2.7	3.1	0.2	0.3	0.4	9.6	11.8	13.2
Inland navigation	1.9	1.5	1.7	2.2	2.4	2.7	0.1	0.1	0.2	4.6	5.9	6.6
Energy demand in transport (ktoe)	4012	4720	5254	5278	5074	4904	-502	-905	-1139	-8.7	-15.1	-18.9
Public road transport	57	78	83	78	72	64	-1	-6	-8	-1.1	-8.1	-11.5
Private cars and motorcycles	1628	1788	2034	1902	1694	1499	-160	-332	-272	-7.8	-16.4	-15.3
Trucks	1374	1816	1952	1914	1867	1947	-297	-489	-692	-13.4	-20.7	-26.2
Rail	113	103	106	112	109	52	4	4	5	3.4	3.6	9.7
Aviation	690	820	944	1133	1190	1196	-45	-78	-163	-3.8	-6.1	-12.0
Inland navigation	150	115	136	140	142	146	-2	-4	-9	-1.7	-3.0	-5.8

Source: PRIMES

Estonia: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	6249	3618	3332	4304	3438	3322	2954	3208	3350	-6.1	0.3	-1.5	1.3
Solids	5798	3129	2830	3261	2516	2161	1212	1056	974	-6.9	-1.2	-7.0	-2.2
Oil	0	0	2	331	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	450	489	500	712	923	1162	1742	2152	2376	1.1	6.3	6.6	3.2
Hydro	0	0	0	2	2	2	3	3	3		18.3	0.9	0.2
Biomass & Waste	450	488	500	706	819	1039	1517	1861	2032	1.0	5.1	6.4	3.0
Wind	0	0	0	5	99	109	208	265	314		102.3	7.7	4.2
Solar and others	0	0	0	0	3	11	15	23	28			19.5	6.2
Geothermal	0	0	0	0	0	0	0	0	0			9.0	4.4
Net Imports	4456	1987	1447	1463	2073	2361	2369	2215	2169	-10.6	3.7	1.3	-0.9
Solids	697	292	244	27	120	127	135	142	124	-10.0	-6.8	1.2	-0.9
Oil	3139	1178	626	867	1560	1700	1755	1753	1749	-14.9	9.6	1.2	0.0
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.1	0.0
- Oil products	3139	1178	626	867	1559	1699	1754	1751	1747	-14.9	9.6	1.2	0.0
Natural gas	1222	583	662	800	650	771	796	685	711	-5.9	-0.2	2.1	-1.1
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Gross Inland Consumption	10642	5630	4712	5627	5360	5510	5136	5227	5318	-7.8	1.3	-0.4	0.3
Solids	6703	3598	3119	3255	2636	2288	1347	1198	1098	-7.4	-1.7	-6.5	-2.0
Oil	2858	1032	510	1090	1409	1527	1568	1556	1547	-15.8	10.7	1.1	-0.1
Natural gas	1222	583	662	800	650	771	796	685	711	-5.9	-0.2	2.1	-1.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Renewable energy forms	460	483	501	621	816	1027	1546	1911	2112	0.9	5.0	6.6	3.2
as % in Gross Inland Consumption													
Solids	63.0	63.9	66.2	57.8	49.2	41.5	26.2	22.9	20.6				
Oil	26.9	18.3	10.8	19.4	26.3	27.7	30.5	29.8	29.1				
Natural gas	11.5	10.3	14.1	14.2	12.1	14.0	15.5	13.1	13.4				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	8.6	10.6	11.0	15.2	18.6	30.1	36.6	39.7				
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	11368	11642	12857	14019	15499	-6.8	2.9	1.2	1.9
Self consumption and grid losses	2615	1409	1247	1422	1425	1449	1380	1534	1669	-7.1	1.3	-0.3	1.9
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2674	2552	2137	2193	2316	-8.0	0.9	-2.2	0.8
Solids	5085	2499	2213	2297	2473	2119	1180	1044	966	-8.0	1.1	-7.1	-2.0
Oil (including refinery gas)	210	80	12	10	23	15	53	45	45	-25.2	7.4	8.5	-1.5
Gas (including derived gases)	357	100	226	227	135	207	290	175	198	-4.5	-5.0	8.0	-3.7
Biomass & Waste	2	2	2	5	42	212	614	929	1106	-0.3	35.2	30.6	6.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2285	1007	783	769	420	477	369	296	262	-10.2	-6.0	-1.3	-3.4
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.3	1.1	0.0
Biofuels and hydrogen production	0	0	0	0	45	74	111	120	132			9.5	1.8
District heating	1755	527	485	511	360	393	250	170	124	-12.1	-2.9	-3.6	-6.8
Derived gases, cokeries etc.	529	479	297	257	14	9	6	5	4	-5.6	-26.2	-7.7	-4.0
Energy Branch Consumption	295	148	179	209	205	203	185	189	188	-4.9	1.3	-1.0	0.1
Non-Energy Uses	69	225	219	230	224	217	217	218	217	12.2	0.2	-0.3	0.0
Final Energy Demand	6392	2627	2445	2854	3275	3539	3749	3896	3998	-9.2	3.0	1.4	0.6
by sector													
Industry	2742	794	531	654	773	834	884	937	971	-15.1	3.8	1.3	0.9
- energy intensive industries	738	430	203	215	227	240	255	269	278	-12.1	1.1	1.2	0.9
- other industrial sectors	2004	364	328	440	546	595	629	668	693	-16.6	5.2	1.4	1.0
Residential	1482	1054	984	977	989	1020	1069	1103	1123	-4.0	0.1	0.8	0.5
Tertiary	1330	289	353	498	624	681	741	782	811	-12.4	5.9	1.7	0.9
Transport	839	490	577	725	889	1004	1055	1073	1093	-3.7	4.4	1.7	0.4
by fuel													
Solids	1059	201	122	102	105	105	109	114	114	-19.5	-1.5	0.4	0.4
Oil	1803	855	748	960	1169	1271	1275	1278	1297	-8.4	4.6	0.9	0.2
Gas	439	202	134	207	251	295	315	343	346	-11.2	6.4	2.3	1.0
Electricity	608	510	506	584	670	740	832	914	1005	-1.8	2.9	2.2	1.9
Heat (from CHP and District Heating)	2086	593	511	547	530	540	554	554	570	-13.1	0.4	0.4	0.3
Renewable energy forms	397	265	424	453	549	587	663	692	665	0.7	2.6	1.9	0.0
Other	0	0	0	0	0	0	0	0	0			16.7	2.5
RES in Gross Final Energy Consumption ^(A)			538	564	779	966	1441	1773	1953		3.8	6.3	3.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	19.8	19.1	15.6	14.1	13.4	-9.1	1.3	-2.3	-1.5
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.1	15.3	11.6	10.7	10.3	-9.7	1.3	-3.2	-1.2
Power generation/District heating	27.9	12.3	10.9	11.2	11.4	10.2	6.4	5.4	5.0	-9.0	0.4	-5.5	-2.5
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	-9.8	3.1	-1.8	-1.5
Industry	4.6	1.7	0.8	0.8	1.1	1.1	1.1	1.1	1.2	-16.0	2.7	0.6	0.4
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.8	0.5	0.4
Tertiary	1.9	0.3	0.3	0.5	0.6	0.7	0.7	0.7	0.7	-17.6	8.5	1.0	0.9
Transport	2.4	1.4	1.7	2.1	2.5	2.8	2.8	2.9	2.9	-3.6	4.0	1.3	0.1
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.2	1.4	1.4	-5.3	9.7	3.3	1.5
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.7	2.7	2.1	1.6	-5.7	-0.3	0.0	-5.1
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	43.9	42.4	34.7	31.4	29.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	330.6	277.0	218.0	192.5	177.6	-7.1	-6.3	-4.1	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.00	2.78	2.26	2.04	1.94	-2.1	0.0	-2.8	-1.5	
Import Dependency %	41.2	34.8	30.0	25.5	37.6	41.5	44.5	40.8	39.3					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	2.9	3.5	4.0	4.3		3.7	3.9	2.0	
as % of GDP			22.2	16.8	14.7	14.7	14.9	14.7	14.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.8	50.0	44.7	41.0	38.4	-12.1	-5.5	-2.4	-1.5	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.4	40.3	36.0	32.4	30.1	-3.6	-7.2	-2.7	-1.8	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	84.1	75.0	69.0	63.1	59.1	-12.4	-1.7	-2.0	-1.5	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.3	28.9	27.7	26.2	25.2	0.2	-0.7	-0.6	-0.9	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.2	21.7	22.1	21.9	22.3	-7.9	1.2	0.9	0.1	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.60	0.53	0.32	0.25	0.22	0.5	-1.3	-6.3	-3.6	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.38	1.39	1.34	1.31	1.29	-3.1	1.0	-0.3	-0.3	
Industry	1.67	2.20	1.51	1.28	1.36	1.36	1.27	1.19	1.21	-1.0	-1.0	-0.7	-0.5	
Residential	1.33	0.44	0.29	0.36	0.34	0.34	0.33	0.34	0.33	-14.2	1.7	-0.3	-0.1	
Tertiary	1.42	0.87	0.77	0.94	0.99	0.97	0.93	0.95	0.92	-5.9	2.5	-0.7	0.0	
Transport	2.89	2.90	2.92	2.94	2.82	2.78	2.70	2.67	2.63	0.1	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	22.3	25.8	36.6	43.4	46.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.4	6.4	9.2	9.9	10.9					
Gross Electricity generation by source (in GWh)														
			8511	10203	11368	11642	12857	14019	15499		2.9	1.2	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9323	8289	5372	5024	4806		2.1	-5.4	-1.1	
Oil (including refinery gas)			51	42	95	62	235	196	200		6.4	9.4	-1.6	
Gas (including derived gases)			787	1000	553	1025	1942	1343	1559		-3.5	13.4	-2.2	
Biomass-waste			57	158	221	966	2859	4341	5256		14.5	29.2	6.3	
Hydro (pumping excluded)			5	22	27	28	29	29	30		18.3	0.9	0.2	
Wind			1	54	1149	1272	2419	3085	3649		102.3	7.7	4.2	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2925	3009	3173	3658	4203		-0.3	0.8	2.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	453	494	1051	1346	1651		72.2	8.8	4.6	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	446	487	1043	1339	1643		86.6	8.9	4.7	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2472	2515	2122	2312	2552		-1.9	-1.5	1.9	
of which cogeneration units			477	513	449	533	747	962	1157		-0.6	5.2	4.5	
Solids fired			2738	2672	2159	2047	996	651	547		-2.3	-7.4	-5.8	
Gas fired			175	200	207	291	626	903	1046		1.7	11.7	5.3	
Oil fired			65	65	66	19	80	91	110		0.2	1.9	3.3	
Biomass-waste fired			19	21	39	158	421	667	849		7.6	26.8	7.3	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	40.3	40.4	43.2	40.8	39.4					
Efficiency of gross thermal power generation (%)			29.8	34.3	32.8	34.8	41.9	42.8	43.9					
% of gross electricity from CHP			17.6	33.1	19.8	25.0	37.9	39.8	42.6					
Carbon free gross electricity generation (%)			0.7	2.3	12.3	19.5	41.3	53.2	57.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	12.3	19.5	41.3	53.2	57.6					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	16.9	17.7	18.5	18.8	-0.3	3.3	1.1	0.6	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.4	2.4	2.4	-5.1	-0.1	-0.6	-0.3	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.1	13.1	13.7	14.3	14.4	4.2	4.6	1.2	0.5	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.5	2.1	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.3	4.7	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.8	23.6	25.6	26.9	27.7	0.5	5.6	2.1	0.8	
Trucks	4.5	1.5	3.9	5.8	8.6	10.8	12.4	13.6	14.3	-1.4	8.1	3.8	1.4	
Rail	7.0	3.8	8.1	10.6	12.3	12.9	13.2	13.3	13.4	1.5	4.2	0.7	0.2	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	889	1004	1055	1073	1093	-3.7	4.4	1.7	0.4	
Public road transport	44	21	25	23	21	20	18	17	16	-5.5	-1.7	-1.2	-1.7	
Private cars and motorcycles	273	263	307	338	385	402	397	384	367	1.2	2.3	0.3	-0.8	
Trucks	414	139	167	263	369	458	514	545	593	-8.7	8.2	3.4	1.4	
Rail	65	44	51	48	54	56	51	44	26	-2.4	0.6	-0.7	-6.4	
Aviation	36	18	20	42	49	56	62	70	79	-5.9	9.6	2.5	2.4	
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.8	0.3	

Source: PRIMES

Estonia: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3322	2954	3350	-147	-493	-281	-4.2	-14.3	-7.7
Solids	5798	2830	3261	2161	1212	974	-546	-1395	-1500	-20.2	-53.5	-60.6
Oil	0	2	331	0	0	0	0	0	0	-277.4	-11.1	596.9
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	450	500	712	1162	1742	2376	399	902	1219	52.3	107.3	105.3
Hydro	0	0	2	2	3	3	0	0	0	8.9	2.3	0.0
Biomass & Waste	450	500	706	1039	1517	2032	327	729	959	45.9	92.5	89.4
Wind	0	0	5	109	208	314	64	162	238	139.6	348.5	315.3
Solar and others	0	0	0	11	15	28	8	11	21	367.4	311.1	357.3
Geothermal	0	0	0	0	0	0	0	0	0	77.3	178.8	309.6
Net Imports	4456	1447	1463	2361	2369	2169	-242	-191	-494	-9.3	-7.5	-18.6
Solids	697	244	27	127	135	124	-2	-5	-10	-1.3	-3.6	-7.7
Oil	3139	626	867	1700	1755	1749	-73	-90	-204	-4.1	-4.9	-10.4
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-3.9	-4.7	-9.8
- Oil products	3139	626	867	1699	1754	1747	-73	-90	-204	-4.1	-4.9	-10.4
Natural gas	1222	662	800	771	796	711	-125	-2	-156	-13.9	-0.2	-18.0
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5510	5136	5318	-388	-684	-775	-6.6	-11.8	-12.7
Solids	6703	3119	3255	2288	1347	1098	-547	-1400	-1510	-19.3	-51.0	-57.9
Oil	2858	510	1090	1527	1568	1547	-73	-90	-203	-4.6	-5.4	-11.6
Natural gas	1222	662	800	771	796	711	-125	-2	-156	-13.9	-0.2	-18.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	1027	1546	2112	357	807	1094	53.2	109.4	107.5
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	41.5	26.2	20.6	-6.5	-21.0	-22.2			
Oil	26.9	10.8	19.4	27.7	30.5	29.1	0.6	2.0	0.4			
Natural gas	11.5	14.1	14.2	14.0	15.5	13.4	-1.2	1.8	-0.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	18.6	30.1	39.7	7.3	17.4	23.0			
Gross Electricity Generation in GWh_e	17178	8511	10203	11642	12857	15499	-1300	-1764	-1588	-10.0	-12.1	-9.3
Self consumption and grid losses	2615	1247	1422	1449	1380	1669	-171	-573	-763	-10.5	-29.3	-31.4
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2552	2137	2316	-521	-814	-754	-17.0	-27.6	-24.6
Solids	5085	2213	2297	2119	1180	966	-530	-1371	-1456	-20.0	-53.8	-60.1
Oil (including refinery gas)	210	12	10	15	53	45	-27	10	-3	-65.1	24.8	-6.3
Gas (including derived gases)	357	226	227	207	290	198	-120	53	-30	-36.6	22.4	-13.1
Biomass & Waste	2	2	5	212	614	1106	156	494	735	275.9	410.4	197.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2285	783	769	477	369	262	21	-35	-151	4.6	-8.6	-36.6
Refineries	1	1	1	1	1	1	0	0	0	-3.9	-4.7	-9.8
Biofuels and hydrogen production	0	0	0	74	111	132	10	28	22	16.5	33.0	19.4
District heating	1755	485	511	393	250	124	10	-62	-173	2.7	-19.9	-58.2
Derived gases, cokeries etc.	529	297	257	9	6	4	0	0	0	1.5	-0.2	0.6
Energy Branch Consumption	295	179	209	203	185	188	-17	-56	-78	-7.6	-23.1	-29.4
Non-Energy Uses	69	219	230	217	217	217	-1	-1	-1	-0.3	-0.3	-0.2
Final Energy Demand	6392	2445	2854	3539	3749	3998	-69	-102	-157	-1.9	-2.7	-3.8
by sector												
Industry	2742	531	654	834	884	971	-24	-49	-84	-2.8	-5.2	-8.0
- energy intensive industries	738	203	215	240	255	278	-12	-18	-21	-4.7	-6.7	-7.1
- other industrial sectors	2004	328	440	595	629	693	-12	-30	-63	-2.1	-4.6	-8.3
Residential	1482	984	977	1020	1069	1123	1	7	15	0.1	0.7	1.3
Tertiary	1330	353	498	681	741	811	-33	-32	-36	-4.7	-4.1	-4.2
Transport	839	577	725	1004	1055	1093	-12	-29	-52	-1.2	-2.7	-4.5
by fuel												
Solids	1059	122	102	105	109	114	-2	-7	-6	-2.1	-5.8	-4.6
Oil	1803	748	960	1271	1275	1297	-43	-98	-190	-3.3	-7.1	-12.8
Gas	439	134	207	295	315	346	3	-6	-33	1.0	-1.8	-8.6
Electricity	608	506	584	740	832	1005	-97	-102	-70	-11.6	-10.9	-6.5
Heat (from CHP and District Heating)	2086	511	547	540	554	570	-36	-38	-14	-6.3	-6.4	-2.3
Renewable energy forms	397	424	453	587	663	665	107	147	155	22.3	28.6	30.5
Other	0	0	0	0	0	0	0	0	0	2.8	2.4	-0.4
RES in Gross Final Energy Consumption ^(A)		538	564	966	1441	1953	333	746	1015	52.6	107.3	108.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	19.1	15.6	13.4	-2.9	-6.2	-7.4	-13.1	-28.4	-35.5
CO₂ Emissions (energy related)	39.2	14.1	15.2	15.3	11.6	10.3	-2.8	-6.1	-7.3	-15.4	-34.4	-41.3
Power generation/District heating	27.9	10.9	11.2	10.2	6.4	5.0	-2.6	-5.7	-6.5	-20.5	-47.0	-56.5
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	-0.1	-11.1	-20.8	-28.5
Industry	4.6	0.8	0.8	1.1	1.1	1.2	-0.1	-0.2	-0.5	-9.9	-16.9	-29.5
Residential	2.0	0.3	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.7	-1.9	-2.1
Tertiary	1.9	0.3	0.5	0.7	0.7	0.7	0.1	0.0	0.0	8.3	7.6	3.3
Transport	2.4	1.7	2.1	2.8	2.8	2.9	-0.1	-0.2	-0.2	-2.2	-5.2	-7.1
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.2	1.4	0.0	0.0	0.0	-3.1	-3.6	-3.0
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.7	2.7	1.6	0.0	-0.1	0.0	-1.5	-2.1	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	42.4	34.7	29.7	-6.4	-13.8	-16.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Estonia: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	277.0	218.0	177.6	-19.5	-29.0	-25.9	-6.6	-11.8	-12.7
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.78	2.26	1.94	-0.29	-0.78	-0.95	-9.5	-25.7	-32.8
Import Dependency %	41.2	30.0	25.5	41.5	44.5	39.3	-1.3	1.9	-3.0			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	2.9	3.5	4.3	0.1	0.3	0.4	3.5	7.9	10.2
as % of GDP		22.2	16.8	14.7	14.9	14.3	0.5	1.1	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.3	0.4						
as % of GDP				0.50	1.10	1.33						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	50.0	44.7	38.4	-1.5	-2.5	-3.3	-2.8	-5.2	-8.0
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	40.3	36.0	30.1	0.1	0.3	0.4	0.1	0.7	1.3
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	75.0	69.0	59.1	-3.7	-3.0	-2.6	-4.7	-4.1	-4.2
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	28.9	27.7	25.2	-0.2	-0.5	-1.0	-0.8	-1.9	-3.8
Freight transport (toe/Mtkm)	41.2	18.0	18.8	21.7	22.1	22.3	-0.2	-0.4	-0.7	-0.7	-1.8	-3.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.53	0.32	0.22	-0.08	-0.22	-0.25	-13.1	-41.1	-53.1
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.39	1.34	1.29	-0.01	-0.05	-0.12	-0.9	-3.9	-8.4
Industry	1.67	1.51	1.28	1.36	1.27	1.21	-0.11	-0.18	-0.37	-7.3	-12.3	-23.4
Residential	1.33	0.29	0.36	0.34	0.33	0.33	0.00	-0.01	-0.01	-0.8	-2.6	-3.3
Tertiary	1.42	0.77	0.94	0.97	0.93	0.92	0.12	0.10	0.07	13.6	12.2	7.8
Transport	2.89	2.92	2.94	2.78	2.70	2.63	-0.03	-0.07	-0.07	-1.0	-2.6	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	25.8	36.6	46.7	9.3	19.6	25.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	9.2	10.9	1.0	2.4	2.1			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11642	12857	15499	15499	-1300	-1764	-1588	-10.0	-12.1	-9.3
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	8289	5372	4806	4806	-1682	-6404	-8296	-16.9	-54.4	-63.3
Oil (including refinery gas)	51	42	62	235	200	200	-111	62	12	-64.2	36.0	6.3
Gas (including derived gases)	787	1000	1025	1942	1559	1559	-925	440	177	-47.4	29.3	12.8
Biomass-waste	57	158	966	2859	5256	5256	675	2258	3749	231.9	375.2	248.8
Hydro (pumping excluded)	5	22	28	29	30	30	2	1	0	8.9	2.3	0.0
Wind	1	54	1272	2419	3649	3649	741	1880	2770	139.6	348.5	315.3
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	3009	3173	4203	4203	79	559	1116	2.7	21.4	36.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	494	1051	1651	1651	285	838	1343	135.8	393.6	436.6
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	487	1043	1643	1643	285	838	1343	140.5	408.0	447.7
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2515	2122	2552	2552	-206	-278	-227	-7.6	-11.6	-8.2
of which cogeneration units	477	513	533	747	1157	1157	0	51	281	0.0	7.3	32.0
Solids fired	2738	2672	2047	996	547	547	-109	-644	-958	-5.1	-39.3	-63.7
Gas fired	175	200	291	626	1046	1046	-189	46	225	-39.4	7.9	27.3
Oil fired	65	65	19	80	110	110	-23	2	1	-54.8	2.3	1.3
Biomass-waste fired	19	21	158	421	849	849	116	318	505	272.2	311.4	146.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	40.4	43.2	39.4	39.4	-5.7	-14.8	-17.5			
Efficiency of gross thermal power generation (%)	29.8	34.3	34.8	41.9	43.9	43.9	0.2	0.9	-1.4			
% of gross electricity from CHP	17.6	33.1	25.0	37.9	42.6	42.6	-1.7	10.5	17.8			
Carbon free gross electricity generation (%)	0.7	2.3	19.5	41.3	57.6	57.6	12.9	33.3	43.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	19.5	41.3	57.6	57.6	12.9	33.3	43.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.9	17.7	18.8	-0.1	-0.2	-0.3	-0.5	-1.1	-1.5
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.4	2.4	0.0	0.0	0.0	0.3	0.8	1.0
Rail	5.1	7.7	10.1	13.1	13.7	14.4	-0.1	-0.2	-0.2	-0.6	-1.3	-1.7
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.1	0.6	1.1
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	-0.1	-4.6	-6.1	-6.8
Inland navigation	0.6	0.4	0.4	0.5	0.5	0.5	0.0	0.0	0.0	0.1	0.4	0.6
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.6	25.6	27.7	-0.1	-0.2	-0.3	-0.4	-0.7	-0.9
Rail	4.5	3.9	5.8	10.8	12.4	14.3	-0.1	-0.2	-0.3	-1.0	-1.7	-2.2
Inland navigation	7.0	8.1	10.6	12.9	13.2	13.4	0.0	0.0	0.1	0.2	0.4	0.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	839	577	725	1004	1055	1093	-12	-29	-52	-1.2	-2.7	-4.5
Private cars and motorcycles	44	25	23	20	18	16	0	0	0	0.1	0.1	-1.7
Trucks	273	307	338	402	397	367	-3	-6	-10	-0.7	-1.5	-2.6
Rail	414	167	263	458	514	593	-6	-14	-26	-1.2	-2.7	-4.2
Aviation	65	51	48	56	51	26	0	0	0	0.2	0.2	-1.0
Inland navigation	36	20	42	56	62	79	-4	-9	-16	-6.8	-12.7	-17.0
Inland navigation	7	7	11	11	12	12	0	0	0	0.0	0.3	0.3

Source: PRIMES

Finland: EC proposal with RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16957	20695	23264	24726	25668	2.4	1.2	3.2	1.0	
Solids	1581	2061	1207	2129	1643	1586	1620	1269	786	-2.7	3.1	-0.1	-7.0	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8817	1.5	0.4	4.0	-0.2	
Renewable energy sources	5273	6133	7959	8124	9260	10116	12650	14464	16065	4.2	1.5	3.2	2.4	
Hydro	934	1111	1261	1185	1208	1218	1221	1228	1234	3.0	-0.4	0.1	0.1	
Biomass & Waste	4338	5021	6691	6924	7958	8768	11201	12865	14226	4.4	1.7	3.5	2.4	
Wind	0	1	7	15	84	94	144	246	468		28.7	5.6	12.5	
Solar and others	0	0	1	1	11	36	84	125	137	3.8	34.8	22.6	5.0	
Geothermal	0	0	0	0	0	0	0	0	0			7.3	2.8	
Net Imports	18031	15542	18512	19163	18664	16724	13992	11997	10976	0.3	0.1	-2.8	-2.4	
Solids	4378	3774	3533	3338	3796	3345	2446	1614	1064	-2.1	0.7	-4.3	-8.0	
Oil	10477	8205	10535	10844	9701	9291	8600	8168	7975	0.1	-0.8	-1.2	-0.8	
- Crude oil and Feedstocks	8890	8548	12115	11017	11557	11308	10879	10602	10477	3.1	-0.5	-0.6	-0.4	
- Oil products	1587	-343	-1580	-173	-1856	-2017	-2279	-2434	-2503					
Natural gas	2261	2839	3422	3598	3877	3016	2452	1816	1472	4.2	1.3	-4.5	-5.0	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	35120	36917	36754	36220	36138	1.2	0.8	0.5	-0.2	
Solids	5327	5950	5087	4925	5439	4930	4066	2883	1850	-0.5	0.7	-2.9	-7.6	
Oil	9939	8344	9195	10482	9200	8789	8098	7664	7469	-0.8	0.0	-1.3	-0.8	
Natural gas	2261	2839	3422	3598	3877	3016	2452	1816	1472	4.2	1.3	-4.5	-5.0	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8817	1.5	0.4	4.0	-0.2	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9171	10017	12524	14318	15904	3.8	1.4	3.2	2.4	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.5	13.4	11.1	8.0	5.1					
Oil	34.3	28.8	28.3	30.4	26.2	23.8	22.0	21.2	20.7					
Natural gas	7.8	9.8	10.5	10.4	11.0	8.2	6.7	5.0	4.1					
Nuclear	17.3	17.1	17.9	17.4	17.2	24.4	24.5	24.8	24.4					
Renewable energy forms	19.0	21.2	24.5	23.3	26.1	27.1	34.1	39.5	44.0					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	75845	83633	98177	101006	110409	2.6	0.8	2.6	1.2	
Self consumption and grid losses	5547	6510	5449	5710	6341	7206	8761	9376	10865	-0.2	1.5	3.3	2.2	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6889	6416	7704	7804	8297	2.4	0.0	1.1	0.7	
Solids	3216	3882	3168	2974	3529	3061	2334	1276	402	-0.1	1.1	-4.1	-16.1	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8			
Gas (including derived gases)	1015	1581	2106	2384	2174	1406	1122	684	480	7.6	0.3	-6.4	-8.1	
Biomass & Waste	926	996	1518	2073	1187	1949	4248	5844	7415	5.1	-2.4	13.6	5.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15446	15269	14744	14278	13746	2.4	0.1	-0.5	-0.7	
Refineries	10689	12029	13200	13194	11991	11748	11325	11051	10925	2.1	-1.0	-0.6	-0.4	
Biofuels and hydrogen production	0	0	0	0	101	252	390	439	506			14.4	2.6	
District heating	573	548	803	954	2091	2050	1957	1865	1447	3.4	10.0	-0.7	-3.0	
Derived gases, cokeries etc.	793	1451	1306	1325	1264	1219	1072	922	868	5.1	-0.3	-1.6	-2.1	
Energy Branch Consumption	781	965	1285	1228	1211	1205	1249	1279	1319	5.1	-0.6	0.3	0.5	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26292	26411	26245	25753	25770	1.1	0.8	0.0	-0.2	
by sector														
Industry	9618	9988	12053	11988	12602	12651	12519	12701	12767	2.3	0.4	-0.1	0.2	
- energy intensive industries	7351	7628	9456	9067	9411	9363	9201	9315	9347	2.6	0.0	-0.2	0.2	
- other industrial sectors	2267	2359	2596	2921	3191	3288	3318	3385	3420	1.4	2.1	0.4	0.3	
Residential	5321	5418	4536	4846	5049	5095	5057	4545	4482	-1.6	1.1	0.0	-1.2	
Tertiary	2479	2484	3127	3471	3588	3592	3617	3483	3463	2.3	1.4	0.1	-0.4	
Transport	4309	4151	4443	4816	5054	5073	5052	5025	5058	0.3	1.3	0.0	0.0	
by fuel														
Solids	1621	1277	1099	966	1031	984	944	918	822	-3.8	-0.6	-0.9	-1.4	
Oil	8100	7563	7507	7890	7308	6899	6457	6165	6022	-0.8	-0.3	-1.2	-0.7	
Gas	1501	1523	1328	1156	1518	1487	965	708	679	-1.2	1.3	-4.4	-3.4	
Electricity	5068	5608	6487	6959	7278	7665	8234	8351	9113	2.5	1.2	1.2	1.0	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3903	4091	4202	4149	3699	3.8	3.5	0.7	-1.3	
Renewable energy forms	3522	3944	4957	4552	5254	5285	5442	5461	5433	3.5	0.6	0.4	0.0	
Other	0	0	0	0	0	1	1	2	2			13.3	2.0	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8652	9314	11583	13050	14409		1.2	3.0	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.9	62.5	54.9	46.1	39.5	-0.3	-0.2	-2.3	-3.2	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	54.2	48.8	42.1	34.6	29.0	-0.1	0.1	-2.5	-3.6	
Power generation/District heating	17.8	21.8	20.2	20.5	21.7	17.9	14.2	8.9	4.4	1.3	0.7	-4.1	-11.1	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	2.0	1.6	1.5	7.0	-1.6	-1.4	-3.0	
Industry	14.1	12.4	12.5	11.8	10.8	10.3	8.4	7.0	6.4	-1.2	-1.4	-2.6	-2.6	
Residential	6.4	5.9	2.3	2.1	1.9	1.5	1.1	0.9	0.8	-9.6	-2.2	-4.9	-3.6	
Tertiary	2.1	1.7	3.0	3.0	2.9	2.7	2.4	2.5	2.4	3.8	-0.3	-1.8	-0.1	
Transport	12.7	12.2	13.1	14.2	14.6	14.3	13.9	13.7	13.6	0.3	1.1	-0.5	-0.2	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.8	3.5	3.3	3.1	0.1	-0.1	-1.1	-1.1	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.9	9.3	8.1	7.3	-1.2	-1.6	-1.5	-2.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	95.0	86.1	75.7	63.5	54.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	191.7	182.2	166.1	151.0	141.8	-0.8	-1.9	-1.4	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.32	1.14	0.96	0.80	-1.3	-0.7	-2.9	-3.5
Import Dependency %	61.1	53.1	55.8	54.7	52.4	44.7	37.6	32.7	30.0				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.0	21.2	24.6	27.7	30.6		3.1	2.6	2.2
as % of GDP			10.1	10.5	10.4	10.5	11.1	11.5	12.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	66.0	60.0	56.5	54.0	-2.9	-3.1	-2.0	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	83.4	77.2	71.0	59.5	55.4	-2.7	-1.8	-1.6	-2.4
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	90.6	82.0	75.2	66.3	61.5	1.0	-1.0	-1.9	-2.0
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.3	31.3	30.0	29.5	-0.3	0.3	-0.7	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.2	43.1	41.4	40.2	39.3	-1.7	0.4	-0.7	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.13	0.09	0.06	0.03	-1.6	-1.1	-5.8	-11.4
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.15	1.09	0.98	0.94	0.90	-2.3	-1.1	-1.5	-0.9
Industry	1.46	1.24	1.03	0.98	0.86	0.81	0.67	0.55	0.50	-3.4	-1.8	-2.5	-2.8
Residential	1.21	1.09	0.52	0.43	0.37	0.29	0.22	0.20	0.18	-8.1	-3.3	-4.9	-2.4
Tertiary	0.84	0.70	0.96	0.86	0.81	0.74	0.67	0.72	0.69	1.4	-1.7	-1.9	0.3
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	31.8	34.0	42.5	48.7	53.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.2	8.2	9.5				
Gross Electricity generation by source (in GWh)													
			69976	70536	75845	83633	98177	101006	110409		0.8	2.6	1.2
Nuclear energy			22475	23267	23470	36243	36243	36243	36539		0.4	4.4	0.1
Solids			10359	9486	13572	9679	9528	5543	2809		2.7	-3.5	-11.5
Oil (including refinery gas)			444	419	471	350	267	267	125		0.6	-5.5	-7.3
Gas (including derived gases)			10776	11400	11586	7352	7505	5648	5474		0.7	-4.2	-3.1
Biomass-waste			11185	12010	11719	14745	28740	36136	45639		0.5	9.4	4.7
Hydro (pumping excluded)			14657	13782	14046	14160	14198	14282	14348		-0.4	0.1	0.1
Wind			78	170	975	1093	1677	2859	5438		28.7	5.6	12.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18315	18644	19923	20412	23203		0.7	0.8	1.5
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	4236		0.0	4.6	0.1
<u>Renewable energy</u>			3057	3104	3456	3533	3834	4284	5232		1.2	1.0	3.2
Hydro (pumping excluded)			3016	3018	3096	3112	3137	3156	3171		0.3	0.1	0.1
Wind			38	82	352	408	674	1093	2017		24.9	6.7	11.6
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12168	10904	11882	11921	13735		0.7	-0.2	1.5
of which cogeneration units			7129	7583	6840	7167	9411	9594	10113		-0.4	3.2	0.7
Solids fired			5539	5687	5630	4575	2940	2147	1383		0.2	-6.3	-7.3
Gas fired			2479	2444	2753	2659	2631	2486	4282		1.1	-0.5	5.0
Oil fired			1341	1340	1341	602	546	448	176		0.0	-8.6	-10.7
Biomass-waste fired			1942	2247	2444	3068	5765	6841	7895		2.3	9.0	3.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.3	49.0	53.6	53.5	51.4				
Efficiency of gross thermal power generation (%)			40.7	38.0	46.6	43.1	51.4	52.4	56.0				
% of gross electricity from CHP			44.9	45.7	44.4	36.8	46.2	46.8	47.7				
Carbon free gross electricity generation (%)			69.2	69.8	66.2	79.2	82.4	88.7	92.4				
- nuclear			32.1	33.0	30.9	43.3	36.9	35.9	33.1				
- renewable energy forms			37.0	36.8	35.3	35.9	45.5	52.8	59.3				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.7	99.1	102.7	106.5	109.4	0.8	1.6	0.8	0.6
Public road transport	8.5	8.0	7.7	7.4	7.5	7.7	8.0	8.3	8.4	-1.0	-0.2	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.6	71.4	73.1	74.8	75.6	0.9	1.9	0.6	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.4	4.8	5.3	5.6	0.6	0.7	1.4	1.6
Aviation	5.3	6.1	7.9	8.6	9.7	10.8	12.0	13.4	14.9	4.1	2.1	2.2	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.1	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.5	43.4	44.3	45.6	46.5	1.7	0.0	0.4	0.5
Trucks	26.3	24.5	32.0	31.9	32.4	33.0	33.4	33.9	34.4	2.0	0.1	0.3	0.3
Rail	8.4	9.6	10.1	9.7	10.0	10.2	10.8	11.5	11.9	1.9	-0.1	0.8	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5054	5073	5052	5025	5058	0.3	1.3	0.0	0.0
Public road transport	97	84	55	57	58	57	58	57	56	-5.4	0.4	0.0	-0.2
Private cars and motorcycles	1840	1867	1904	2137	2293	2280	2270	2214	2220	0.3	1.9	-0.1	-0.2
Trucks	1699	1557	1715	1764	1786	1771	1738	1739	1759	0.1	0.4	-0.3	0.1
Rail	99	102	94	97	101	103	101	99	74	-0.6	0.7	0.0	-3.1
Aviation	459	408	505	565	624	671	695	725	759	1.0	2.1	1.1	0.9
Inland navigation	116	134	170	195	192	191	191	191	190	3.9	1.2	0.0	0.0

Source: PRIMES

Finland: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20695	23264	25668	1228	2691	4396	6.3	13.1	20.7
Solids	1581	1207	2129	1586	1620	786	-94	-133	-919	-5.6	-7.6	-53.9
Oil	0	37	205	0	0	0	0	0	0	-280.5	1998.2	738.4
Natural gas	0	0	0	0	0	0	0	0	0	0.0	0.0	13.3
Nuclear	5006	5799	6003	8994	8994	8817	0	0	1036	0.0	0.0	13.3
Renewable energy sources	5273	7959	8124	10116	12650	16065	1321	2824	4279	15.0	28.7	36.3
Hydro	934	1261	1185	1218	1221	1234	24	19	0	2.0	1.6	0.0
Biomass & Waste	4338	6691	6924	8768	11201	14226	1233	2667	3836	16.4	31.3	36.9
Wind	0	7	15	94	144	468	37	72	339	66.1	100.5	264.7
Solar and others	0	1	1	36	84	137	27	65	103	310.0	338.0	302.3
Geothermal	0	0	0	0	0	0	0	0	0	75.2	146.4	219.2
Net Imports	18031	18512	19163	16724	13992	10976	-2490	-4547	-6355	-13.0	-24.5	-36.7
Solids	4378	3533	3338	3345	2446	1064	-809	-1579	-2513	-19.5	-39.2	-70.3
Oil	10477	10535	10844	9291	8600	7975	-360	-716	-1083	-3.7	-7.7	-12.0
- Crude oil and Feedstocks	8890	12115	11017	11308	10879	10477	-216	-442	-685	-1.9	-3.9	-6.1
- Oil products	1587	-1580	-173	-2017	-2279	-2503	-143	-274	-398	7.7	13.7	18.9
Natural gas	2261	3422	3598	3016	2452	1472	-1307	-2223	-2716	-30.2	-47.5	-64.9
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	36917	36754	36138	-1262	-1856	-1958	-3.3	-4.8	-5.1
Solids	5327	5087	4925	4930	4066	1850	-903	-1712	-3432	-15.5	-29.6	-65.0
Oil	9939	9195	10482	8789	8098	7469	-359	-715	-1082	-3.9	-8.1	-12.7
Natural gas	2261	3422	3598	3016	2452	1472	-1307	-2223	-2716	-30.2	-47.5	-64.9
Nuclear	5006	5799	6003	8994	8994	8817	0	0	1036	0.0	0.0	13.3
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	10017	12524	15904	1308	2794	4236	15.0	28.7	36.3
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	13.4	11.1	5.1	-1.9	-3.9	-8.7			
Oil	34.3	28.3	30.4	23.8	22.0	20.7	-0.2	-0.8	-1.8			
Natural gas	7.8	10.5	10.4	8.2	6.7	4.1	-3.2	-5.4	-6.9			
Nuclear	17.3	17.9	17.4	24.4	24.5	24.4	0.8	1.2	4.0			
Renewable energy forms	19.0	24.5	23.3	27.1	34.1	44.0	4.3	8.9	13.4			
Gross Electricity Generation in GWh_e	54367	69976	70536	83633	98177	110409	-5911	-2828	2140	-6.6	-2.8	2.0
Self consumption and grid losses	5547	5449	5710	7206	8761	10865	-506	80	222	-6.6	0.9	2.1
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6416	7704	8297	-582	-681	-1275	-8.3	-8.1	-13.3
Solids	3216	3168	2974	3061	2334	402	-933	-1559	-3178	-23.4	-40.1	-88.8
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	8.7	-100.0
Gas (including derived gases)	1015	2106	2384	1406	1122	480	-827	-1610	-2007	-37.0	-58.9	-80.7
Biomass & Waste	926	1518	2073	1949	4248	7415	1178	2489	3910	152.8	141.6	111.6
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Fuel Input to other conversion processes	12055	15309	15473	15269	14744	13746	-661	-971	-1459	-4.1	-6.2	-9.6
Refineries	10689	13200	13194	11748	11325	10925	-216	-442	-685	-1.8	-3.8	-5.9
Biofuels and hydrogen production	0	0	0	252	390	506	28	79	55	12.4	25.5	12.3
District heating	573	803	954	2050	1957	1447	-517	-568	-754	-20.2	-22.5	-34.3
Derived gases, cokeries etc.	793	1306	1325	1219	1072	868	45	-41	-75	3.8	-3.7	-7.9
Energy Branch Consumption	781	1285	1228	1205	1249	1319	-57	-46	-73	-4.5	-3.6	-5.3
Non-Energy Uses	1441	896	1095	1212	1233	1258	0	-1	0	0.0	0.0	0.0
Final Energy Demand	21727	24159	25121	26411	26245	25770	-861	-1396	-2150	-3.2	-5.1	-7.7
by sector												
Industry	9618	12053	11988	12651	12519	12767	-286	-556	-396	-2.2	-4.3	-3.0
- energy intensive industries	7351	9456	9067	9363	9201	9347	-228	-451	-327	-2.4	-4.7	-3.4
- other industrial sectors	2267	2596	2921	3288	3318	3420	-59	-104	-69	-1.8	-3.0	-2.0
Residential	5321	4536	4846	5095	5057	4482	-160	-273	-895	-3.0	-5.1	-16.6
Tertiary	2479	3127	3471	3592	3617	3463	-253	-288	-498	-6.6	-7.4	-12.6
Transport	4309	4443	4816	5073	5052	5058	-162	-280	-362	-3.1	-5.2	-6.7
by fuel												
Solids	1621	1099	966	984	944	822	-26	-117	-212	-2.6	-11.0	-20.5
Oil	8100	7507	7890	6899	6457	6022	-311	-540	-877	-4.3	-7.7	-12.7
Gas	1501	1328	1156	1487	965	679	-68	-352	-313	-4.4	-26.7	-31.6
Electricity	5068	6487	6959	7665	8234	9113	-463	-247	171	-5.7	-2.9	1.9
Heat (from CHP and District Heating)	1915	2780	3597	4091	4202	3699	-201	-502	-1093	-4.7	-10.7	-22.8
Renewable energy forms	3522	4957	4552	5285	5442	5433	208	362	176	4.1	7.1	3.3
Other	0	0	0	1	1	2	0	0	-1	4.7	3.2	-27.6
RES in Gross Final Energy Consumption ^(A)		7701	7458	9314	11583	14409	1076	2531	3703	13.1	28.0	34.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	62.5	54.9	39.5	-8.8	-15.7	-24.9	-12.3	-22.2	-38.7
CO₂ Emissions (energy related)	54.4	53.8	54.1	48.8	42.1	29.0	-7.8	-14.1	-23.2	-13.7	-25.1	-44.5
Power generation/District heating	17.8	20.2	20.5	17.9	14.2	4.4	-6.5	-10.9	-18.4	-26.6	-43.4	-80.7
Energy Branch	1.4	2.7	2.5	2.2	2.0	1.5	-0.1	-0.2	-0.6	-3.7	-9.4	-29.7
Industry	14.1	12.5	11.8	10.3	8.4	6.4	-0.3	-1.3	-1.7	-2.5	-13.9	-20.9
Residential	6.4	2.3	2.1	1.5	1.1	0.8	-0.2	-0.2	-0.7	-9.4	-17.4	-46.2
Tertiary	2.1	3.0	3.0	2.7	2.4	2.4	-0.2	-0.3	-0.6	-7.1	-11.4	-19.8
Transport	12.7	13.1	14.2	14.3	13.9	13.6	-0.6	-1.1	-1.3	-3.8	-7.0	-8.6
CO₂ Emissions (non energy related)	3.9	3.9	3.9	3.8	3.5	3.1	-0.1	-0.3	-0.5	-1.9	-7.9	-14.6
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.9	9.3	7.3	-1.0	-1.3	-1.2	-8.8	-12.0	-13.7
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	86.1	75.7	54.4	-12.1	-21.6	-34.4			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Finland: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	182.2	166.1	141.8	-6.2	-8.4	-7.7	-3.3	-4.8	-5.1
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.32	1.14	0.80	-0.16	-0.31	-0.57	-10.8	-21.3	-41.5
Import Dependency %	61.1	55.8	54.7	44.7	37.6	30.0	-5.0	-9.8	-14.9			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.2	24.6	30.6	0.5	1.1	2.1	2.4	4.9	7.3
as % of GDP		10.1	10.5	10.5	11.1	12.0	0.2	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.2	2.1						
as % of GDP				0.25	0.53	0.83						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	66.0	60.0	54.0	-1.5	-2.7	-1.7	-2.2	-4.3	-3.0
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	77.2	71.0	55.4	-2.4	-3.8	-11.1	-3.0	-5.1	-16.6
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	82.0	75.2	61.5	-5.8	-6.0	-8.8	-6.6	-7.4	-12.6
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.3	31.3	29.5	-0.4	-0.7	-1.2	-1.4	-2.3	-3.9
Freight transport (toe/Mtkm)	50.4	42.6	44.5	43.1	41.4	39.3	-1.2	-2.3	-2.3	-2.7	-5.3	-5.4
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.13	0.09	0.03	-0.04	-0.06	-0.11	-22.0	-40.1	-79.3
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.09	0.98	0.90	-0.01	-0.06	-0.08	-0.8	-5.5	-8.5
Industry	1.46	1.03	0.98	0.81	0.67	0.50	0.00	-0.07	-0.11	-0.3	-10.0	-18.5
Residential	1.21	0.52	0.43	0.29	0.22	0.18	-0.02	-0.03	-0.10	-6.6	-12.9	-35.5
Tertiary	0.84	0.96	0.86	0.74	0.67	0.69	0.00	-0.03	-0.06	-0.5	-4.4	-8.2
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.05	-0.06	-0.7	-1.9	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	34.0	42.5	53.7	4.9	10.9	16.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.2	9.5	0.6	1.8	1.6			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	83633	98177	110409	110409	-5911	-2828	2140	-6.6	-2.8	2.0
Nuclear energy	22475	23267	36243	36243	36539	36539	0	0	4718	0.0	0.0	14.8
Solids	10359	9486	9679	9528	2809	2809	-4823	-5653	-11876	-33.3	-37.2	-80.9
Oil (including refinery gas)	444	419	350	267	125	125	-83	-61	25	-19.2	-18.7	25.4
Gas (including derived gases)	10776	11400	7352	7505	5474	5474	-4926	-9052	-11310	-40.1	-54.7	-67.4
Biomass-waste	11185	12010	14745	28740	45639	45639	3213	10879	16637	27.9	60.9	57.4
Hydro (pumping excluded)	14657	13782	14160	14198	14348	14348	274	219	0	2.0	1.6	0.0
Wind	78	170	1093	1677	5438	5438	435	841	3947	66.1	100.5	264.7
Solar	2	3	11	18	35	35	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18644	19923	23203	23203	39	-216	1788	0.2	-1.1	8.4
<u>Nuclear energy</u>	2687	2690	4207	4207	4236	4236	0	0	545	0.0	0.0	14.8
<u>Renewable energy</u>	3057	3104	3533	3834	5232	5232	181	387	1477	5.4	11.2	39.3
Hydro (pumping excluded)	3016	3018	3112	3137	3171	3171	40	40	40	1.3	1.3	1.3
Wind	38	82	408	674	2017	2017	141	347	1437	52.9	106.3	247.7
Solar	3	4	14	23	44	44	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10904	11882	13735	13735	-142	-603	-233	-1.3	-4.8	-1.7
of which cogeneration units	7129	7583	7167	9411	10113	10113	-46	354	-577	-0.6	3.9	-5.4
Solids fired	5539	5687	4575	2940	1383	1383	-473	-903	-1549	-9.4	-23.5	-52.8
Gas fired	2479	2444	2659	2631	4282	4282	-333	-1787	-1260	-11.1	-40.4	-22.7
Oil fired	1341	1340	602	546	176	176	-98	-121	-189	-14.0	-18.2	-51.8
Biomass-waste fired	1942	2247	3068	5765	7895	7895	762	2208	2765	33.1	62.1	53.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.0	53.6	51.4	51.4	-3.6	-1.1	-3.2			
Efficiency of gross thermal power generation (%)	40.7	38.0	43.1	51.4	56.0	56.0	-4.6	0.2	1.6			
% of gross electricity from CHP	44.9	45.7	36.8	46.2	47.7	47.7	-2.0	-0.3	-5.7			
Carbon free gross electricity generation (%)	69.2	69.8	79.2	82.4	92.4	92.4	9.6	14.1	21.5			
- nuclear	32.1	33.0	43.3	36.9	33.1	33.1	2.9	1.0	3.7			
- renewable energy forms	37.0	36.8	35.9	45.5	59.3	59.3	6.7	13.1	17.8			
Transport sector												
Passenger transport activity (Gpkm)	74.8	81.0	88.2	99.1	102.7	109.4	-1.2	-1.9	-2.5	-1.2	-1.8	-2.3
Public road transport	8.5	7.7	7.4	7.7	8.0	8.4	0.1	0.1	0.2	1.3	1.8	2.2
Private cars and motorcycles	51.9	56.6	63.4	71.4	73.1	75.6	-0.8	-1.4	-1.9	-1.2	-1.8	-2.4
Rail	3.7	3.9	4.0	4.4	4.8	5.6	0.0	0.1	0.2	1.1	1.5	2.9
Aviation	5.3	7.9	8.6	10.8	12.0	14.9	-0.5	-0.7	-1.0	-4.1	-5.6	-6.3
Inland navigation	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.4	-0.3	-0.2
Freight transport activity (Gtkm)	35.8	42.4	41.8	43.4	44.3	46.5	-0.6	-1.0	-1.2	-1.5	-2.1	-2.5
Trucks	26.3	32.0	31.9	33.0	33.4	34.4	-0.8	-1.3	-1.6	-2.5	-3.6	-4.5
Rail	8.4	10.1	9.7	10.2	10.8	11.9	0.2	0.3	0.4	2.0	2.7	3.6
Inland navigation	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.3
Energy demand in transport (ktoe)	4309	4443	4816	5073	5052	5058	-162	-280	-362	-3.1	-5.2	-6.7
Public road transport	97	55	57	57	58	56	0	-1	-3	-0.2	-1.1	-4.8
Private cars and motorcycles	1840	1904	2137	2280	2270	2220	-47	-76	-122	-2.0	-3.2	-5.2
Trucks	1699	1715	1764	1771	1738	1759	-81	-145	-153	-4.4	-7.7	-8.0
Rail	99	94	97	103	101	74	1	0	-1	1.2	-0.3	-1.9
Aviation	459	505	565	671	695	759	-34	-56	-79	-4.8	-7.5	-9.5
Inland navigation	116	170	195	191	191	190	-1	-2	-3	-0.6	-0.8	-1.5

Source: PRIMES

France: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	139125	149990	156089	160802	160643	1.8	0.5	1.2	0.3	
Solids	7625	5359	2267	383	393	215	1	0	0	-11.4	-16.1	-43.9	-12.2	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	118930	2.8	0.9	0.5	-0.3	
Renewable energy sources	15778	17903	18065	16695	22143	27501	33691	37670	41713	1.4	2.1	4.3	2.2	
Hydro	4635	6322	5822	4491	5870	5842	5889	6074	6110	2.3	0.1	0.0	0.4	
Biomass & Waste	11014	11434	12087	11968	15112	18521	23053	25226	26231	0.9	2.3	4.3	1.3	
Wind	0	0	7	82	762	1480	2263	3768	6532		60.7	11.5	11.2	
Solar and others	19	15	26	24	219	1379	2226	2366	2647	2.8	23.9	26.1	1.7	
Geothermal	110	132	124	130	179	278	260	237	192	1.2	3.8	3.8	-3.0	
Net Imports	120027	116049	133463	143600	138039	127370	121317	117472	111359	1.1	0.3	-1.3	-0.9	
Solids	13004	9010	13201	13660	13269	7022	6718	6683	5631	0.2	0.1	-6.6	-1.8	
Oil	86558	85551	90452	94460	92386	90630	87116	85263	83482	0.4	0.2	-0.6	-0.4	
- Crude oil and Feedstocks	76007	78951	84375	84707	84832	83992	82318	81407	80526	1.0	0.1	-0.3	-0.2	
- Oil products	10551	6600	6077	9753	7554	6637	4798	3856	2955	-5.4	2.2	-4.4	-4.7	
Natural gas	24371	27493	35778	40720	37683	34904	31867	28592	24339	3.9	0.5	-1.7	-2.7	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274253	274313	274246	274994	268603	1.3	0.6	0.0	-0.2	
Solids	19955	15287	15240	14428	13662	7237	6720	6684	5631	-2.7	-1.1	-6.8	-1.8	
Oil	87673	85826	88790	92086	89476	87583	83956	81983	80082	0.1	0.1	-0.6	-0.5	
Natural gas	26032	29577	35766	40996	37683	34904	31867	28592	24339	3.2	0.5	-1.7	-2.7	
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	118930	2.8	0.9	0.5	-0.3	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	22073	27415	33584	37553	41592	1.4	2.0	4.3	2.2	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	5.0	2.6	2.5	2.4	2.1					
Oil	38.7	35.8	34.3	33.4	32.6	31.9	30.6	29.8	29.8					
Natural gas	11.5	12.3	13.8	14.9	13.7	12.7	11.6	10.4	9.1					
Nuclear	35.8	40.6	41.4	42.3	42.5	44.6	44.6	44.8	44.3					
Renewable energy forms	7.0	7.5	7.0	6.0	8.0	10.0	12.2	13.7	15.5					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	586388	600315	627912	680429	728292	2.6	0.9	0.7	1.5	
Self consumption and grid losses	48047	53203	56438	59733	57987	58015	60854	72208	82436	1.6	0.3	0.5	3.1	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	10494	5499	7816	11166	11106	1.7	-2.2	-2.9	3.6	
Solids	7334	5441	6231	6402	6171	254	429	690	208	-1.6	-0.1	-23.4	-7.0	
Oil (including refinery gas)	1921	605	1272	1653	0	0	0	13	1	-4.0				
Gas (including derived gases)	1423	1216	4062	6291	2566	1651	841	995	923	11.1	-4.5	-10.6	0.9	
Biomass & Waste	439	1224	1565	1640	1756	3594	6547	9468	9974	13.6	1.2	14.1	4.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	95376	95628	94618	93838	92951	0.8	-0.2	-0.1	-0.2	
Refineries	79634	83057	90084	87693	86417	85624	83990	83130	82291	1.2	-0.4	-0.3	-0.2	
Biofuels and hydrogen production	0	155	328	434	2232	3620	5167	5676	6027		21.1	8.8	1.6	
District heating	1019	605	312	273	262	260	259	224	205	-11.1	-1.7	-0.1	-2.3	
Derived gases, cokeries etc.	8896	7079	6668	5837	6465	6123	5202	4808	4427	-2.8	-0.3	-2.1	-1.6	
Energy Branch Consumption	9230	10345	10689	10095	9245	7417	7031	7290	7586	1.5	-1.4	-2.7	0.8	
Non-Energy Uses	13272	16593	15672	15786	16411	17110	17690	18243	18734	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	159997	160679	159125	157345	155368	1.1	0.5	-0.1	-0.2	
by sector														
Industry	36205	36949	36579	35580	36265	37194	37286	37173	37452	0.1	-0.1	0.3	0.0	
- energy intensive industries	24279	21310	22143	20671	20793	20894	20531	20160	20027	-0.9	-0.6	-0.1	-0.2	
- other industrial sectors	11926	15639	14436	14909	15472	16301	16755	17013	17426	1.9	0.7	0.8	0.4	
Residential	36375	36198	42516	45491	46033	45504	44555	42935	41181	1.6	0.8	-0.3	-0.8	
Tertiary	21726	24164	21620	25696	26581	25627	24949	24327	23465	0.0	2.1	-0.6	-0.6	
Transport	41908	44125	51599	49756	51119	52354	52335	52909	53269	2.1	-0.1	0.2	0.2	
by fuel														
Solids	9017	6905	5775	4685	4061	3735	3633	3566	3172	-4.4	-3.5	-1.1	-1.3	
Oil	67377	67964	71964	71245	72030	70021	66221	64003	62078	0.7	0.0	-0.8	-0.6	
Gas	23400	27098	30880	33902	32907	30686	28037	24654	21295	2.8	0.6	-1.6	-2.7	
Electricity	25960	29456	33096	36330	37799	40467	43438	48304	52507	2.5	1.3	1.4	1.9	
Heat (from CHP and District Heating)	774	459	237	207	230	234	246	229	214	-11.1	-0.3	0.7	-1.4	
Renewable energy forms	9686	9553	10364	10153	12968	15528	17536	16572	16084	0.7	2.3	3.1	-0.9	
Other	0	0	0	0	4	8	15	17	17			14.5	1.7	
RES in Gross Final Energy Consumption (A)			16928	15420	21168	26086	31721	35292	39031		2.3	4.1	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	529.9	481.4	455.3	431.2	404.3	-0.1	-0.6	-1.5	-1.2	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	358.7	319.6	298.5	283.6	262.6	0.6	-0.4	-1.8	-1.3	
Power generation/District heating	40.1	27.6	39.6	46.7	31.7	6.2	5.0	6.4	4.2	-0.1	-2.2	-16.9	-1.7	
Energy Branch	17.1	19.1	19.6	16.6	14.1	13.2	12.0	10.7	7.3	1.4	-3.2	-1.6	-4.8	
Industry	79.1	76.1	70.1	66.0	67.0	65.7	61.6	59.7	56.4	-1.2	-0.5	-0.8	-0.9	
Residential	55.2	52.2	61.5	64.8	61.6	54.8	48.8	39.0	30.6	1.1	0.0	-2.3	-4.5	
Tertiary	39.2	40.9	32.1	39.2	38.9	34.1	29.8	26.3	23.1	-2.0	2.0	-2.6	-2.5	
Transport	122.1	129.0	150.6	145.2	145.3	145.5	141.4	141.5	141.0	2.1	-0.4	-0.3	0.0	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.8	29.9	29.1	28.4	27.8	-1.8	0.0	-0.6	-0.5	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	132.0	127.6	119.2	113.9	-1.1	-1.1	-0.9	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	93.8	85.2	80.6	76.3	71.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										France: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.7	125.9	112.6	102.6	92.4	-0.7	-1.3	-2.3	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.31	1.16	1.09	1.03	0.98	-0.8	-1.0	-1.8	-1.1
Import Dependency %	52.4	47.9	50.9	51.6	49.8	45.9	43.7	42.2	40.9				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	164.3	184.7	204.2	218.6	234.5		1.6	2.2	1.4
as % of GDP			8.9	8.6	8.6	8.5	8.4	8.2	8.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.0	75.0	67.1	60.7	56.4	-1.5	-1.8	-2.1	-1.7
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.1	78.6	70.2	62.4	55.8	-0.1	-1.3	-2.2	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	86.2	75.0	66.3	58.9	-2.3	0.1	-3.0	-2.4
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.4	27.5	25.8	24.0	-0.2	-1.8	-1.1	-1.3
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	72.8	69.4	66.9	64.8	0.8	0.7	-0.8	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.05	0.01	0.01	0.01	0.01	-2.4	-3.1		
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.96	1.87	1.77	1.69	1.62	-0.5	-0.5	-1.0	-0.9
Industry	2.18	2.06	1.92	1.85	1.85	1.77	1.65	1.61	1.50	-1.3	-0.4	-1.1	-0.9
Residential	1.52	1.44	1.45	1.43	1.34	1.20	1.09	0.91	0.74	-0.5	-0.8	-2.0	-3.8
Tertiary	1.81	1.69	1.48	1.53	1.46	1.33	1.20	1.08	0.98	-2.0	-0.1	-2.0	-1.9
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.70	2.67	2.65	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	12.8	15.7	19.3	21.6	24.1				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.2	6.8	9.7	10.7	11.4				
Gross Electricity generation by source (in GWh)													
			536004	570542	586388	600315	627912	680429	728292		0.9	0.7	1.5
Nuclear energy			415087	451448	451980	475395	475869	482785	503574		0.9	0.5	0.6
Solids			25644	27018	26211	1538	2540	4018	1235		0.2	-20.8	-7.0
Oil (including refinery gas)			6896	7042	1980	1611	1552	1380	412		-11.7	-2.4	-12.4
Gas (including derived gases)			16214	26341	21651	20190	19340	26595	21270		2.9	-1.1	1.0
Biomass-waste			4381	5496	6923	15884	32313	49419	52676		4.7	16.7	5.0
Hydro (pumping excluded)			67698	52224	68261	67929	68478	70626	71050		0.1	0.0	0.4
Wind			77	959	8863	17208	26317	43809	75956		60.7	11.5	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1322	1499	1627			11.1	2.1
Net Generation Capacity in MW_e			111945	113154	114658	118499	122055	130187	152177		0.2	0.6	2.2
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	56219	58470		0.0	0.3	-1.0
<u>Renewable energy</u>			25092	26102	29189	32535	36373	43308	55572		1.5	2.2	4.3
Hydro (pumping excluded)			25016	25313	25362	25416	25481	25709	25793		0.1	0.0	0.1
Wind			66	756	3518	6762	10000	16493	28393		48.8	11.0	11.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	686	778	844			11.1	2.1
<u>Thermal power</u>			24306	24482	22659	21397	20994	30660	38135		-0.7	-0.8	6.2
of which cogeneration units			4205	5546	4841	6186	8500	13033	14280		1.4	5.8	5.3
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	9336	8720	8522	15374	22888		7.8	-0.9	10.4
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	1705	3537	6539	9950	11406		7.1	14.4	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	56.0	55.7	56.6	57.5	52.5				
Efficiency of gross thermal power generation (%)			34.8	35.5	46.5	61.3	61.3	62.7	58.5				
% of gross electricity from CHP			3.1	2.9	4.8	6.2	8.5	11.2	10.1				
Carbon free gross electricity generation (%)			90.9	89.4	91.5	96.1	96.3	95.3	96.9				
- nuclear			77.4	79.1	77.1	79.2	75.8	71.0	69.1				
- renewable energy forms			13.5	10.3	14.4	16.9	20.5	24.3	27.7				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	994.2	1053.1	1109.9	1174.4	1238.7	1.7	1.2	1.1	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	50.2	54.3	58.2	62.0	0.3	1.0	1.5	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	812.2	838.6	871.3	901.1	1.7	0.9	0.7	0.7
Rail	73.9	64.6	80.7	89.7	99.5	113.2	126.2	138.4	151.7	0.9	2.1	2.4	1.9
Aviation	26.1	34.1	46.0	53.1	62.0	73.8	86.8	102.3	119.5	5.8	3.0	3.4	3.2
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.2	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	273.4	294.1	314.4	338.3	363.1	2.4	0.2	1.4	1.5
Trucks	153.5	178.2	204.0	205.3	228.6	248.6	266.6	287.5	308.2	2.9	1.1	1.5	1.5
Rail	50.7	48.1	55.3	40.7	35.9	36.7	38.8	41.7	45.6	0.9	-4.2	0.8	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.9	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	51119	52354	52335	52909	53269	2.1	-0.1	0.2	0.2
Public road transport	384	403	417	424	424	436	448	436	423	0.8	0.2	0.5	-0.6
Private cars and motorcycles	23233	22171	24945	23052	22732	22492	21883	21423	20416	0.7	-0.9	-0.4	-0.7
Trucks	12587	14909	17407	18419	19446	20377	20818	21688	22711	3.3	1.1	0.7	0.9
Rail	1150	1220	1373	1264	1172	1171	1125	1051	944	1.8	-1.6	-0.4	-1.7
Aviation	3839	4690	6683	6291	7047	7585	7760	8002	8458	5.7	0.5	1.0	0.9
Inland navigation	714	731	775	305	297	294	301	310	317	0.8	-9.1	0.1	0.5

Source: PRIMES

France: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	149990	156089	160643	5741	8820	18840	4.0	6.0	13.3
Solids	7625	2267	383	215	1	0	-1	-14	-14	-0.4	-92.1	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0		-1300.0	-100.0
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	118930	0	0	5744	0.0	0.0	5.1
Renewable energy sources	15778	18065	16695	27501	33691	41713	5742	8834	13109	26.4	35.5	45.8
Hydro	4635	5822	4491	5842	5889	6110	391	322	0	7.2	5.8	0.0
Biomass & Waste	11014	12087	11968	18521	23053	26231	3875	6306	6713	26.5	37.7	34.4
Wind	0	7	82	1480	2263	6532	331	464	4510	28.8	25.8	223.1
Solar and others	19	26	24	1379	2226	2647	1001	1621	1826	265.2	267.9	222.4
Geothermal	110	124	130	278	260	192	144	122	59	106.8	88.6	44.5
Net Imports	120027	133463	143600	127370	121317	111359	-20566	-28645	-38221	-13.9	-19.1	-25.6
Solids	13004	13201	13660	7022	6718	5631	-6928	-6586	-1832	-49.7	-49.5	-24.5
Oil	86558	90452	94460	90630	87116	83482	-6196	-10409	-16232	-6.4	-10.7	-16.3
- Crude oil and Feedstocks	76007	84375	84707	83992	82318	80526	-3858	-6130	-9798	-4.4	-6.9	-10.8
- Oil products	10551	6077	9753	6637	4798	2955	-2338	-4279	-6434	-26.1	-47.1	-68.5
Natural gas	24371	35778	40720	34904	31867	24339	-7424	-11621	-20126	-17.5	-26.7	-45.3
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	274313	274246	268603	-14823	-19820	-19372	-5.1	-6.7	-6.7
Solids	19955	15240	14428	7237	6720	5631	-6929	-6601	-1845	-48.9	-49.6	-24.7
Oil	87673	88790	92086	87583	83956	80082	-6195	-10404	-16224	-6.6	-11.0	-16.8
Natural gas	26032	35766	40996	34904	31867	24339	-7424	-11621	-20126	-17.5	-26.7	-45.3
Nuclear	81018	107093	116474	122274	122397	118930	0	0	5744	0.0	0.0	5.1
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	27415	33584	41592	5724	8805	13078	26.4	35.5	45.9
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	2.6	2.5	2.1	-2.3	-2.1	-0.5			
Oil	38.7	34.3	33.4	31.9	30.6	29.8	-0.5	-1.5	-3.6			
Natural gas	11.5	13.8	14.9	12.7	11.6	9.1	-1.9	-3.2	-6.4			
Nuclear	35.8	41.4	42.3	44.6	44.6	44.3	2.3	3.0	5.0			
Renewable energy forms	7.0	7.0	6.0	10.0	12.2	15.5	2.5	3.8	5.6			
Gross Electricity Generation in GWh_e	416667	536004	570542	600315	627912	728292	-24735	-9338	96718	-4.0	-1.5	15.3
Self consumption and grid losses	48047	56438	59733	58015	60854	82436	-5718	-4002	13202	-9.0	-6.2	19.1
Fuel Inputs to Thermal Power Generation	11117	13129	15985	5499	7816	11106	-7022	-5316	2526	-56.1	-40.5	29.4
Solids	7334	6231	6402	254	429	208	-6622	-6012	-1080	-96.3	-93.3	-83.8
Oil (including refinery gas)	1921	1272	1653	0	0	1	0	-13	-2		-100.0	-77.2
Gas (including derived gases)	1423	4062	6291	1651	841	923	-2819	-3470	-2172	-63.1	-80.5	-70.2
Biomass & Waste	439	1565	1640	3594	6547	9974	2419	4178	5780	205.9	176.4	137.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	95628	94618	92951	-3562	-5479	-9946	-3.6	-5.5	-9.7
Refineries	79634	90084	87693	85624	83990	82291	-3858	-6130	-9798	-4.3	-6.8	-10.6
Biofuels and hydrogen production	0	328	434	3620	5167	6027	382	991	414	11.8	23.7	7.4
District heating	1019	312	273	260	259	205	-31	-45	-108	-10.5	-14.8	-34.5
Derived gases, cokeries etc.	8896	6668	5837	6123	5202	4427	-55	-295	-455	-0.9	-5.4	-9.3
Energy Branch Consumption	9230	10689	10095	7417	7031	7586	-605	-711	-178	-7.5	-9.2	-2.3
Non-Energy Uses	13272	15672	15786	17110	17690	18734	0	1	3	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	160679	159125	155368	-9819	-15307	-24066	-5.8	-8.8	-13.4
by sector												
Industry	36205	36579	35580	37194	37286	37452	-536	-1361	-2340	-1.4	-3.5	-5.9
- energy intensive industries	24279	22143	20671	20894	20531	20027	-225	-682	-1123	-1.1	-3.2	-5.3
- other industrial sectors	11926	14436	14909	16301	16755	17426	-311	-679	-1217	-1.9	-3.9	-6.5
Residential	36375	42516	45491	45504	44555	41181	-2533	-3682	-7143	-5.3	-7.6	-14.8
Tertiary	21726	21620	25696	25627	24949	23465	-3912	-5238	-7096	-13.2	-17.4	-23.2
Transport	41908	51599	49756	52354	52335	53269	-2838	-5025	-7487	-5.1	-8.8	-12.3
by fuel												
Solids	9017	5775	4685	3735	3633	3172	-310	-518	-642	-7.7	-12.5	-16.8
Oil	67377	71964	71245	70021	66221	62078	-6018	-10126	-15094	-7.9	-13.3	-19.6
Gas	23400	30880	33902	30686	28037	21295	-4393	-7824	-16777	-12.5	-21.8	-44.1
Electricity	25960	33096	36330	40467	43438	52507	-1616	-423	7207	-3.8	-1.0	15.9
Heat (from CHP and District Heating)	774	237	207	234	246	214	-28	-32	-80	-10.5	-11.5	-27.1
Renewable energy forms	9686	10364	10153	15528	17536	16084	2544	3616	1320	19.6	26.0	8.9
Other	0	0	0	8	15	17	1	1	-1	11.4	4.0	-4.5
RES in Gross Final Energy Consumption ^(A)		16928	15420	26086	31721	39031	5307	8389	12122	25.5	36.0	45.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	481.4	455.3	404.3	-74.3	-100.4	-118.9	-13.4	-18.1	-22.7
CO₂ Emissions (energy related)	352.9	373.5	378.4	319.6	298.5	262.6	-63.2	-84.3	-102.6	-16.5	-22.0	-28.1
Power generation/District heating	40.1	39.6	46.7	6.2	5.0	4.2	-32.7	-31.9	-9.5	-84.0	-86.5	-69.4
Energy Branch	17.1	19.6	16.6	13.2	12.0	7.3	-0.7	-1.2	-5.3	-5.0	-8.8	-42.0
Industry	79.1	70.1	66.0	65.7	61.6	56.4	-3.4	-6.8	-12.0	-4.9	-10.0	-17.5
Residential	55.2	61.5	64.8	54.8	48.8	30.6	-9.0	-14.7	-32.4	-14.2	-23.1	-51.4
Tertiary	39.2	32.1	39.2	34.1	29.8	23.1	-7.6	-11.5	-17.9	-18.3	-27.8	-43.7
Transport	122.1	150.6	145.2	145.5	141.4	141.0	-9.8	-18.3	-25.6	-6.3	-11.5	-15.3
CO₂ Emissions (non energy related)	36.8	30.7	31.1	29.9	29.1	27.8	-0.4	-1.2	-2.2	-1.4	-4.0	-7.4
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	132.0	127.6	113.9	-10.7	-14.9	-14.0	-7.5	-10.5	-11.0
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	85.2	80.6	71.6	-13.2	-17.8	-21.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							France: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	125.9	112.6	92.4	-6.8	-8.1	-6.7	-5.1	-6.7	-6.7
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.16	1.09	0.98	-0.16	-0.21	-0.29	-12.0	-16.4	-22.9
Import Dependency %	52.4	50.9	51.6	45.9	43.7	40.9	-4.7	-6.7	-10.4			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	184.7	204.2	234.5	6.8	9.1	14.0	3.8	4.7	6.3
as % of GDP		8.9	8.6	8.5	8.4	8.1	0.3	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				7.0	9.4	14.3						
as % of GDP				0.32	0.39	0.49						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.0	67.1	56.4	-1.1	-2.4	-3.5	-1.4	-3.5	-5.9
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	78.6	70.2	55.8	-4.4	-5.8	-9.7	-5.3	-7.6	-14.8
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	86.2	75.0	58.9	-13.2	-15.8	-17.8	-13.2	-17.4	-23.2
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.4	27.5	24.0	-0.8	-1.4	-1.8	-2.7	-4.9	-7.0
Freight transport (toe/Mtkm)	65.0	70.2	76.8	72.8	69.4	64.8	-3.2	-6.0	-8.9	-4.2	-7.9	-12.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.01	0.01	0.01	-0.05	-0.05	-0.02	-83.3	-86.2	-73.4
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.87	1.77	1.62	-0.07	-0.14	-0.27	-3.5	-7.3	-14.4
Industry	2.18	1.92	1.85	1.77	1.65	1.50	-0.06	-0.12	-0.21	-3.5	-6.7	-12.4
Residential	1.52	1.45	1.43	1.20	1.09	0.74	-0.12	-0.22	-0.56	-9.4	-16.8	-42.9
Tertiary	1.81	1.48	1.53	1.33	1.20	0.98	-0.08	-0.17	-0.36	-5.9	-12.6	-26.7
Transport	2.91	2.92	2.92	2.78	2.70	2.65	-0.03	-0.08	-0.09	-1.2	-3.0	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	15.7	19.3	24.1	3.9	6.3	9.6			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	6.8	9.7	11.4	1.0	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	415087	451448	475395	475869	503574	503574	0	0	26258	0.0	0.0	5.5
Solids	25644	27018	1538	2540	1235	1235	-30401	-27427	-6094	-95.2	-91.5	-83.1
Oil (including refinery gas)	6896	7042	1611	1552	412	412	-112	-88	-3071	-6.5	-5.4	-88.2
Gas (including derived gases)	16214	26341	20190	19340	21270	21270	-12872	-12622	-6932	-38.9	-39.5	-24.6
Biomass-waste	4381	5496	15884	32313	52676	52676	10260	20802	32946	182.4	180.7	167.0
Hydro (pumping excluded)	67698	52224	67929	68478	71050	71050	4541	3742	0	7.2	5.8	0.0
Wind	77	959	17208	26317	75956	75956	3848	5396	52447	28.8	25.8	223.1
Solar	6	15	99	181	492	492	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	1322	1627	1627	0	859	1165	0.0	185.7	251.8
Net Generation Capacity in MW_e	111945	113154	118499	122055	152177	152177	320	3860	37092	0.3	3.3	32.2
<u>Nuclear energy</u>	62547	62570	64567	64687	58470	58470	0	0	3098	0.0	0.0	5.6
<u>Renewable energy</u>	25092	26102	32535	36373	55572	55572	1151	2513	20265	3.7	7.4	57.4
Hydro (pumping excluded)	25016	25313	25416	25481	25793	25793	11	11	15	0.0	0.0	0.1
Wind	66	756	6762	10000	28393	28393	1140	2056	19645	20.3	25.9	224.6
Solar	11	33	117	207	542	542	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	686	844	844	0	446	604	0.0	185.7	251.8
<u>Thermal power</u>	24306	24482	21397	20994	38135	38135	-831	1347	13730	-3.7	6.9	56.3
of which cogeneration units	4205	5546	6186	8500	14280	14280	-1312	483	2771	-17.5	6.0	24.1
Solids fired	9912	9150	4039	3774	2454	2454	0	0	0	0.0	0.0	0.0
Gas fired	4408	5210	8720	8522	22888	22888	-2808	-2820	9389	-24.4	-24.9	69.5
Oil fired	9128	8975	5100	2160	1387	1387	0	0	-2795	0.0	0.0	-66.8
Biomass-waste fired	860	1147	3537	6539	11406	11406	1977	4167	7136	126.7	175.7	167.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	52.2	54.9	55.7	56.6	52.5	52.5	-2.4	-2.6	-7.6			
Efficiency of gross thermal power generation (%)	34.8	35.5	61.3	61.3	58.5	58.5	11.7	12.2	-0.3			
% of gross electricity from CHP	3.1	2.9	6.2	8.5	10.1	10.1	-0.1	2.0	2.0			
Carbon free gross electricity generation (%)	90.9	89.4	96.1	96.3	96.9	96.9	6.8	6.2	3.0			
- nuclear	77.4	79.1	79.2	75.8	69.1	69.1	3.1	1.1	-6.4			
- renewable energy forms	13.5	10.3	16.9	20.5	27.7	27.7	3.7	5.1	9.5			
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1053.1	1109.9	1238.7	-17.0	-26.6	-34.8	-1.6	-2.3	-2.7
Public road transport	41.3	42.4	44.0	50.2	54.3	62.0	1.0	1.5	2.0	2.0	2.9	3.3
Private cars and motorcycles	599.7	713.2	749.5	812.2	838.6	901.1	-18.1	-28.1	-37.9	-2.2	-3.2	-4.0
Rail	73.9	80.7	89.7	113.2	126.2	151.7	3.3	5.1	9.1	3.0	4.2	6.4
Aviation	26.1	46.0	53.1	73.8	86.8	119.5	-3.1	-5.1	-7.9	-4.1	-5.5	-6.2
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-1.0	-0.9	-1.0
Freight transport activity (Gtkm)	211.8	268.4	254.9	294.1	314.4	363.1	-6.9	-10.8	-14.8	-2.3	-3.3	-3.9
Trucks	153.5	204.0	205.3	248.6	266.6	308.2	-9.0	-13.6	-19.0	-3.5	-4.9	-5.8
Rail	50.7	55.3	40.7	36.7	38.8	45.6	2.0	2.7	4.0	5.8	7.6	9.7
Inland navigation	7.6	9.1	8.9	8.9	9.0	9.3	0.1	0.2	0.2	1.3	1.9	2.3
Energy demand in transport (ktoe)	41908	51599	49756	52354	52335	53269	-2838	-5025	-7487	-5.1	-8.8	-12.3
Public road transport	384	417	424	436	448	423	-1	-8	-30	-0.3	-1.7	-6.7
Private cars and motorcycles	23233	24945	23052	22492	21883	20416	-868	-1306	-1459	-3.7	-5.6	-6.7
Trucks	12587	17407	18419	20377	20818	22711	-1495	-2717	-4345	-6.8	-11.5	-16.1
Rail	1150	1373	1264	1171	1125	944	19	16	7	1.6	1.5	0.7
Aviation	3839	6683	6291	7585	7760	8458	-490	-1007	-1655	-6.1	-11.5	-16.4
Inland navigation	714	775	305	294	301	317	-2	-4	-4	-0.7	-1.2	-1.2

Source: PRIMES

Germany: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	115706	109283	94669	90887	92445	-3.3	-1.4	-2.0	-0.2	
Solids	125210	78868	59628	56514	42683	39378	33147	37315	36606	-7.2	-3.3	-2.5	1.0	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	22942	29237	39525	43573	47339	5.4	8.0	5.6	1.8	
Hydro	1498	1873	1869	1684	1810	1848	1853	1870	1889	2.2	-0.3	0.2	0.2	
Biomass & Waste	4797	5351	7877	12190	16216	20230	26639	28883	30756	5.1	7.5	5.1	1.4	
Wind	6	147	804	2341	3660	4177	6224	7882	9338	62.9	16.4	5.5	4.1	
Solar and others	11	41	96	365	1018	2578	4404	4550	5001	24.3	26.6	15.8	1.3	
Geothermal	7	9	10	138	238	404	405	387	355	3.4	37.7	5.5	-1.3	
Net Imports	164822	195060	204678	214351	206762	208137	211070	211416	208270	2.2	0.1	0.2	-0.1	
Solids	2881	10931	21576	26781	31612	36426	41242	40958	41172	22.3	3.9	2.7	0.0	
Oil	120126	130810	125974	122228	109992	107209	103778	102797	99191	0.5	-1.3	-0.6	-0.5	
- Crude oil and Feedstocks	88505	101168	101801	113120	108949	107640	106102	106740	104945	1.4	0.7	-0.3	-0.1	
- Oil products	31621	29643	24173	9108	1043	-431	-2324	-3943	-5754	-2.7	-27.0			
Natural gas	41747	52904	56865	65734	64623	63565	64686	66227	66457	3.1	1.3	0.0	0.3	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319912	314789	303031	299524	297874	-0.4	-0.6	-0.5	-0.2	
Solids	131510	92177	83727	82805	74295	75804	74389	78273	77777	-4.4	-1.2	0.0	0.4	
Oil	124248	133627	129918	123409	110297	107107	103270	100017	96350	0.4	-1.6	-0.7	-0.7	
Natural gas	54976	67298	71853	80856	78123	75565	75686	76227	74957	2.7	0.8	-0.3	-0.1	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	22942	29237	39525	43573	47339	5.4	8.0	5.6	1.8	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.2	24.1	24.5	26.1	26.1					
Oil	35.0	39.5	38.2	35.7	34.5	34.0	34.1	33.4	32.3					
Natural gas	15.5	19.9	21.1	23.4	24.4	24.0	25.0	25.4	25.2					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.3	2.9	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	7.2	9.3	13.0	14.5	15.9					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	585066	592409	596624	654658	726813	0.4	0.3	0.2	2.0	
Self consumption and grid losses	65998	62673	74099	72965	67067	67519	67697	78025	95817	1.2	-1.0	0.1	3.5	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72618	76020	83291	95080	99843	-0.9	-1.6	1.4	1.8	
Solids	75843	69147	68066	66172	57953	60036	59848	64734	65430	-1.1	-1.6	0.3	0.9	
Oil (including refinery gas)	2871	2083	1108	2038	198	99	140	111	50	-9.1	-15.8	-3.4	-9.7	
Gas (including derived gases)	12676	11982	12906	19233	10099	10429	13311	17569	19572	0.2	-2.4	2.8	3.9	
Biomass & Waste	1824	2665	3174	5102	4336	5414	9941	12605	14728	5.7	3.2	8.7	4.0	
Geothermal heat	0	0	0	0	33	42	51	60	63			4.6	2.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	140656	138988	137545	134025	130899	-1.8	0.3	-0.2	-0.5	
Refineries	106658	116715	119856	127082	119341	117582	115351	113357	111099	1.2	0.0	-0.3	-0.4	
Biofuels and hydrogen production	0	31	222	1942	4308	6108	8074	8197	8432		34.5	6.5	0.4	
District heating	6389	3638	1435	873	3519	2595	2557	1831	1635	-13.9	9.4	-3.1	-4.4	
Derived gases, cokeries etc.	51565	19819	15423	14625	13488	12703	11563	10641	9733	-11.4	-1.3	-1.5	-1.7	
Energy Branch Consumption	15384	14906	14242	15144	13254	12582	11775	11786	12420	-0.8	-0.7	-1.2	0.5	
Non-Energy Uses	23249	22912	25272	24779	24685	24686	24615	24188	23803	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	222379	220163	218010	217700	218324	215813	213858	211777	-0.4	-0.1	-0.1	-0.2	
by sector														
Industry	72116	61981	59715	56706	57065	55584	52918	52007	51883	-1.9	-0.5	-0.8	-0.2	
- energy intensive industries	49422	42778	40359	38652	38637	37432	35172	34022	33488	-2.0	-0.4	-0.9	-0.5	
- other industrial sectors	22693	19203	19356	18053	18428	18152	17746	17985	18394	-1.6	-0.5	-0.4	0.4	
Residential	58400	62212	61905	65931	65881	66569	67089	66649	65969	0.6	0.6	0.2	-0.2	
Tertiary	39361	35275	32547	33416	32036	32086	31633	30918	30046	-1.9	-0.2	-0.1	-0.5	
Transport	58494	62910	65997	61958	62718	64084	64173	64284	63879	1.2	-0.5	0.2	0.0	
by fuel														
Solids	38693	14917	10951	9639	9989	9760	9022	8408	7586	-11.9	-0.9	-1.0	-1.7	
Oil	96422	104474	98052	87411	80561	77790	73813	71642	69288	0.2	-1.9	-0.9	-0.6	
Gas	42724	52595	58030	61814	64349	63013	60564	57541	53789	3.1	1.0	-0.6	-1.2	
Electricity	38391	38912	41496	44497	43686	44810	45880	50214	54927	0.8	0.5	0.5	1.8	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7415	7484	7656	7830	7589	-2.9	0.8	0.3	-0.1	
Renewable energy forms	2991	2734	4804	7222	11695	15459	18859	18201	18576	4.9	9.3	4.9	-0.2	
Other	0	0	0	0	5	8	19	23	23			15.4	1.9	
RES in Gross Final Energy Consumption (A)			8812	13195	21169	27288	36480	39815	43608		9.2	5.6	1.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	925.9	906.0	880.6	867.5	788.2	-1.7	-1.2	-0.5	-1.1	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	729.7	721.7	706.4	716.6	656.0	-1.5	-1.2	-0.3	-0.7	
Power generation/District heating	375.1	328.9	316.2	325.0	269.2	275.8	281.7	310.0	269.6	-1.7	-1.6	0.5	-0.4	
Energy Branch	26.2	27.7	27.1	28.9	23.4	21.3	21.0	19.3	18.7	0.3	-1.5	-1.1	-1.2	
Industry	170.5	130.6	118.3	105.6	104.0	99.8	91.2	87.7	82.8	-3.6	-1.3	-1.3	-1.0	
Residential	134.3	127.4	117.7	120.0	113.1	107.6	102.0	93.5	84.9	-1.3	-0.4	-1.0	-1.8	
Tertiary	84.7	64.1	53.1	51.1	48.8	46.1	43.4	39.3	35.6	-4.6	-0.8	-1.2	-2.0	
Transport	168.9	181.9	190.9	174.3	171.2	171.1	167.1	166.7	164.4	1.2	-1.1	-0.2	-0.2	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.4	77.0	74.9	73.3	70.6	-0.2	-0.8	-0.2	-0.6	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	107.3	99.2	77.6	61.6	-3.7	-1.1	-1.9	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.7	73.1	71.0	69.9	63.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Germany: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.5	116.1	103.5	96.1	90.9	-2.1	-1.9	-2.2	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.28	2.29	2.33	2.39	2.20	-1.1	-0.6	0.2	-0.6
Import Dependency %	46.1	57.3	59.8	61.6	64.1	65.6	69.0	69.9	69.3				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	258.9	278.9	302.3	315.6	327.2		2.6	1.6	0.8
as % of GDP			9.2	10.5	10.5	10.3	10.3	10.1	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	70.9	62.2	57.1	53.9	-2.8	-2.2	-2.5	-1.4
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.6	89.8	84.4	79.0	74.5	-1.3	-0.4	-1.3	-1.3
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.1	75.8	68.8	62.8	57.8	-4.3	-1.7	-2.0	-1.7
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	36.0	33.9	32.1	30.5	-1.2	-1.6	-1.1	-1.1
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	31.1	30.1	29.4	28.5	0.6	-2.4	-0.8	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.40	0.40	0.41	0.41	0.33	-1.4	-2.0	0.3	-2.1
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	2.01	1.94	1.87	1.81	1.74	-1.1	-0.8	-0.7	-0.7
Industry	2.36	2.11	1.98	1.86	1.82	1.79	1.72	1.69	1.60	-1.8	-0.8	-0.5	-0.8
Residential	2.30	2.05	1.90	1.82	1.72	1.62	1.52	1.40	1.29	-1.9	-1.0	-1.2	-1.7
Tertiary	2.15	1.82	1.63	1.53	1.52	1.44	1.37	1.27	1.18	-2.7	-0.7	-1.0	-1.5
Transport	2.89	2.89	2.89	2.81	2.73	2.67	2.60	2.59	2.57	0.0	-0.6	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	9.4	12.1	16.4	18.0	19.8				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	6.9	9.7	12.7	13.1	13.6				
Gross Electricity generation by source (in GWh)													
			567219	613054	585066	592409	596624	654658	726813		0.3	0.2	2.0
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6	
Solids			286571	262420	295077	306632	306286	337250	368889		0.3	0.4	1.9
Oil (including refinery gas)			5476	23814	1040	1429	7019	6786	6371		-15.3	21.0	-1.0
Gas (including derived gases)			64676	96524	73657	80501	102115	131461	145040		1.3	3.3	3.6
Biomass-waste			9782	19186	18424	29049	49132	61207	71011		6.5	10.3	3.8
Hydro (pumping excluded)			21728	19577	21050	21484	21542	21746	21960		-0.3	0.2	0.2
Wind			9350	27224	42553	48573	72374	91653	108578		16.4	5.5	4.1
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0
Geothermal and other renewables			0	0	38	49	60	70	73			4.6	2.1
Net Generation Capacity in MW_e			112509	122874	130697	129896	139657	153177	164540		1.5	0.7	1.7
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5	
<u>Renewable energy</u>			9611	23545	30334	33045	42337	49704	53311		12.2	3.4	2.3
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2
Wind			6113	18428	23976	25689	34243	41046	44184		14.6	3.6	2.6
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	84755	84686	93215	103473	111228		0.4	1.0	1.8
of which cogeneration units			40073	37870	28894	29327	35122	37404	35747		-3.2	2.0	0.2
Solids fired			47883	45326	47623	48788	47592	49951	50708		-0.1	0.0	0.6
Gas fired			24817	24439	27678	28211	34436	41041	46733		1.1	2.2	3.1
Oil fired			7114	6403	5466	1879	2176	1748	1619		-2.6	-8.8	-2.9
Biomass-waste fired			1783	2481	3981	5799	9000	10719	12155		8.4	8.5	3.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	7	9	11	13	14			4.5	2.1
Avg. Load factor of net power capacity (%)			53.7	53.1	47.7	48.8	45.9	45.8	46.7				
Efficiency of gross thermal power generation (%)			37.0	37.4	46.0	47.2	48.0	48.6	50.9				
% of gross electricity from CHP			16.9	15.5	20.0	21.4	26.8	27.7	27.8				
Carbon free gross electricity generation (%)			37.1	37.6	36.8	34.4	30.4	27.4	28.4				
- nuclear			29.9	26.6	22.3	17.1	5.7	0.0	0.0				
- renewable energy forms			7.2	11.0	14.5	17.3	24.7	27.4	28.4				
Transport sector													
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1224.8	1319.2	1392.5	1463.2	1520.9	2.0	1.2	1.3	0.9
Public road transport	73.1	68.5	69.0	68.2	67.1	70.5	75.6	80.1	84.2	-0.6	-0.3	1.2	1.1
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1045.2	1086.9	1122.8	1147.8	2.0	1.3	1.1	0.5
Rail	76.1	85.4	90.0	90.2	94.0	100.6	109.3	122.5	137.7	1.7	0.4	1.5	2.3
Aviation	34.3	46.2	62.0	70.5	83.8	100.5	118.2	135.2	148.4	6.1	3.1	3.5	2.3
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-1.0	0.6	0.7
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	497.9	533.6	561.7	589.1	613.2	1.9	1.6	1.2	0.9
Trucks	196.4	237.8	280.7	310.1	327.5	351.4	371.7	393.0	411.7	3.6	1.6	1.3	1.0
Rail	101.7	69.5	77.5	89.7	103.6	111.5	115.0	117.1	118.8	-2.7	2.9	1.1	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.7	75.0	79.1	82.7	1.9	0.0	1.2	1.0
Energy demand in transport (ktoe)	58494	62910	65997	61958	62718	64084	64173	64284	63879	1.2	-0.5	0.2	0.0
Public road transport	656	611	612	529	478	472	484	481	492	-0.7	-2.4	0.1	0.2
Private cars and motorcycles	38247	40001	39981	36421	36046	35877	34849	34050	33420	0.4	-1.0	-0.3	-0.4
Trucks	11518	13643	15834	14528	14193	14511	14823	15325	15766	3.2	-1.1	0.4	0.6
Rail	2111	2126	1946	1858	2015	2040	1986	1853	1596	-0.8	0.3	-0.1	-2.2
Aviation	5307	5975	7345	8304	9658	10842	11674	12205	12223	3.3	2.8	1.9	0.5
Inland navigation	656	554	279	318	327	341	356	370	382	-8.2	1.6	0.9	0.7

Source: PRIMES

Germany: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	109283	94669	92445	-98	6654	14209	-0.1	7.6	18.2
Solids	125210	59628	56514	39378	33147	36606	-4888	-4850	-446	-11.0	-12.8	-1.2
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	29237	39525	47339	4790	11505	14655	19.6	41.1	44.8
Hydro	1498	1869	1684	1848	1853	1889	60	52	0	3.3	2.9	0.0
Biomass & Waste	4797	7877	12190	20230	26639	30756	2999	7562	9066	17.4	39.6	41.8
Wind	6	804	2341	4177	6224	9338	0	581	2040	0.0	10.3	28.0
Solar and others	11	96	365	2578	4404	5001	1502	3098	3414	139.5	237.2	215.1
Geothermal	7	10	138	404	405	355	229	212	135	131.2	109.3	61.4
Net Imports	164822	204678	214351	208137	211070	208270	-17139	-28268	-36822	-7.6	-11.8	-15.0
Solids	2881	21576	26781	36426	41242	41172	-2276	-6984	-8294	-5.9	-14.5	-16.8
Oil	120126	125974	122228	107209	103778	99191	-7016	-10392	-13486	-6.1	-9.1	-12.0
- Crude oil and Feedstocks	88505	101801	113120	107640	106102	104945	-3481	-5195	-6909	-3.1	-4.7	-6.2
- Oil products	31621	24173	9108	-431	-2324	-5754	-3535	-5197	-6577	-113.9	-180.9	-799.3
Natural gas	41747	56865	65734	63565	64686	66457	-7847	-10892	-15042	-11.0	-14.4	-18.5
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	314789	303031	297874	-17235	-21607	-22603	-5.2	-6.7	-7.1
Solids	131510	83727	82805	75804	74389	77777	-7164	-11834	-8740	-8.6	-13.7	-10.1
Oil	124248	129918	123409	107107	103270	96350	-7015	-10385	-13476	-6.1	-9.1	-12.3
Natural gas	54976	71853	80856	75565	75686	74957	-7847	-10892	-15042	-9.4	-12.6	-16.7
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	29237	39525	47339	4790	11505	14655	19.6	41.1	44.8
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	24.1	24.5	26.1	-0.9	-2.0	-0.9			
Oil	35.0	38.2	35.7	34.0	34.1	32.3	-0.3	-0.9	-1.9			
Natural gas	15.5	21.1	23.4	24.0	25.0	25.2	-1.1	-1.7	-2.9			
Nuclear	10.6	12.9	12.2	8.3	2.9	0.0	0.4	0.2	0.0			
Renewable energy forms	1.8	3.1	4.8	9.3	13.0	15.9	1.9	4.4	5.7			
Gross Electricity Generation in GWh_e	547549	567219	613054	592409	596624	726813	-71855	-76154	32995	-10.8	-11.3	4.8
Self consumption and grid losses	65998	74099	72965	67519	67697	95817	-8185	-8960	14989	-10.8	-11.7	18.5
Fuel Inputs to Thermal Power Generation	93214	85253	92546	76020	83291	99843	-13084	-15290	-1118	-14.7	-15.5	-1.1
Solids	75843	68066	66172	60036	59848	65430	-7701	-11516	-6336	-11.4	-16.1	-8.8
Oil (including refinery gas)	2871	1108	2038	99	140	50	-2032	-1984	-1696	-95.4	-93.4	-97.1
Gas (including derived gases)	12676	12906	19233	10429	13311	19572	-3833	-6014	-803	-26.9	-31.1	-3.9
Biomass & Waste	1824	3174	5102	5414	9941	14728	461	4208	7717	9.3	73.4	110.1
Geothermal heat	0	0	0	42	51	63	22	15	0	104.3	40.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	139988	137545	130899	-2180	-2621	-7695	-1.5	-1.9	-5.6
Refineries	106658	119856	127082	117582	115351	111099	-3516	-5253	-6959	-2.9	-4.4	-5.9
Biofuels and hydrogen production	0	222	1942	6108	8074	8432	671	1639	894	12.3	25.5	11.9
District heating	6389	1435	873	2595	2557	1635	-302	259	-2121	-10.4	11.3	-56.5
Derived gases, cokeries etc.	51565	15423	14625	12703	11563	9733	968	734	492	8.2	6.8	5.3
Energy Branch Consumption	15384	14242	15144	12582	11775	12420	-663	-940	5	-5.0	-7.4	0.0
Non-Energy Uses	23249	25272	24779	24686	24615	23803	-98	-168	-158	-0.4	-0.7	-0.7
Final Energy Demand	228372	220163	218010	218324	215813	211777	-9896	-13646	-20089	-4.3	-5.9	-8.7
by sector												
Industry	72116	59715	56706	55584	52918	51883	-522	-2087	-2726	-0.9	-3.8	-5.0
- energy intensive industries	49422	40359	38652	37432	35172	33488	-14	-1214	-1705	0.0	-3.3	-4.8
- other industrial sectors	22693	19356	18053	18152	17746	18394	-508	-873	-1020	-2.7	-4.7	-5.3
Residential	58400	61905	65931	66569	67089	65969	-2630	-2821	-5648	-3.8	-4.0	-7.9
Tertiary	39361	32547	33416	32086	31633	30046	-4395	-4881	-6229	-12.0	-13.4	-17.2
Transport	58494	65997	61958	64084	64173	63879	-2349	-3857	-5486	-3.5	-5.7	-7.9
by fuel												
Solids	38693	10951	9639	9760	9022	7586	1	-717	-1212	0.0	-7.4	-13.8
Oil	96422	98052	87411	77790	73813	69288	-3905	-7717	-11480	-4.8	-9.5	-14.2
Gas	42724	58030	61814	63013	60564	53789	-3468	-4608	-12343	-5.2	-7.1	-18.7
Electricity	38391	41496	44497	44810	45880	54927	-5459	-5746	1607	-10.9	-11.1	3.0
Heat (from CHP and District Heating)	9150	6831	7428	7484	7656	7589	-747	-977	-1173	-9.1	-11.3	-13.4
Renewable energy forms	2991	4804	7222	15459	18859	18576	3682	6118	4519	31.3	48.0	32.1
Other	0	0	0	8	19	23	0	1	-6	5.4	6.4	-21.0
RES in Gross Final Energy Consumption ^(A)		8812	13195	27288	36480	43608	5416	10794	13633	24.8	42.0	45.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	906.0	880.6	788.2	-77.0	-118.8	-172.4	-7.8	-11.9	-17.9
CO₂ Emissions (energy related)	959.8	823.3	804.8	721.7	706.4	656.0	-68.8	-104.4	-157.0	-8.7	-12.9	-19.3
Power generation/District heating	375.1	316.2	325.0	275.8	281.7	269.6	-47.5	-66.3	-86.7	-14.7	-19.0	-24.3
Energy Branch	26.2	27.1	28.9	21.3	21.0	18.7	-2.0	-1.8	-2.5	-8.4	-7.8	-11.8
Industry	170.5	118.3	105.6	99.8	91.2	82.8	4.9	2.2	0.2	5.2	2.5	0.2
Residential	134.3	117.7	120.0	107.6	102.0	84.9	-9.8	-15.4	-34.1	-8.3	-13.2	-28.6
Tertiary	84.7	53.1	51.1	46.1	43.4	35.6	-5.8	-7.2	-13.5	-11.2	-14.3	-27.4
Transport	168.9	190.9	174.3	171.1	167.1	164.4	-8.7	-15.8	-20.5	-4.8	-8.7	-11.1
CO₂ Emissions (non energy related)	84.5	82.9	75.8	77.0	74.9	70.6	1.1	-2.2	-6.1	1.4	-2.8	-8.0
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	107.3	99.2	61.6	-9.2	-12.2	-9.2	-7.9	-11.0	-13.0
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	73.1	71.0	63.6	-6.2	-9.6	-13.9			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Germany: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	116.1	103.5	90.9	-6.4	-7.4	-6.9	-5.2	-6.7	-7.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.29	2.33	2.20	-0.09	-0.17	-0.33	-3.7	-6.7	-13.2
Import Dependency %	46.1	59.8	61.6	65.6	69.0	69.3	-1.7	-4.1	-6.5			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	278.9	302.3	327.2	8.1	13.5	21.6	3.0	4.7	7.1
as % of GDP		9.2	10.5	10.3	10.3	10.0	0.3	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				8.2	13.8	22.1						
as % of GDP				0.30	0.47	0.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	70.9	62.2	53.9	-0.7	-2.5	-2.8	-0.9	-3.8	-5.0
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	89.8	84.4	74.5	-3.5	-3.6	-6.4	-3.8	-4.0	-7.9
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	75.8	68.8	57.8	-10.4	-10.6	-12.0	-12.0	-13.4	-17.2
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	36.0	33.9	30.5	-0.7	-1.1	-1.8	-2.0	-3.1	-5.6
Freight transport (toe/Mtkm)	39.2	41.5	35.3	31.1	30.1	28.5	-1.0	-1.6	-1.7	-3.0	-5.1	-5.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.40	0.41	0.33	-0.02	-0.04	-0.12	-4.6	-8.7	-26.1
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.94	1.87	1.74	0.00	-0.05	-0.14	0.0	-2.5	-7.6
Industry	2.36	1.98	1.86	1.79	1.72	1.60	0.10	0.11	0.08	6.2	6.5	5.5
Residential	2.30	1.90	1.82	1.62	1.52	1.29	-0.08	-0.16	-0.37	-4.7	-9.5	-22.5
Tertiary	2.15	1.63	1.53	1.44	1.37	1.18	0.01	-0.01	-0.17	0.9	-1.0	-12.4
Transport	2.89	2.89	2.81	2.67	2.60	2.57	-0.04	-0.09	-0.09	-1.4	-3.2	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	12.1	16.4	19.8	2.8	5.6	7.3			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	9.7	12.7	13.6	1.4	3.1	2.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	0.0
Solids	286571	262420	306632	306286	368889		-39322	-61262	-20336	-11.4	-16.7	-5.2
Oil (including refinery gas)	5476	23814	1429	7019	6371		-14392	-9416	-8578	-91.0	-57.3	-57.4
Gas (including derived gases)	64676	96524	80501	102115	145040		-21482	-32372	3364	-21.1	-24.1	2.4
Biomass-waste	9782	19186	29049	49132	71011		2623	19513	34827	9.9	65.9	96.2
Hydro (pumping excluded)	21728	19577	21484	21542	21960		693	608	0	3.3	2.9	0.0
Wind	9350	27224	48573	72374	108578		0	6757	23718	0.0	10.3	28.0
Solar	60	1282	3366	3997	4891		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	49	60	73		25	17	0	104.3	40.6	0.0
Net Generation Capacity in MW_e	112509	122874	129896	139657	164540		-12871	-11360	12495	-9.0	-7.5	8.2
<u>Nuclear energy</u>	21301	20680	12165	4105	0		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	9611	23545	33045	42337	53311		-17	1797	8930	-0.1	4.4	20.1
Hydro (pumping excluded)	3408	3580	3732	3790	3862		0	0	0	0.0	0.0	0.0
Wind	6113	18428	25689	34243	44184		-17	1797	8930	-0.1	5.5	25.3
Solar	90	1537	3624	4303	5266		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	81597	78649	84686	93215	111228		-12853	-13157	3565	-13.2	-12.4	3.3
of which cogeneration units	40073	37870	29327	35122	35747		-4809	-5707	-452	-14.1	-14.0	-1.2
Solids fired	47883	45326	48788	47592	50708		-4170	-5908	-1447	-7.9	-11.0	-2.8
Gas fired	24817	24439	28211	34436	46733		-7515	-8790	320	-21.0	-20.3	0.7
Oil fired	7114	6403	1879	2176	1619		-3241	-2202	-1719	-63.3	-50.3	-51.5
Biomass-waste fired	1783	2481	5799	9000	12155		2068	3739	6411	55.4	71.1	111.6
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	9	11	14		5	3	0	102.8	40.3	0.0
Avg. Load factor of net power capacity (%)	53.7	53.1	48.8	45.9	46.7		-0.9	-1.8	-2.1			
Efficiency of gross thermal power generation (%)	37.0	37.4	47.2	48.0	50.9		-0.1	0.2	1.4			
% of gross electricity from CHP	16.9	15.5	21.4	26.8	27.8		-0.9	-2.2	-0.7			
Carbon free gross electricity generation (%)	37.1	37.6	34.4	30.4	28.4		4.2	7.4	7.1			
- nuclear	29.9	26.6	17.1	5.7	0.0		1.9	0.6	0.0			
- renewable energy forms	7.2	11.0	17.3	24.7	28.4		2.4	6.8	7.1			
Transport sector												
Passenger transport activity (Gpkm)	889.5	1081.9	1142.4	1319.2	1392.5	1520.9	-17.0	-29.5	-38.3	-1.3	-2.1	-2.5
Public road transport	73.1	69.0	68.2	70.5	75.6	84.2	1.1	1.7	2.1	1.5	2.3	2.6
Private cars and motorcycles	702.1	858.2	911.1	1045.2	1086.9	1147.8	-14.6	-24.9	-32.3	-1.4	-2.2	-2.7
Rail	76.1	90.0	90.2	100.6	109.3	137.7	1.1	0.9	2.0	1.1	0.8	1.4
Aviation	34.3	62.0	70.5	100.5	118.2	148.4	-4.5	-7.1	-10.1	-4.3	-5.7	-6.4
Inland navigation	3.8	2.7	2.5	2.5	2.5	2.7	0.0	0.0	0.0	-0.4	-0.1	0.0
Freight transport activity (Gtkm)	352.9	424.7	463.9	533.6	561.7	613.2	-7.1	-12.3	-16.7	-1.3	-2.1	-2.7
Trucks	196.4	280.7	310.1	351.4	371.7	411.7	-9.9	-16.1	-21.5	-2.7	-4.2	-5.0
Rail	101.7	77.5	89.7	111.5	115.0	118.8	2.6	3.3	4.1	2.4	2.9	3.5
Inland navigation	54.8	66.5	64.1	70.7	75.0	82.7	0.2	0.5	0.7	0.3	0.7	0.8
Energy demand in transport (ktoe)	58494	65997	61958	64084	64173	63879	-2349	-3857	-5486	-3.5	-5.7	-7.9
Public road transport	656	612	529	472	484	492	-2	-5	-24	-0.4	-1.1	-4.7
Private cars and motorcycles	38247	39981	36421	35877	34849	33420	-989	-1497	-1852	-2.7	-4.1	-5.3
Trucks	11518	15834	14528	14511	14823	15766	-748	-1391	-1692	-4.9	-8.6	-9.7
Rail	2111	1946	1858	2040	1986	1596	3	80	160	0.1	4.2	11.2
Aviation	5307	7345	8304	10842	11674	12223	-612	-1041	-2074	-5.3	-8.2	-14.5
Inland navigation	656	279	318	341	356	382	-1	-2	-4	-0.4	-0.5	-1.1

Source: PRIMES

Greece: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9152	9740	10010	10315	10901	6391	5417	5937	6511	0.9	0.9	-6.8	1.9	
Solids	7077	7911	8222	8538	8308	2907	1077	1048	1297	1.5	0.1	-18.5	1.9	
Oil	832	459	280	100	97	100	99	0	0	-10.3	-10.1	0.2		
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2468	3384	4242	4889	5214	2.9	5.3	5.6	2.1	
Hydro	152	303	318	431	424	429	435	439	442	7.6	2.9	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2795	2854	1.2	4.2	4.6	1.8	
Wind	0	3	39	109	254	486	705	862	1079	74.8	20.7	10.7	4.3	
Solar and others	56	82	99	102	249	508	632	689	722	5.8	9.7	9.8	1.4	
Geothermal	3	3	2	1	19	59	92	104	117	-4.7	27.9	17.2	2.4	
Net Imports	15415	18207	21982	23336	24834	28664	29757	30190	29826	3.6	1.2	1.7	0.0	
Solids	988	925	768	371	226	1063	1064	1208	1315	-2.5	-11.5	16.7	2.1	
Oil	14366	17214	19527	20307	20618	21536	20888	20427	19926	3.1	0.5	0.1	-0.5	
- Crude oil and Feedstocks	14757	16955	20439	19352	20472	21337	21014	20826	20571	3.3	0.0	0.3	-0.2	
- Oil products	-391	259	-912	955	146	198	-125	-399	-645					
Natural gas	0	0	1689	2332	3692	5480	6296	6841	6858		8.1	5.5	0.9	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	32628	31736	31682	32495	32598	2.4	1.5	-0.3	0.3	
Solids	8091	8783	9040	8952	8534	3970	2141	2256	2612	1.1	-0.6	-12.9	2.0	
Oil	12883	13952	15929	17951	17608	18316	17495	16795	16187	2.1	1.0	-0.1	-0.8	
Natural gas	138	44	1705	2354	3721	5480	6296	6841	6858	28.6	8.1	5.4	0.9	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2499	3731	5534	6408	6765	2.9	5.5	8.3	2.0	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.2	12.5	6.8	6.9	8.0					
Oil	57.8	57.7	56.6	57.5	54.0	57.7	55.2	51.7	49.7					
Natural gas	0.6	0.2	6.1	7.5	11.4	17.3	19.9	21.1	21.0					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	7.7	11.8	17.5	19.7	20.8					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62494	62961	66382	74420	81056	4.4	1.6	0.6	2.0	
Self consumption and grid losses	5818	6451	8431	10125	9869	8884	8931	10101	11304	3.8	1.6	-1.0	2.4	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11808	9460	8859	9751	10221	3.0	0.2	-2.8	1.4	
Solids	6890	7810	8234	8693	8194	3636	1853	1991	2353	1.8	0.0	-13.8	2.4	
Oil (including refinery gas)	1708	2075	2036	2053	1027	1446	1218	1084	1066	1.8	-6.6	1.7	-1.3	
Gas (including derived gases)	18	14	1280	1605	2474	3906	4887	5473	5535	53.1	6.8	7.0	1.3	
Biomass & Waste	0	38	64	52	96	414	811	1102	1154		4.2	23.7	3.6	
Geothermal heat	0	0	0	0	17	57	89	101	113			17.9	2.4	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21226	22302	22232	22054	21858	3.0	-0.6	0.5	-0.2	
Refineries	16621	17860	22404	21415	20912	21772	21448	21167	20906	3.0	-0.7	0.3	-0.3	
Biofuels and hydrogen production	0	0	0	0	251	474	736	856	930			11.4	2.4	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	62	56	47	31	21	-8.8	7.4	-2.8	-7.7	
Energy Branch Consumption	1196	1174	1637	1758	1619	1566	1569	1597	1600	3.2	-0.1	-0.3	0.2	
Non-Energy Uses	651	441	689	711	702	701	712	720	719	0.6	0.2	0.1	0.1	
Final Energy Demand	14509	15801	18513	20742	22524	23741	24221	24491	24378	2.5	2.0	0.7	0.1	
by sector														
Industry	3942	4107	4437	4132	4058	4113	4133	4085	4081	1.2	-0.9	0.2	-0.1	
- energy intensive industries	2534	2489	2693	2526	2524	2571	2597	2588	2576	0.6	-0.6	0.3	-0.1	
- other industrial sectors	1408	1618	1744	1607	1534	1542	1536	1497	1505	2.2	-1.3	0.0	-0.2	
Residential	3048	3323	4470	5467	6256	6780	7019	7100	7021	3.9	3.4	1.2	0.0	
Tertiary	1711	1940	2410	3075	3254	3394	3397	3485	3478	3.5	3.0	0.4	0.2	
Transport	5808	6431	7196	8068	8957	9454	9672	9821	9797	2.2	2.2	0.8	0.1	
by fuel														
Solids	1053	1074	888	446	321	316	273	255	253	-1.7	-9.7	-1.6	-0.8	
Oil	10041	10799	12584	14219	14988	15323	15182	14849	14299	2.3	1.8	0.1	-0.6	
Gas	15	14	257	585	935	1197	1094	1046	995	33.0	13.8	1.6	-0.9	
Electricity	2448	2931	3710	4377	4616	4712	4979	5549	5999	4.2	2.2	0.8	1.9	
Heat (from CHP and District Heating)	0	0	28	49	39	43	64	74	85		3.3	5.2	2.8	
Renewable energy forms	952	982	1046	1066	1626	2149	2627	2715	2744	0.9	4.5	4.9	0.4	
Other	0	0	0	0	1	1	3	3	3			16.8	1.4	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2417	3524	4656	5159	5507		5.3	6.8	1.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.7	112.4	103.5	102.3	100.6	2.0	0.2	-2.1	-0.3	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	95.1	82.2	73.9	73.5	72.2	2.3	0.6	-2.5	-0.2	
Power generation/District heating	34.1	39.0	43.7	46.3	43.1	28.7	22.7	24.2	24.8	2.5	-0.1	-6.2	0.9	
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.2	1.7	1.0	0.9	2.9	-0.8	-6.1	-5.7	
Industry	9.4	10.0	10.1	8.6	7.7	7.4	6.7	6.4	6.2	0.7	-2.6	-1.5	-0.8	
Residential	4.6	4.7	7.4	9.6	10.8	11.7	11.7	11.0	9.9	4.9	3.9	0.8	-1.7	
Tertiary	3.3	3.2	3.4	4.2	4.4	4.5	4.3	3.9	3.8	0.1	2.7	-0.3	-1.3	
Transport	17.2	19.0	21.2	23.8	25.8	26.8	26.8	26.9	26.6	2.1	2.0	0.4	-0.1	
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.1	9.5	9.5	9.5	1.2	0.8	0.7	0.0	
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	21.1	20.1	19.3	18.8	1.3	-1.6	-1.6	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	124.0	109.2	100.5	99.4	97.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.5	126.7	111.5	102.9	95.5	0.0	-2.4	-3.0	-1.5	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.91	2.59	2.33	2.26	2.22	-0.1	-0.8	-2.2	-0.5	
Import Dependency %	62.1	65.7	69.3	68.5	69.5	81.8	84.6	83.6	82.1					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	26.7	30.7	33.5	35.2		4.1	3.0	1.4	
as % of GDP			10.5	10.2	10.6	10.6	10.8	10.6	10.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	63.8	58.1	53.8	50.9	1.1	-3.4	-1.9	-1.3	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.7	93.2	85.8	78.7	72.4	1.6	-0.1	-1.4	-1.7	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.7	83.3	73.6	67.8	62.5	1.2	-0.8	-2.3	-1.6	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.2	29.8	28.6	27.2	-2.0	-0.8	-0.9	-0.9	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	95.1	89.7	87.0	85.2	-1.1	-1.4	-1.0	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.45	0.34	0.32	0.30	-1.9	-1.7	-6.8	-1.1	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.17	2.12	2.04	1.97	1.90	-0.4	-0.5	-0.6	-0.7	
Industry	2.39	2.43	2.28	2.09	1.91	1.80	1.62	1.56	1.51	-0.5	-1.8	-1.6	-0.7	
Residential	1.51	1.43	1.66	1.76	1.73	1.72	1.67	1.55	1.41	0.9	0.4	-0.4	-1.7	
Tertiary	1.96	1.65	1.40	1.36	1.36	1.33	1.26	1.13	1.08	-3.3	-0.3	-0.8	-1.5	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.3	14.4	18.6	20.3	21.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.1	8.0	8.7					
Gross Electricity generation by source (in GWh)														
			53415	59416	62494	62961	66382	74420	81056		1.6	0.6	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids	33790	35982	34365	17518	10080	10898	13215			0.2	-11.5	2.7		
Oil (including refinery gas)	8979	8858	4873	6987	5977	5357	5217			-5.9	2.1	-1.4		
Gas (including derived gases)	5960	8114	14723	25085	30249	33955	35091			9.5	7.5	1.5		
Biomass-waste	543	179	550	2263	5768	7549	7970			0.1	26.5	3.3		
Hydro (pumping excluded)	3692	5016	4925	4984	5057	5102	5135			2.9	0.3	0.2		
Wind	451	1266	2957	5650	8199	10028	12546			20.7	10.7	4.3		
Solar	0	1	73	397	606	1040	1343					23.6	8.3	
Geothermal and other renewables	0	0	28	75	447	491	540					31.9	1.9	
Net Generation Capacity in MW_e			11361	13277	15916	18913	21145	22298	23533		3.4	2.9	1.1	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>	3233	3744	4521	5864	7416	8532	9733			3.4	5.1	2.8		
Hydro (pumping excluded)	3043	3165	3235	3414	3489	3542	3577			0.6	0.8	0.2		
Wind	189	573	1226	2126	3270	3997	4921			20.6	10.3	4.2		
Solar	1	5	60	324	494	814	1051			46.8	23.6	7.8		
Other renewables (tidal etc.)	0	0	0	0	164	180	185						1.2	
<u>Thermal power</u>	8128	9533	11395	13049	13729	13765	13800			3.4	1.9	0.1		
of which cogeneration units	340	381	511	688	856	1034	1112			4.1	5.3	2.6		
Solids fired	4505	4798	4796	4263	4263	4309	3969			0.6	-1.2	-0.7		
Gas fired	1134	1876	3344	5639	5776	5745	6573			11.4	5.6	1.3		
Oil fired	2487	2827	3145	2773	2744	2548	1945			2.4	-1.4	-3.4		
Biomass-waste fired	2	31	102	358	909	1126	1206			51.7	24.4	2.9		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat	0	0	8	17	37	37	107					16.5	11.2	
Avg. Load factor of net power capacity (%)			49.7	47.4	42.0	36.4	34.6	36.8	37.9					
Efficiency of gross thermal power generation (%)			36.5	36.8	39.7	47.2	50.7	51.1	51.9					
% of gross electricity from CHP			1.2	1.5	2.5	5.1	8.4	9.1	9.1					
Carbon free gross electricity generation (%)			8.8	10.9	13.7	21.2	30.2	32.5	34.0					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			8.8	10.9	13.7	21.2	30.2	32.5	34.0					
Transport sector														
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	159.0	173.9	185.0	193.1	198.3	4.4	3.2	1.5	0.7	
Public road transport	17.7	20.2	21.7	21.4	21.7	21.9	22.3	22.6	22.7	2.0	0.0	0.3	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	104.0	110.7	115.4	117.8	6.2	4.7	1.7	0.6	
Rail	2.8	2.3	3.1	3.4	3.8	4.2	4.7	5.1	5.6	0.9	2.2	2.2	1.6	
Aviation	15.5	19.9	24.1	27.7	31.5	34.8	38.1	40.7	43.0	4.5	2.7	1.9	1.2	
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.1	9.2	9.2	2.1	0.2	0.3	0.2	
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	37.6	42.5	46.3	49.4	51.7	3.0	3.5	2.1	1.1	
Trucks	12.5	14.6	17.5	22.0	25.4	28.9	31.6	34.1	36.2	3.4	3.8	2.2	1.4	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.2	-3.5	6.5	3.1	1.3	
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.6	14.1	14.3	2.8	2.8	1.7	0.5	
Energy demand in transport (ktoe)	5808	6431	7196	8068	8957	9454	9672	9821	9797	2.2	2.2	0.8	0.1	
Public road transport	154	175	175	153	150	142	140	134	125	1.3	-1.5	-0.7	-1.1	
Private cars and motorcycles	1404	1704	2243	2913	3290	3407	3465	3463	3327	4.8	3.9	0.5	-0.4	
Trucks	2345	2726	2902	3120	3519	3790	3887	4023	4138	2.2	1.9	1.0	0.6	
Rail	75	57	60	58	64	68	74	77	73	-2.2	0.7	1.5	-0.2	
Aviation	1264	1226	1325	1181	1269	1364	1410	1427	1444	0.5	-0.4	1.1	0.2	
Inland navigation	566	544	491	643	665	683	696	697	692	-1.4	3.1	0.5	-0.1	

Source: PRIMES

Greece: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	6391	5417	6511	-2928	-4887	-3829	-31.4	-47.4	-37.0
Solids	7077	8222	8538	2907	1077	1297	-3622	-5960	-4995	-55.5	-84.7	-79.4
Oil	832	280	100	100	99	0	0	-1	0	0.0	-1.5	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3384	4242	5214	694	1075	1166	25.8	33.9	28.8
Hydro	152	318	431	429	435	442	3	4	3	0.7	0.9	0.6
Biomass & Waste	893	1010	1015	1903	2378	2854	323	558	648	20.4	30.7	29.4
Wind	0	39	109	486	705	1079	29	124	141	6.4	21.4	15.0
Solar and others	56	99	102	508	632	722	295	358	372	138.4	130.6	106.2
Geothermal	3	2	1	59	92	117	44	30	3	281.4	49.5	2.2
Net Imports	15415	21982	23336	28664	29757	29826	-283	-113	-961	-1.0	-0.4	-3.1
Solids	988	768	371	1063	1064	1315	-12	-19	-76	-1.1	-1.7	-5.5
Oil	14366	19527	20307	21536	20888	19926	-856	-1932	-2809	-3.8	-8.5	-12.4
- Crude oil and Feedstocks	14757	20439	19352	21337	21014	20571	-484	-1205	-1657	-2.2	-5.4	-7.5
- Oil products	-391	-912	955	198	-125	-645	-372	-727	-1151	-65.2	-120.8	-227.2
Natural gas	0	1689	2332	5480	6296	6858	238	546	373	4.5	9.5	5.8
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	31736	31682	32598	-3210	-4997	-4782	-9.2	-13.6	-12.8
Solids	8091	9040	8952	3970	2141	2612	-3633	-5979	-5071	-47.8	-73.6	-66.0
Oil	12883	15929	17951	18316	17495	16187	-855	-1930	-2801	-4.5	-9.9	-14.8
Natural gas	138	1705	2354	5480	6296	6858	238	546	373	4.5	9.5	5.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3731	5534	6765	1040	2367	2717	38.7	74.7	67.1
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	12.5	6.8	8.0	-9.2	-15.4	-12.5			
Oil	57.8	56.6	57.5	57.7	55.2	49.7	2.9	2.3	-1.1			
Natural gas	0.6	6.1	7.5	17.3	19.9	21.0	2.3	4.2	3.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.8	17.5	20.8	4.1	8.8	9.9			
Gross Electricity Generation in GWh_e	34767	53415	59416	62961	66382	81056	-11514	-13619	-7095	-15.5	-17.0	-8.0
Self consumption and grid losses	5818	8431	10125	8884	8931	11304	-2451	-3244	-2038	-21.6	-26.6	-15.3
Fuel Inputs to Thermal Power Generation	8617	11614	12403	9460	8859	10221	-3069	-4377	-2964	-24.5	-33.1	-22.5
Solids	6890	8234	8693	3636	1853	2353	-3613	-5908	-4965	-49.8	-76.1	-67.8
Oil (including refinery gas)	1708	2036	2053	1446	1218	1066	-110	-139	81	-7.1	-10.3	8.2
Gas (including derived gases)	18	1280	1605	3906	4887	5535	271	981	1068	7.5	25.1	23.9
Biomass & Waste	0	64	52	414	811	1154	340	660	852	454.6	434.9	282.2
Geothermal heat	0	0	0	57	89	113	43	29	0	302.1	48.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	22302	22232	21858	-443	-1072	-1599	-1.9	-4.6	-6.8
Refineries	16621	22404	21415	21772	21448	20906	-487	-1210	-1660	-2.2	-5.3	-7.4
Biofuels and hydrogen production	0	0	0	474	736	930	54	151	93	12.8	25.8	11.1
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	56	47	21	-11	-13	-31	-16.0	-22.2	-59.6
Energy Branch Consumption	1196	1637	1758	1566	1569	1600	-130	-165	-145	-7.6	-9.5	-8.3
Non-Energy Uses	651	689	711	701	712	719	-3	-3	-4	-0.4	-0.5	-0.5
Final Energy Demand	14509	18513	20742	23741	24221	24378	-943	-1678	-2402	-3.8	-6.5	-9.0
by sector												
Industry	3942	4437	4132	4113	4133	4081	-90	-169	-288	-2.2	-3.9	-6.6
- energy intensive industries	2534	2693	2526	2571	2597	2576	-48	-87	-130	-1.8	-3.3	-4.8
- other industrial sectors	1408	1744	1607	1542	1536	1505	-42	-81	-158	-2.7	-5.0	-9.5
Residential	3048	4470	5467	6780	7019	7021	-154	-323	-550	-2.2	-4.4	-7.3
Tertiary	1711	2410	3075	3394	3397	3478	-375	-604	-704	-10.0	-15.1	-16.8
Transport	5808	7196	8068	9454	9672	9797	-323	-583	-860	-3.3	-5.7	-8.1
by fuel												
Solids	1053	888	446	316	273	253	-17	-67	-97	-5.1	-19.7	-27.7
Oil	10041	12584	14219	15323	15182	14299	-601	-1220	-2044	-3.8	-7.4	-12.5
Gas	15	257	585	1197	1094	995	-100	-389	-651	-7.7	-26.2	-39.5
Electricity	2448	3710	4377	4712	4979	5999	-775	-884	-421	-14.1	-15.1	-6.6
Heat (from CHP and District Heating)	0	28	49	43	64	85	-5	12	29	-10.3	22.7	50.8
Renewable energy forms	952	1046	1066	2149	2627	2744	555	869	782	34.9	49.4	39.9
Other	0	0	0	1	3	3	0	0	0	6.7	5.2	-6.3
RES in Gross Final Energy Consumption ^(A)		1439	1626	3524	4656	5507	949	1690	1791	36.8	57.0	48.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	112.4	103.5	100.6	-19.8	-33.2	-33.5	-15.0	-24.3	-25.0
CO₂ Emissions (energy related)	71.2	89.2	96.2	82.2	73.9	72.2	-17.1	-29.4	-29.5	-17.3	-28.5	-29.0
Power generation/District heating	34.1	43.7	46.3	28.7	22.7	24.8	-14.7	-22.8	-18.9	-33.9	-50.1	-43.2
Energy Branch	2.6	3.4	3.6	3.2	1.7	0.9	-0.3	-1.8	-2.5	-8.4	-51.5	-73.0
Industry	9.4	10.1	8.6	7.4	6.7	6.2	-0.4	-1.1	-1.6	-5.0	-14.0	-20.2
Residential	4.6	7.4	9.6	11.7	11.7	9.9	-0.7	-1.2	-2.8	-5.3	-9.5	-21.8
Tertiary	3.3	3.4	4.2	4.5	4.3	3.8	0.0	-0.4	-0.8	0.3	-9.0	-18.0
Transport	17.2	21.2	23.8	26.8	26.8	26.6	-1.1	-2.1	-2.9	-3.9	-7.3	-9.9
CO₂ Emissions (non energy related)	7.2	8.2	8.6	9.1	9.5	9.5	-0.2	-0.3	-0.5	-2.1	-3.5	-5.1
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	21.1	20.1	18.8	-2.5	-3.4	-3.5	-10.6	-14.4	-15.7
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	109.2	100.5	97.7	-19.3	-32.2	-32.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Greece: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	126.7	111.5	95.5	-12.8	-17.6	-14.0	-9.2	-13.6	-12.8
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.59	2.33	2.22	-0.25	-0.49	-0.51	-8.9	-17.2	-18.6
Import Dependency %	62.1	69.3	68.5	81.8	84.6	82.1	6.1	10.2	7.2			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	26.7	30.7	35.2	1.1	2.0	2.6	4.4	7.1	8.1
as % of GDP		10.5	10.2	10.6	10.8	10.3	0.4	0.7	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				1.2	2.1	2.7						
as % of GDP				0.46	0.74	0.80						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	63.8	58.1	50.9	-1.4	-2.4	-3.6	-2.2	-3.9	-6.6
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	93.2	85.8	72.4	-2.1	-4.0	-5.7	-2.2	-4.4	-7.3
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	83.3	73.6	62.5	-9.2	-13.1	-12.6	-10.0	-15.1	-16.8
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.2	29.8	27.2	-0.5	-0.7	-1.1	-1.4	-2.4	-3.8
Freight transport (toe/Mtkm)	127.8	114.6	101.5	95.1	89.7	85.2	-2.8	-5.2	-7.3	-2.8	-5.5	-7.8
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.45	0.34	0.30	-0.13	-0.23	-0.19	-21.9	-40.1	-38.6
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.12	2.04	1.90	0.00	-0.06	-0.13	-0.2	-2.6	-6.4
Industry	2.39	2.28	2.09	1.80	1.62	1.51	-0.05	-0.19	-0.26	-2.9	-10.5	-14.6
Residential	1.51	1.66	1.76	1.72	1.67	1.41	-0.06	-0.09	-0.26	-3.2	-5.3	-15.7
Tertiary	1.96	1.40	1.36	1.33	1.26	1.08	0.14	0.08	-0.02	11.4	7.2	-1.4
Transport	2.96	2.95	2.95	2.83	2.77	2.72	-0.02	-0.05	-0.06	-0.6	-1.7	-2.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.4	18.6	21.7	4.3	7.6	8.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.1	8.7	0.7	1.8	1.6			
Gross Electricity generation by source (in GWh_e)												
	53415	59416	62961	66382	81056	81056	-11514	-13619	-7095	-15.5	-17.0	-8.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	33790	35982	17518	10080	13215	13215	-14829	-24405	-20193	-45.8	-70.8	-60.4
Oil (including refinery gas)	8979	8858	6987	5977	5217	5217	-907	-1014	-60	-11.5	-14.5	-1.1
Gas (including derived gases)	5960	8114	25085	30249	35091	35091	1875	4917	4303	8.1	19.4	14.0
Biomass-waste	543	179	2263	5768	7970	7970	1922	5042	6562	562.0	694.6	466.1
Hydro (pumping excluded)	3692	5016	4984	5057	5135	5135	35	44	29	0.7	0.9	0.6
Wind	451	1266	5650	8199	12546	12546	339	1448	1640	6.4	21.4	15.0
Solar	0	1	397	606	1343	1343	0	0	268	0.0	0.0	24.9
Geothermal and other renewables	0	0	75	447	540	540	52	349	356	221.5	356.2	193.5
Net Generation Capacity in MW_e												
	11361	13277	18913	21145	23533	23533	160	1256	-423	0.9	6.3	-1.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	3233	3744	5864	7416	9733	9733	142	779	861	2.5	11.7	9.7
Hydro (pumping excluded)	3043	3165	3414	3489	3577	3577	28	28	28	0.8	0.8	0.8
Wind	189	573	2126	3270	4921	4921	114	587	473	5.7	21.9	10.6
Solar	1	5	324	494	1051	1051	0	0	175	0.0	0.0	19.9
Other renewables (tidal etc.)	0	0	0	164	185	185	0	164	185			
<u>Thermal power</u>	8128	9533	13049	13729	13800	13800	18	477	-1283	0.1	3.6	-8.5
of which cogeneration units	340	381	688	856	1112	1112	-56	10	160	-7.5	1.1	16.9
Solids fired	4505	4798	4263	4263	3969	3969	-126	-126	72	-2.9	-2.9	1.9
Gas fired	1134	1876	5639	5776	6573	6573	0	-154	-2306	0.0	-2.6	-26.0
Oil fired	2487	2827	2773	2744	1945	1945	-152	-29	-88	-5.2	-1.1	-4.3
Biomass-waste fired	2	31	358	909	1206	1206	288	778	1029	413.6	591.2	581.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	17	37	107	107	9	9	9	111.4	31.8	9.1
Avg. Load factor of net power capacity (%)	49.7	47.4	36.4	34.6	37.9	37.9	-6.5	-8.9	-2.0			
Efficiency of gross thermal power generation (%)	36.5	36.8	47.2	50.7	51.9	51.9	3.4	6.7	5.5			
% of gross electricity from CHP	1.2	1.5	5.1	8.4	9.1	9.1	0.4	3.2	3.6			
Carbon free gross electricity generation (%)	8.8	10.9	21.2	30.2	34.0	34.0	6.4	13.8	12.8			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	21.2	30.2	34.0	34.0	6.4	13.8	12.8			
Transport sector												
Passenger transport activity (Gpkm)												
	75.3	116.2	141.2	173.9	185.0	198.3	-2.2	-3.8	-4.9	-1.3	-2.0	-2.4
Public road transport	17.7	21.7	21.4	21.9	22.3	22.7	0.4	0.6	0.6	1.8	2.5	2.9
Private cars and motorcycles	32.2	58.6	80.0	104.0	110.7	117.8	-1.2	-2.3	-3.0	-1.1	-2.1	-2.5
Rail	2.8	3.1	3.4	4.2	4.7	5.6	0.0	0.0	0.1	0.6	0.9	1.9
Aviation	15.5	24.1	27.7	34.8	38.1	43.0	-1.4	-2.0	-2.6	-3.8	-5.1	-5.8
Inland navigation	7.0	8.7	8.7	8.9	9.1	9.2	0.0	0.0	0.0	-0.3	-0.2	-0.3
Freight transport activity (Gtkm)												
	19.8	26.6	32.7	42.5	46.3	51.7	-0.6	-1.0	-1.4	-1.4	-2.1	-2.6
Trucks	12.5	17.5	22.0	28.9	31.6	36.2	-0.7	-1.2	-1.6	-2.4	-3.6	-4.3
Rail	0.6	0.4	0.6	0.9	1.1	1.2	0.0	0.0	0.1	3.0	4.0	4.6
Inland navigation	6.6	8.7	10.1	12.7	13.6	14.3	0.1	0.1	0.2	0.7	1.1	1.3
Energy demand in transport (ktoe)												
	5808	7196	8068	9454	9672	9797	-323	-583	-860	-3.3	-5.7	-8.1
Public road transport	154	175	153	142	140	125	0	-1	-6	-0.2	-0.9	-4.3
Private cars and motorcycles	1404	2243	2913	3407	3465	3327	-84	-144	-206	-2.4	-4.0	-5.8
Trucks	2345	2902	3120	3790	3887	4138	-176	-333	-505	-4.4	-7.9	-10.9
Rail	75	60	58	68	74	73	1	-2	1	0.8	-2.3	1.2
Aviation	1264	1325	1181	1364	1410	1444	-58	-96	-131	-4.1	-6.4	-8.3
Inland navigation	566	491	643	683	696	692	-4	-7	-13	-0.6	-0.9	-1.8

Source: PRIMES

Hungary: EC proposal with RES trading											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	14146	13456	11207	10514	10391	9898	10101	10650	12039	-2.3	-0.8	-0.3	1.8		
Solids	3948	3095	2893	1748	1720	752	233	215	1502	-3.1	-5.1	-18.1	20.5		
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2		
Natural gas	3812	3788	2475	2331	2200	2000	1808	1627	1481	-4.2	-1.2	-1.9	-2.0		
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1		
Renewable energy sources	523	626	516	1212	1484	2283	3120	3935	4284	-0.1	11.1	7.7	3.2		
Hydro	15	14	15	17	17	17	17	17	17	0.0	0.8	0.1	0.2		
Biomass & Waste	422	526	415	1105	1306	1990	2590	3238	3474	-0.2	12.2	7.1	3.0		
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8		
Solar and others	0	0	0	2	23	120	355	517	615			31.5	5.7		
Geothermal	86	86	86	87	133	148	141	132	129	0.0	4.5	0.6	-0.9		
Net Imports	14436	12629	14011	17558	18558	20149	20967	21598	21365	-0.3	2.9	1.2	0.2		
Solids	1686	1395	1081	1340	1092	1101	890	733	926	-4.3	0.1	-2.0	0.4		
Oil	6621	5496	5352	5875	6591	7242	7296	7573	7745	-2.1	2.1	1.0	0.6		
- Crude oil and Feedstocks	6475	5937	5866	6167	6662	7288	7340	7609	7780	-1.0	1.3	1.0	0.6		
- Oil products	146	-441	-514	-291	-71	-47	-44	-37	-35						
Natural gas	5170	5532	7283	9807	10336	11455	10353	9321	8483	3.5	3.6	0.0	-2.0		
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7		
Gross Inland Consumption	28641	25864	25000	27920	28950	30047	31067	32248	33403	-1.4	1.5	0.7	0.7		
Solids	5969	4549	3967	3090	2813	1853	1123	949	2428	-4.0	-3.4	-8.8	8.0		
Oil	8734	7689	6907	7420	7791	8242	8296	8473	8545	-2.3	1.2	0.6	0.3		
Natural gas	8913	9175	9657	12094	12536	13455	12161	10949	9965	0.8	2.6	-0.3	-2.0		
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1		
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7		
Renewable energy forms	523	626	516	1212	1484	2283	5245	7685	8307	-0.1	11.1	13.5	4.7		
as % in Gross Inland Consumption															
Solids	20.8	17.6	15.9	11.1	9.7	6.2	3.6	2.9	7.3						
Oil	30.5	29.7	27.6	26.6	26.9	27.4	26.7	26.3	25.6						
Natural gas	31.1	35.5	38.6	43.3	43.3	44.8	39.1	34.0	29.8						
Nuclear	12.4	14.0	14.6	12.8	13.1	12.9	12.7	12.3	11.9						
Renewable energy forms	1.8	2.4	2.1	4.3	5.1	7.6	16.9	23.8	24.9						
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	37186	42528	45903	51650	58504	2.2	0.6	2.1	2.5		
Self consumption and grid losses	5478	6171	6295	5979	5514	5600	5719	6434	8760	1.4	-1.3	0.4	4.4		
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5046	5046	5214	6172	7467	1.9	-1.7	0.3	3.7		
Solids	2871	2977	2731	1924	1897	998	384	247	1744	-0.5	-3.6	-14.8	16.3		
Oil (including refinery gas)	440	1447	1052	122	0	0	0	0	5	9.1					
Gas (including derived gases)	1636	1634	2140	3078	2851	3217	2837	2282	1768	2.7	2.9	-0.1	-4.6		
Biomass & Waste	24	55	62	534	298	830	1993	3643	3950	10.2	17.0	20.9	7.1		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	11679	10680	9226	9831	10422	11102	11260	11471	11523	-2.3	1.2	0.8	0.2		
Refineries	8831	8500	7588	8390	9046	9587	9634	9778	9812	-1.5	1.8	0.6	0.2		
Biofuels and hydrogen production	0	0	0	0	207	325	550	630	674			10.3	2.1		
District heating	1145	789	471	629	466	525	514	555	553	-8.5	-0.1	1.0	0.7		
Derived gases, cokeries etc.	1704	1392	1168	813	703	665	562	508	484	-3.7	-4.9	-2.2	-1.5		
Energy Branch Consumption	1402	1310	1162	1581	1623	1681	1783	1866	2049	-1.9	3.4	0.9	1.4		
Non-Energy Uses	1569	1609	1586	2282	2501	2658	2724	2754	2781	0.1	4.7	0.9	0.2		
Final Energy Demand	19258	15814	15998	16098	19676	20697	21513	22127	22398	-1.8	2.1	0.9	0.4		
by sector															
Industry	6523	3808	3489	3427	3466	3621	3840	3955	4052	-6.1	-0.1	1.0	0.5		
- energy intensive industries	4160	2691	2563	2328	2259	2311	2397	2448	2473	-4.7	-1.3	0.6	0.3		
- other industrial sectors	2364	1116	926	1099	1207	1310	1443	1507	1579	-8.9	2.7	1.8	0.9		
Residential	6437	5911	5465	6411	7082	7242	7343	7423	7429	-1.6	2.6	0.4	0.1		
Tertiary	3273	3442	3792	4085	4448	4688	4845	4976	5038	1.5	1.6	0.9	0.4		
Transport	3024	2653	3252	4175	4679	5146	5485	5773	5880	0.7	3.7	1.6	0.7		
by fuel															
Solids	2502	965	793	692	594	544	458	448	436	-10.9	-2.8	-2.6	-0.5		
Oil	6009	4147	4173	4792	5119	5529	5668	5889	5939	-3.6	2.1	1.0	0.5		
Gas	5941	6370	6503	7852	8466	8778	8135	7846	7633	0.9	2.7	-0.4	-0.6		
Electricity	2811	2500	2658	2823	2987	3249	3483	3834	4190	-0.6	1.2	1.5	1.9		
Heat (from CHP and District Heating)	1570	1287	1440	1297	1432	1277	1167	1245	1288	-0.9	-0.1	-2.0	1.0		
Renewable energy forms	425	545	430	642	1077	1319	2599	2864	2911	0.1	9.6	9.2	1.1		
Other	0	0	0	0	0	1	2	2	2			16.7	3.2		
RES in Gross Final Energy Consumption ^(A)			482	869	1333	1992	4348	6020	6463		10.7	12.5	4.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	81.2	80.5	75.2	71.6	68.4	-2.1	0.6	-0.8	-0.9		
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	55.9	55.0	49.1	46.1	43.2	-2.0	0.4	-1.3	-1.3		
Power generation/District heating	20.5	23.0	21.0	17.3	15.7	13.0	9.3	7.3	5.0	0.2	-2.9	-5.1	-5.9		
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.5	1.8	0.9	0.7	-4.9	5.2	-3.2	-8.9		
Industry	14.7	8.7	6.4	6.3	6.0	6.6	4.8	4.5	4.5	-7.9	-0.7	-2.1	-0.7		
Residential	13.7	9.9	9.0	10.5	11.5	11.3	11.1	10.7	10.2	-4.1	2.5	-0.3	-0.8		
Tertiary	5.6	5.5	6.2	6.7	7.1	7.4	7.3	7.4	7.2	1.1	1.4	0.3	-0.2		
Transport	8.6	7.6	9.4	12.2	13.2	14.3	14.8	15.4	15.6	0.9	3.4	1.1	0.6		
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.6	3.8	3.9	-3.6	-0.4	1.5	0.8		
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	22.1	22.5	21.6	21.2	-2.2	1.0	0.2	-0.6		
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	85.3	84.6	79.0	75.2	71.9						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Hungary: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	276.4	239.2	210.7	189.9	174.3	-2.5	-2.3	-2.7	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.93	1.83	1.58	1.43	1.29	-0.7	-1.0	-2.0	-2.0
Import Dependency %	50.4	48.8	56.0	62.9	64.1	67.1	67.5	67.0	64.0				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.4	20.6	23.4	26.1	27.2		2.9	3.0	1.5
as % of GDP			18.2	16.1	16.6	16.4	15.9	15.4	14.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.4	63.2	59.0	53.8	50.2	-9.6	-3.4	-1.8	-1.6
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.9	69.2	60.0	52.9	47.1	-1.9	-2.1	-2.9	-2.4
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.5	70.4	62.0	55.2	49.4	1.6	-2.3	-2.5	-2.2
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.9	34.5	33.3	32.1	30.0	2.1	2.2	-0.5	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.3	39.0	37.7	36.8	36.1	0.5	0.8	-0.4	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.27	0.21	0.15	0.10	0.06	-0.8	-3.4	-6.1	-7.8
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.92	1.91	1.77	1.71	1.67	-1.3	-0.1	-0.8	-0.5
Industry	2.25	2.28	1.85	1.84	1.73	1.82	1.26	1.13	1.11	-2.0	-0.7	-3.1	-1.2
Residential	2.13	1.68	1.64	1.64	1.62	1.55	1.51	1.44	1.38	-2.6	-0.1	-0.7	-0.9
Tertiary	1.70	1.59	1.64	1.64	1.60	1.57	1.51	1.48	1.43	-0.3	-0.2	-0.6	-0.6
Transport	2.84	2.85	2.90	2.92	2.82	2.78	2.69	2.67	2.65	0.2	-0.3	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.6	9.4	19.8	26.5	27.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.9	5.6	9.0	9.9	10.5				
Gross Electricity generation by source (in GWh)													
			35185	35749	37186	42528	45903	51650	58504		0.6	2.1	2.5
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	5350	3414	1893	1376	9281		-4.4	-9.9	17.2
Oil (including refinery gas)			4243	497	90	94	56	32	71		-31.9	-4.7	2.5
Gas (including derived gases)			8040	13021	15113	19623	18379	15340	12019		6.5	2.0	-4.2
Biomass-waste			197	2348	1696	4126	9885	18896	20902		24.0	19.3	7.8
Hydro (pumping excluded)			178	203	193	196	196	198	199		0.8	0.1	0.2
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9782	10547	9945	9780	10533		2.3	0.2	0.6
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7917	8605	7839	7430	7854		2.7	-0.1	0.0
of which cogeneration units			1915	2391	2274	2725	2872	1961	2018		1.7	2.4	-3.5
Solids fired			1683	1592	1521	1142	494	486	924		-1.0	-10.6	6.5
Gas fired			3516	4572	5668	6323	5352	3826	3622		4.9	-0.6	-3.8
Oil fired			762	313	322	241	175	134	89		-8.3	-5.9	-6.6
Biomass-waste fired			76	316	406	899	1819	2984	3219		18.3	16.2	5.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	41.1	44.1	50.6	57.5	58.6				
Efficiency of gross thermal power generation (%)			29.9	33.0	37.9	46.5	49.8	49.7	48.7				
% of gross electricity from CHP			24.5	28.3	30.9	28.0	28.8	26.0	25.1				
Carbon free gross electricity generation (%)			41.4	45.9	44.7	45.6	55.7	67.6	63.5				
- nuclear			40.3	38.7	39.5	35.2	33.3	29.8	26.3				
- renewable energy forms			1.1	7.2	5.3	10.4	22.4	37.8	37.2				
Transport sector													
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.8	95.0	104.3	113.6	122.4	-0.2	0.8	1.9	1.6
Public road transport	19.3	16.6	18.7	18.2	17.6	16.6	16.0	15.4	14.8	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.9	62.3	71.1	79.7	87.5	-0.1	1.5	2.8	2.1
Rail	13.9	10.9	12.3	12.2	12.1	12.1	12.2	12.1	12.2	-1.2	-0.2	0.1	0.0
Aviation	1.6	1.9	2.4	2.7	3.2	4.0	5.1	6.4	7.8	4.3	2.9	4.7	4.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	42.0	48.0	53.3	58.0	61.2	-1.9	4.2	2.4	1.4
Trucks	15.2	13.8	19.1	25.2	30.8	36.1	40.8	44.9	47.7	2.4	4.9	2.9	1.6
Rail	16.8	8.4	8.8	8.6	8.8	9.2	9.6	9.9	10.2	-6.3	0.0	0.8	0.6
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.2	3.4			2.0	1.3
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4679	5146	5485	5773	5880	0.7	3.7	1.6	0.7
Public road transport	160	124	149	167	156	140	126	112	100	-0.7	0.4	-2.1	-2.2
Private cars and motorcycles	1482	1462	1824	2321	2564	2793	2964	3093	3083	2.1	3.5	1.5	0.4
Trucks	938	695	886	1297	1545	1761	1907	2042	2145	-0.6	5.7	2.1	1.2
Rail	271	190	175	159	149	143	131	115	87	-4.3	-1.6	-1.3	-4.0
Aviation	164	182	219	230	264	309	355	410	463	2.9	1.9	3.0	2.7
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1

Source: PRIMES

Hungary: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	9898	10101	12039	-192	-177	1782	-1.9	-1.7	17.4
Solids	3948	2893	1748	752	233	1502	-972	-1501	-239	-56.4	-86.6	-13.7
Oil	2320	1665	1655	1000	1000	800	0	0	0	0.0	0.0	0.0
Natural gas	3812	2475	2331	2000	1808	1481	0	-92	-219	0.0	-4.9	-12.9
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	2283	3120	4284	780	1416	2240	51.9	83.1	109.6
Hydro	15	15	17	17	17	17	0	0	0	2.5	2.3	0.0
Biomass & Waste	422	415	1105	1990	2590	3474	613	1056	1689	44.5	68.8	94.6
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	120	355	615	99	281	468	477.7	379.0	317.0
Geothermal	86	86	87	148	141	129	67	79	84	83.4	126.6	183.7
Net Imports	14436	14011	17558	20149	20967	21365	-521	-1108	-2019	-2.5	-5.0	-8.6
Solids	1686	1081	1340	1101	890	926	-2	-308	-395	-0.2	-25.7	-29.9
Oil	6621	5352	5875	7242	7296	7745	-341	-629	-590	-4.5	-7.9	-7.1
- Crude oil and Feedstocks	6475	5866	6167	7288	7340	7780	-326	-599	-562	-4.3	-7.5	-6.7
- Oil products	146	-514	-291	-47	-44	-35	-16	-29	-28	50.5	198.0	399.9
Natural gas	5170	7283	9807	11455	10353	8483	-178	-2297	-5058	-1.5	-18.2	-37.4
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	30047	31067	33403	-713	-1285	-237	-2.3	-4.0	-0.7
Solids	5969	3967	3090	1853	1123	2428	-974	-1808	-634	-34.5	-61.7	-20.7
Oil	8734	6907	7420	8242	8296	8545	-341	-629	-590	-4.0	-7.0	-6.5
Natural gas	8913	9657	12094	13455	12161	9965	-178	-2389	-5276	-1.3	-16.4	-34.6
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	2283	5245	8307	780	3541	6263	51.9	207.8	306.4
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	6.2	3.6	7.3	-3.0	-5.4	-1.8			
Oil	30.5	27.6	26.6	27.4	26.7	25.6	-0.5	-0.9	-1.6			
Natural gas	31.1	38.6	43.3	44.8	39.1	29.8	0.5	-5.8	-15.5			
Nuclear	12.4	14.6	12.8	12.9	12.7	11.9	0.3	0.5	0.1			
Renewable energy forms	1.8	2.1	4.3	7.6	16.9	24.9	2.7	11.6	18.8			
Gross Electricity Generation in GWh_e	28431	35185	35749	42528	45903	58504	-4558	-6804	-1950	-9.7	-12.9	-3.2
Self consumption and grid losses	5478	6295	5979	5600	5719	8760	-692	-1069	1597	-11.0	-15.7	22.3
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5046	5214	7467	-962	-1390	161	-16.0	-21.0	2.2
Solids	2871	2731	1924	998	384	1744	-973	-1626	-447	-49.4	-80.9	-20.4
Oil (including refinery gas)	440	1052	122	0	0	5	-163	-142	-11	-100.0	-100.0	-68.3
Gas (including derived gases)	1636	2140	3078	3217	2837	1768	-350	-1280	-2889	-9.8	-31.1	-62.0
Biomass & Waste	24	62	534	830	1993	3950	524	1657	3508	171.3	493.3	792.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	11102	11260	11523	-291	-593	-565	-2.6	-5.0	-4.7
Refineries	8831	7588	8390	9587	9634	9812	-327	-599	-563	-3.3	-5.9	-5.4
Biofuels and hydrogen production	0	0	0	325	550	674	44	135	111	15.8	32.4	19.8
District heating	1145	471	629	525	514	553	-29	-75	-62	-5.3	-12.7	-10.1
Derived gases, cokeries etc.	1704	1168	813	665	562	484	21	-54	-51	3.3	-8.8	-9.6
Energy Branch Consumption	1402	1162	1581	1681	1783	2049	-43	-8	206	-2.5	-0.4	11.2
Non-Energy Uses	1569	1586	2282	2658	2724	2781	-1	0	-1	-0.1	0.0	-0.1
Final Energy Demand	19258	15998	18098	20697	21513	22398	-237	-471	-735	-1.1	-2.1	-3.2
by sector												
Industry	6523	3489	3427	3621	3840	4052	-39	-29	-148	-1.1	-0.8	-3.5
- energy intensive industries	4160	2563	2328	2311	2397	2473	-24	-48	-125	-1.0	-2.0	-4.8
- other industrial sectors	2364	926	1099	1310	1443	1579	-16	19	-24	-1.2	1.3	-1.5
Residential	6437	5465	6411	7242	7343	7429	-36	-81	-111	-0.5	-1.1	-1.5
Tertiary	3273	3792	4085	4688	4845	5038	-108	-236	-258	-2.2	-4.6	-4.9
Transport	3024	3252	4175	5146	5485	5880	-55	-125	-218	-1.1	-2.2	-3.6
by fuel												
Solids	2502	793	692	544	458	436	-11	-69	-75	-1.9	-13.1	-14.7
Oil	6009	4173	4792	5529	5668	5939	-82	-250	-373	-1.5	-4.2	-5.9
Gas	5941	6503	7852	8778	8135	7633	148	-888	-1392	1.7	-9.8	-15.4
Electricity	2811	2658	2823	3249	3483	4190	-331	-486	-296	-9.2	-12.2	-6.6
Heat (from CHP and District Heating)	1570	1440	1297	1277	1167	1288	-197	-170	-136	-13.4	-12.7	-9.6
Renewable energy forms	425	430	642	1319	2599	2911	235	1392	1537	21.7	115.3	111.8
Other	0	0	0	1	2	2	0	0	0	2.4	3.9	0.3
RES in Gross Final Energy Consumption ^(A)		482	869	1992	4348	6463	712	2884	4581	55.6	196.9	243.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	80.5	75.2	68.4	-6.1	-15.6	-24.1	-7.0	-17.2	-26.1
CO₂ Emissions (energy related)	65.5	53.6	55.0	55.0	49.1	43.2	-5.5	-14.8	-23.3	-9.2	-23.2	-35.0
Power generation/District heating	20.5	21.0	17.3	13.0	9.3	5.0	-5.5	-10.7	-16.6	-29.7	-53.7	-76.7
Energy Branch	2.5	1.5	1.9	2.5	1.8	0.7	-0.1	-0.9	-1.9	-4.9	-33.8	-73.3
Industry	14.7	6.4	6.3	6.6	4.8	4.5	0.4	-2.1	-2.5	6.5	-30.7	-35.8
Residential	13.7	9.0	10.5	11.3	11.1	10.2	0.0	0.2	-0.3	0.2	1.6	-2.9
Tertiary	5.6	6.2	6.7	7.4	7.3	7.2	-0.1	-0.4	-0.9	-1.1	-5.6	-10.7
Transport	8.6	9.4	12.2	14.3	14.8	15.6	-0.3	-0.7	-1.0	-1.9	-4.8	-6.1
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.6	3.9	0.0	-0.1	-0.2	-1.0	-2.2	-3.8
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	22.1	22.5	21.2	-0.5	-0.7	-0.7	-2.2	-3.0	-3.1
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	84.6	79.0	71.9	-6.4	-16.4	-25.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Hungary: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	239.2	210.7	174.3	-5.7	-8.7	-1.2	-2.3	-4.0	-0.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.83	1.58	1.29	-0.14	-0.39	-0.68	-7.0	-20.0	-34.5
Import Dependency %	50.4	56.0	62.9	67.1	67.5	64.0	-0.1	-0.7	-5.6			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	20.6	23.4	27.2	0.2	0.7	0.9	1.2	2.9	3.6
as % of GDP		18.2	16.1	16.4	15.9	14.2	0.2	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.7	1.0						
as % of GDP				0.19	0.46	0.50						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	63.2	59.0	50.2	-0.7	-0.4	-1.8	-1.1	-0.8	-3.5
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	69.2	60.0	47.1	-0.3	-0.7	-0.7	-0.5	-1.1	-1.5
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	70.4	62.0	49.4	-1.6	-3.0	-2.5	-2.2	-4.6	-4.9
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	34.5	33.3	30.0	-0.2	-0.5	-0.6	-0.7	-1.4	-2.1
Freight transport (toe/Mtkm)	34.4	36.4	39.3	39.0	37.7	36.1	-0.2	-0.6	-1.1	-0.6	-1.6	-2.9
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.21	0.15	0.06	-0.06	-0.13	-0.20	-21.8	-47.2	-75.6
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.91	1.77	1.67	0.02	-0.10	-0.15	1.3	-5.6	-8.2
Industry	2.25	1.85	1.84	1.82	1.26	1.11	0.13	-0.54	-0.56	7.7	-30.2	-33.5
Residential	2.13	1.64	1.64	1.55	1.51	1.38	0.01	0.04	-0.02	0.7	2.8	-1.5
Tertiary	1.70	1.64	1.64	1.57	1.51	1.43	0.02	-0.02	-0.09	1.2	-1.0	-6.1
Transport	2.84	2.90	2.92	2.78	2.69	2.65	-0.02	-0.07	-0.07	-0.9	-2.6	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	9.4	19.8	27.9	3.4	13.3	20.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	9.0	10.5	0.8	2.4	2.0			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	42528	45903	58504	58504	-4558	-6804	-1950	-9.7	-12.9	-3.2
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	3414	1893	9281	9281	-3411	-6185	-925	-50.0	-76.6	-9.1
Oil (including refinery gas)	4243	497	94	56	71	71	-689	-636	-80	-88.0	-91.9	-52.9
Gas (including derived gases)	8040	13021	19623	18379	12019	12019	-2865	-8153	-19516	-12.7	-30.7	-61.9
Biomass-waste	197	2348	4126	9885	20902	2403	2403	8166	18572	139.4	475.0	797.1
Hydro (pumping excluded)	178	203	196	196	199	199	5	4	0	2.5	2.3	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	7789	8587	10547	9945	10533	10533	-27	13	-512	-0.3	0.1	-4.6
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8605	7839	7854	7854	-27	13	-512	-0.3	0.2	-6.1
of which cogeneration units	1915	2391	2725	2872	2018	2018	-100	92	-534	-3.5	3.3	-20.9
Solids fired	1683	1592	1142	494	924	924	-214	-407	-257	-15.8	-45.2	-21.8
Gas fired	3516	4572	6323	5352	3622	3622	-358	-1016	-2710	-5.4	-16.0	-42.8
Oil fired	762	313	241	175	89	89	-14	-45	-175	-5.3	-20.4	-66.4
Biomass-waste fired	76	316	899	1819	3219	3219	559	1481	2631	164.2	437.6	446.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	44.1	50.6	58.6	58.6	-4.5	-7.4	-1.3			
Efficiency of gross thermal power generation (%)	29.9	33.0	46.5	49.8	48.7	48.7	0.9	1.6	-3.4			
% of gross electricity from CHP	24.5	28.3	28.0	28.8	25.1	25.1	0.6	5.6	-0.6			
Carbon free gross electricity generation (%)	41.4	45.9	45.6	55.7	63.5	63.5	9.5	22.7	32.8			
- nuclear	40.3	38.7	35.2	33.3	26.3	26.3	3.4	4.3	0.8			
- renewable energy forms	1.1	7.2	10.4	22.4	37.2	37.2	6.1	18.4	31.9			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	82.0	80.0	80.3	95.0	104.3	122.4	-0.4	-0.9	-1.8	-0.4	-0.8	-1.4
Private cars and motorcycles	19.3	18.7	18.2	16.6	16.0	14.8	0.0	0.1	0.1	0.3	0.6	0.9
Rail	47.3	46.6	47.2	62.3	71.1	87.5	-0.3	-0.9	-1.3	-0.5	-1.2	-1.5
Aviation	13.9	12.3	12.2	12.1	12.2	12.2	0.1	0.2	0.0	0.6	2.0	0.2
Inland navigation	1.6	2.4	2.7	4.0	5.1	7.8	-0.2	-0.3	-0.6	-4.5	-6.3	-7.0
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	34.0	27.9	35.8	48.0	53.3	61.2	-0.2	-0.3	-0.6	-0.4	-0.6	-0.9
Rail	15.2	19.1	25.2	36.1	40.8	47.7	-0.2	-0.5	-0.7	-0.7	-1.2	-1.4
Inland navigation	16.8	8.8	8.6	9.2	9.6	10.2	0.1	0.1	0.1	0.8	1.4	1.1
Energy demand in transport (ktoe)	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.0	0.0	0.2	0.4	0.6
Energy demand in transport (ktoe)												
Public road transport	3024	3252	4175	5146	5485	5880	-55	-125	-218	-1.1	-2.2	-3.6
Private cars and motorcycles	160	149	167	140	126	100	0	0	-2	-0.1	-0.2	-1.5
Trucks	1482	1824	2321	2793	2964	3083	-20	-46	-66	-0.7	-1.5	-2.1
Rail	938	886	1297	1761	1907	2145	-18	-47	-85	-1.0	-2.4	-3.8
Aviation	271	175	159	143	131	87	1	1	-1	0.5	1.0	-0.8
Inland navigation	164	219	230	309	355	463	-17	-32	-64	-5.3	-8.3	-12.2
Inland navigation	9	0	1	1	1	2	0	0	0	0.1	0.2	0.2

Source: PRIMES

Ireland: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	3353	4020	2175	1650	1958	2204	2797	3122	3132	-4.2	-1.0	3.6	1.1	
Solids	1312	1606	959	789	754	537	511	344	96	-3.1	-2.4	-3.8	-15.4	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	1873	2249	958	461	478	449	460	448	488	-6.5	-6.7	-0.4	0.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	168	165	258	401	726	1218	1826	2330	2549	4.4	10.9	9.7	3.4	
Hydro	60	61	73	54	80	81	82	83	83	2.0	0.9	0.3	0.2	
Biomass & Waste	108	102	164	250	375	469	587	717	772	4.3	8.6	4.6	2.8	
Wind	0	1	21	96	252	528	875	1227	1340		28.2	13.3	4.4	
Solar and others	0	0	0	0	19	140	283	303	353	14.8	58.1	31.2	2.2	
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.6	5.3	1.6	
Net Imports	7074	7604	12234	13620	14930	14364	13269	12829	12926	5.6	2.0	-1.2	-0.3	
Solids	2064	1823	1789	1969	2035	1896	589	302	285	-1.4	1.3	-11.7	-7.0	
Oil	5010	5698	7959	8466	9621	9199	8899	8663	8442	4.7	1.9	-0.8	-0.5	
- Crude oil and Feedstocks	2018	2260	3002	3297	3341	3241	3164	3098	3036	4.1	1.1	-0.5	-0.4	
- Oil products	2992	3438	4957	5168	6280	5957	5735	5565	5407	5.2	2.4	-0.9	-0.6	
Natural gas	0	85	2478	3010	3122	2931	3003	2924	3187		2.3	-0.4	0.6	
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Gross Inland Consumption	10225	10844	14319	15121	16768	16439	15931	15813	15917	3.4	1.6	-0.5	0.0	
Solids	3416	2775	2711	2685	2789	2433	1100	647	380	-2.3	0.3	-8.9	-10.1	
Oil	4768	5571	7906	8390	9502	9071	8765	8525	8301	5.2	1.9	-0.8	-0.5	
Natural gas	1873	2334	3436	3470	3600	3379	3463	3372	3676	6.3	0.5	-0.4	0.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Renewable energy forms	168	165	258	401	798	1470	2510	3166	3448	4.4	11.9	12.1	3.2	
as % in Gross Inland Consumption														
Solids	33.4	25.6	18.9	17.8	16.6	14.8	6.9	4.1	2.4					
Oil	46.6	51.4	55.2	55.5	56.7	55.2	55.0	53.9	52.2					
Natural gas	18.3	21.5	24.0	22.9	21.5	20.6	21.7	21.3	23.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.6	1.5	1.8	2.6	4.8	8.9	15.8	20.0	21.7					
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27729	28853	29457	35067	38879	5.2	1.6	0.6	2.8	
Self consumption and grid losses	2263	2665	3458	3870	3569	3506	3078	3485	3815	4.3	0.3	-1.5	2.2	
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4371	3941	3022	2927	3166	4.7	-0.9	-3.6	0.5	
Solids	1839	2028	1925	1903	2191	1946	703	325	98	0.5	1.3	-10.7	-17.8	
Oil (including refinery gas)	339	622	1019	774	147	27	0	1	1	11.6	-17.6			
Gas (including derived gases)	841	1060	1825	2040	1967	1881	1977	2145	2454	8.1	0.8	0.1	2.2	
Biomass & Waste	0	0	24	30	65	87	342	456	612		10.7	18.0	6.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	1939	2429	3481	3472	3557	3594	3695	3651	3606	6.0	0.2	0.4	-0.2	
Refineries	1742	2263	3310	3336	3341	3241	3164	3098	3036	6.6	0.1	-0.5	-0.4	
Biofuels and hydrogen production	0	0	0	1	137	299	496	531	557			13.7	1.2	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	197	167	171	135	79	54	36	21	14	-1.4	-7.5	-7.6	-9.2	
Energy Branch Consumption	168	185	246	380	340	313	269	252	242	3.9	3.3	-2.3	-1.1	
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4	
Final Energy Demand	7355	7903	10678	12346	13268	13156	13195	13240	13265	3.8	2.2	-0.1	0.1	
by sector														
Industry	1744	1851	2344	2484	2718	2788	2857	2928	3053	3.0	1.5	0.5	0.7	
- energy intensive industries	869	879	1170	1231	1383	1455	1516	1567	1631	3.0	1.7	0.9	0.7	
- other industrial sectors	875	972	1173	1253	1335	1333	1342	1361	1422	3.0	1.3	0.1	0.6	
Residential	2404	2208	2509	2923	3034	2921	2836	2781	2735	0.4	1.9	-0.7	-0.4	
Tertiary	1222	1502	1821	1958	1906	1744	1744	1736	1716	4.1	0.5	-0.9	-0.2	
Transport	1985	2343	4005	4981	5611	5702	5757	5795	5761	7.3	3.4	0.3	0.0	
by fuel														
Solids	1784	933	699	704	582	477	387	315	280	-9.0	-1.8	-4.0	-3.2	
Oil	3874	4796	6894	7990	8613	8283	8019	7780	7543	5.9	2.3	-0.7	-0.6	
Gas	568	796	1201	1337	1555	1429	1390	1126	1128	7.8	2.6	-1.1	-2.1	
Electricity	1020	1277	1744	2094	2143	2252	2351	2807	3116	5.5	2.1	0.9	2.9	
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			6.0	2.3	
Renewable energy forms	108	102	141	221	372	711	1044	1206	1192	2.7	10.2	10.9	1.3	
Other	0	0	0	0	1	2	3	3	3			18.6	2.4	
RES in Gross Final Energy Consumption ^(A)			245	382	761	1397	2360	3001	3211		12.0	12.0	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.2	68.2	60.9	58.2	57.2	2.1	0.8	-2.1	-0.6	
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.5	43.2	37.1	34.4	33.3	3.1	1.0	-2.2	-1.1	
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	12.3	7.5	6.4	6.1	3.9	-0.9	-6.0	-2.0	
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.5	0.5	0.5	4.0	5.8	-1.2	-1.1	
Industry	4.0	3.9	4.8	5.2	5.6	5.7	5.4	5.0	5.3	1.8	1.6	-0.4	-0.3	
Residential	7.5	6.0	6.1	6.6	6.6	5.8	5.4	4.7	4.1	-2.1	0.9	-2.0	-2.7	
Tertiary	2.9	3.4	3.8	3.6	3.5	2.7	2.4	2.0	1.7	2.8	-0.8	-3.6	-3.5	
Transport	5.9	6.9	11.9	14.8	16.4	16.2	15.9	15.8	15.6	7.3	3.2	-0.3	-0.2	
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.6	6.1	6.6	7.1	2.1	5.5	1.8	1.5	
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	19.4	17.6	17.2	16.9	0.6	-0.3	-2.9	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	134.0	121.4	108.4	103.6	102.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6	
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5	
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	67.5	55.7	48.1	43.6	-3.6	-3.2	-3.9	-2.4	
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.78	2.63	2.33	2.17	2.09	-0.3	-0.6	-1.7	-1.1	
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.7	82.6	80.4	80.5					
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	16.4	18.3	19.1	19.7		3.9	2.4	0.8	
as % of GDP			7.9	7.4	7.1	6.7	6.4	5.8	5.4					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	59.2	51.8	46.7	44.2	-4.0	-3.6	-2.9	-1.6	
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	68.3	57.6	49.9	44.6	-4.7	-1.9	-3.6	-2.5	
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	51.1	43.6	37.6	33.3	-2.4	-4.0	-4.1	-2.7	
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.0	48.6	44.0	41.3	-0.2	-0.8	-2.0	-1.6	
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	90.1	82.7	78.6	73.9	2.8	-1.5	-2.0	-1.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.42	0.25	0.18	0.16	-1.3	-2.5	-6.5	-4.6	
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.42	2.31	2.21	2.08	2.01	-1.0	-0.3	-0.9	-0.9	
Industry	2.31	2.09	2.05	2.08	2.07	2.04	1.89	1.71	1.72	-1.2	0.1	-0.9	-1.0	
Residential	3.11	2.71	2.42	2.27	2.19	1.98	1.92	1.68	1.51	-2.5	-1.0	-1.3	-2.3	
Tertiary	2.34	2.28	2.07	1.83	1.82	1.54	1.39	1.15	0.99	-1.2	-1.3	-2.7	-3.3	
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.76	2.73	2.71	0.1	-0.2	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.4	17.5	22.2	23.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.2	8.8	9.5	10.2					
Gross Electricity generation by source (in GWh)														
			23669	24992	27729	28853	29457	35067	38879		1.6	0.6	2.8	
Nuclear energy			0	0	0	0	0	0	0					
Solids			8737	8537	10577	9398	3350	1535	470		1.9	-10.9	-17.8	
Oil (including refinery gas)			4516	3390	641	88	0	8	8		-17.7			
Gas (including derived gases)			9231	11197	12361	11881	12483	14347	16805		3.0	0.1	3.0	
Biomass-waste			96	125	288	395	1784	3011	3877		11.6	20.0	8.1	
Hydro (pumping excluded)			846	631	927	940	953	965	969		0.9	0.3	0.2	
Wind			244	1112	2930	6139	10172	14268	15585		28.2	13.3	4.4	
Solar			0	0	5	11	18	27	38			13.7	7.7	
Geothermal and other renewables			0	0	0	0	697	906	1126				4.9	
Net Generation Capacity in MW_e			4627	6052	8278	7927	9671	12099	13566		6.0	1.6	3.4	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			343	714	1690	2490	4219	5567	6184		17.3	9.6	3.9	
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0	
Wind			118	480	1443	2222	3568	4784	5258		28.5	9.5	4.0	
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7	
Other renewables (tidal etc.)			0	0	0	0	362	470	585				4.9	
<u>Thermal power</u>			4284	5338	6588	5437	5452	6532	7382		4.4	-1.9	3.1	
of which cogeneration units			108	561	395	555	596	820	587		13.8	4.2	-0.2	
Solids fired			1282	1367	1361	1335	1314	1312	1312		0.6	-0.4	0.0	
Gas fired			1974	2937	4116	3889	3710	4520	5314		7.6	-1.0	3.7	
Oil fired			1010	995	1006	92	64	8	8		0.0	-24.1	-18.4	
Biomass-waste fired			18	39	105	120	365	692	747		19.2	13.3	7.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			55.2	44.0	36.2	39.7	33.8	32.4	32.1					
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.5	50.1	55.5	57.5					
% of gross electricity from CHP			1.1	0.9	6.1	6.9	7.9	9.2	8.4					
Carbon free gross electricity generation (%)			5.0	7.5	15.0	25.9	46.3	54.7	55.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			5.0	7.5	15.0	25.9	46.3	54.7	55.5					
Transport sector														
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	61.6	69.4	76.5	81.6	5.5	3.7	2.5	1.6	
Public road transport	3.9	5.2	6.1	6.7	7.3	7.7	8.2	8.6	8.9	4.7	1.8	1.2	0.8	
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	35.6	39.9	43.5	45.3	5.3	4.1	2.4	1.3	
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.4	4.0	4.8	1.3	5.5	3.6	3.5	
Aviation	3.2	5.1	7.9	9.6	11.7	14.0	16.4	18.9	21.1	9.5	4.0	3.4	2.5	
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7	
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.4	28.8	30.9	32.3	8.5	5.9	2.0	1.2	
Trucks	5.1	5.5	12.3	17.9	22.6	25.2	27.4	29.3	30.6	9.2	6.3	1.9	1.1	
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.5	0.5	-1.8	-3.3	2.2	1.2	
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	1.0	1.1	1.2	9.3	2.1	3.2	2.3	
Energy demand in transport (ktoe)	1985	2343	4005	4981	5611	5702	5757	5795	5761	7.3	3.4	0.3	0.0	
Public road transport	58	76	99	101	98	91	85	83	87	5.5	-0.2	-1.3	0.2	
Private cars and motorcycles	993	1146	1695	1915	2085	2067	2044	1956	1909	5.5	2.1	-0.2	-0.7	
Trucks	495	653	1532	2066	2355	2341	2343	2390	2363	12.0	4.4	-0.1	0.1	
Rail	48	50	42	44	51	51	39	39	28	-1.4	2.1	-2.5	-3.2	
Aviation	365	390	613	836	1002	1129	1222	1303	1348	5.3	5.0	2.0	1.0	
Inland navigation	26	28	25	18	20	22	24	25	25	-0.5	-2.1	1.6	0.8	

Source: PRIMES

Ireland: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2204	2797	3132	-38	361	459	-1.7	14.8	17.2
Solids	1312	959	789	537	511	96	-206	-218	-576	-27.8	-29.9	-85.8
Oil	0	0	0	0	0	0	0	0	0	-95.6	14899.6	-98.1
Natural gas	1873	958	461	449	460	488	-119	-115	-12	-21.0	-20.0	-2.4
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	168	258	401	1218	1826	2549	287	693	1047	30.9	61.2	69.7
Hydro	60	73	54	81	82	83	4	2	0	4.7	2.5	0.0
Biomass & Waste	108	164	250	469	587	772	0	0	-11	0.0	0.0	-1.3
Wind	0	21	96	528	875	1340	179	460	772	51.4	110.7	135.9
Solar and others	0	0	0	140	283	353	104	232	285	292.8	452.5	424.8
Geothermal	0	0	0	0	0	0	0	0	0	37.1	95.3	148.5
Net Imports	7074	12234	13620	14364	13269	12926	-2000	-3618	-4043	-12.2	-21.4	-23.8
Solids	2064	1789	1969	1896	589	285	-397	-2062	-1864	-17.3	-77.8	-86.7
Oil	5010	7959	8466	9199	8899	8442	-1004	-1360	-1993	-9.8	-13.3	-19.1
- Crude oil and Feedstocks	2018	3002	3297	3241	3164	3036	-316	-391	-533	-8.9	-11.0	-14.9
- Oil products	2992	4957	5168	5957	5735	5407	-688	-970	-1460	-10.4	-14.5	-21.3
Natural gas	0	2478	3010	2931	3003	3187	-779	-753	-918	-21.0	-20.0	-22.4
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	16439	15931	15917	-2038	-3257	-3583	-11.0	-17.0	-18.4
Solids	3416	2711	2685	2433	1100	380	-604	-2280	-2440	-19.9	-67.5	-86.5
Oil	4768	7906	8390	9071	8765	8301	-1004	-1360	-1992	-10.0	-13.4	-19.4
Natural gas	1873	3436	3470	3379	3463	3676	-898	-868	-930	-21.0	-20.0	-20.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1470	2510	3448	468	1251	1779	46.7	99.4	106.6
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	14.8	6.9	2.4	-1.6	-10.7	-12.1			
Oil	46.6	55.2	55.5	55.2	55.0	52.2	0.7	2.3	-0.6			
Natural gas	18.3	24.0	22.9	20.6	21.7	23.1	-2.6	-0.8	-0.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	8.9	15.8	21.7	3.5	9.2	13.1			
Gross Electricity Generation in GWh_e	14226	23669	24992	28853	29457	38879	-5381	-7286	155	-15.7	-19.8	0.4
Self consumption and grid losses	2263	3458	3870	3506	3078	3815	-782	-1502	-716	-18.2	-32.8	-15.8
Fuel Inputs to Thermal Power Generation	3019	4792	4747	3941	3022	3166	-1246	-2357	-1873	-24.0	-43.8	-37.2
Solids	1839	1925	1903	1946	703	98	-515	-2178	-2349	-20.9	-75.6	-96.0
Oil (including refinery gas)	339	1019	774	27	0	1	-199	-16	1	-88.2	-100.0	89487.7
Gas (including derived gases)	841	1825	2040	1881	1977	2454	-534	-402	61	-22.1	-16.9	2.6
Biomass & Waste	0	24	30	87	342	612	3	240	413	3.9	235.1	208.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Input to other conversion processes	1939	3481	3472	3594	3695	3606	-283	-301	-507	-7.3	-7.5	-12.3
Refineries	1742	3310	3336	3241	3164	3036	-316	-391	-533	-8.9	-11.0	-14.9
Biofuels and hydrogen production	0	0	1	299	496	557	45	100	34	17.6	25.4	6.5
District heating	0	0	0	0	0	0	0	0	0	0	0	0
Derived gases, cokeries etc.	197	171	135	54	36	14	-12	-11	-9	-18.2	-23.9	-38.8
Energy Branch Consumption	168	246	380	313	269	242	-50	-104	-113	-13.7	-27.8	-31.9
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13156	13195	13265	-1335	-1889	-2449	-9.2	-12.5	-15.6
by sector												
Industry	1744	2344	2484	2788	2857	3053	-101	-174	-231	-3.5	-5.7	-7.0
- energy intensive industries	869	1170	1231	1455	1516	1631	-31	-52	-64	-2.1	-3.3	-3.8
- other industrial sectors	875	1173	1253	1333	1342	1422	-70	-123	-168	-5.0	-8.4	-10.5
Residential	2404	2509	2923	2921	2836	2735	-326	-475	-607	-10.0	-14.3	-18.2
Tertiary	1222	1821	1958	1744	1744	1716	-540	-626	-762	-23.7	-26.4	-30.7
Transport	1985	4005	4981	5702	5757	5761	-368	-614	-849	-6.1	-9.6	-12.8
by fuel												
Solids	1784	699	704	477	387	280	-84	-98	-82	-15.0	-20.2	-22.6
Oil	3874	6894	7990	8283	8019	7543	-782	-1283	-1928	-8.6	-13.8	-20.4
Gas	568	1201	1337	1429	1390	1128	-346	-477	-1001	-19.5	-25.5	-47.0
Electricity	1020	1744	2094	2252	2351	3116	-395	-496	77	-14.9	-17.4	2.5
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	0	1	-5.8	28.8	55.5
Renewable energy forms	108	141	221	711	1044	1192	271	465	485	61.7	80.2	68.6
Other	0	0	0	2	3	3	1	0	0	118.2	3.9	-8.1
RES in Gross Final Energy Consumption ^(A)		245	382	1397	2360	3211	459	1197	1695	48.9	103.0	111.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	68.2	60.9	57.2	-11.0	-19.8	-22.9	-13.9	-24.5	-28.5
CO₂ Emissions (energy related)	30.9	42.1	45.7	43.2	37.1	33.3	-7.5	-15.1	-17.9	-14.8	-29.0	-35.0
Power generation/District heating	10.4	15.2	14.8	12.3	7.5	6.1	-4.0	-9.6	-9.2	-24.4	-56.2	-60.0
Energy Branch	0.2	0.3	0.6	0.6	0.5	0.5	0.0	-0.1	-0.2	-8.2	-17.4	-26.4
Industry	4.0	4.8	5.2	5.7	5.4	5.3	-0.3	-0.8	-1.2	-4.8	-12.8	-19.0
Residential	7.5	6.1	6.6	5.8	5.4	4.1	-1.0	-1.2	-2.3	-15.0	-18.5	-35.9
Tertiary	2.9	3.8	3.6	2.7	2.4	1.7	-1.0	-1.3	-2.1	-27.0	-34.1	-55.9
Transport	5.9	11.9	14.8	16.2	15.9	15.6	-1.2	-2.1	-2.8	-7.0	-11.8	-15.4
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.6	6.1	7.1	-0.1	-0.2	-0.2	-2.0	-2.4	-2.4
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	19.4	17.6	16.9	-3.4	-4.5	-4.8	-14.9	-20.3	-22.1
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	121.4	108.4	102.0	-19.7	-35.2	-40.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Ireland: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	67.5	55.7	43.6	-8.4	-11.4	-9.8	-11.0	-17.0	-18.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.63	2.33	2.09	-0.12	-0.39	-0.53	-4.3	-14.4	-20.4
Import Dependency %	69.1	84.5	89.5	86.7	82.6	80.5	-1.3	-4.8	-5.9			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	16.4	18.3	19.7	1.1	1.7	1.8	7.1	10.0	10.0
as % of GDP		7.9	7.4	6.7	6.4	5.4	0.4	0.6	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				1.1	1.8	1.9						
as % of GDP				0.47	0.62	0.53						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	59.2	51.8	44.2	-2.1	-3.2	-3.3	-3.5	-5.7	-7.0
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	68.3	57.6	44.6	-7.6	-9.6	-9.9	-10.0	-14.3	-18.2
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	51.1	43.6	33.3	-15.8	-15.7	-14.8	-23.7	-26.4	-30.7
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.0	48.6	41.3	-1.4	-2.2	-2.5	-2.6	-4.3	-5.7
Freight transport (toe/Mtkm)	89.6	117.7	111.2	90.1	82.7	73.9	-4.0	-7.2	-10.7	-4.2	-8.0	-12.6
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.42	0.25	0.16	-0.05	-0.21	-0.24	-10.3	-45.4	-60.2
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.21	2.01	-0.03	-0.08	-0.23	-1.3	-3.6	-10.2
Industry	2.31	2.05	2.08	2.04	1.89	1.72	-0.03	-0.15	-0.25	-1.3	-7.4	-12.9
Residential	3.11	2.42	2.27	1.98	1.92	1.51	-0.11	-0.10	-0.42	-5.5	-4.8	-21.6
Tertiary	2.34	2.07	1.83	1.54	1.39	0.99	-0.07	-0.16	-0.56	-4.3	-10.5	-36.3
Transport	2.96	2.97	2.98	2.85	2.76	2.71	-0.03	-0.07	-0.08	-1.0	-2.4	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.4	17.5	23.6	4.1	10.0	14.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.2	8.8	10.2	1.0	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	23669	24992	28853	29457	38879	38879	-5381	-7286	155	-15.7	-19.8	0.4
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	9398	3350	470	470	-2823	-11194	-13012	-23.1	-77.0	-96.5
Oil (including refinery gas)	4516	3390	88	0	8	8	-954	-55	8	-91.5	-100.0	144963.1
Gas (including derived gases)	9231	11197	11881	12483	16805	16805	-3744	-3420	119	-24.0	-21.5	0.7
Biomass-waste	96	125	395	1784	3877	3877	14	1318	2936	3.7	283.0	311.9
Hydro (pumping excluded)	846	631	940	953	969	969	42	23	0	4.7	2.5	0.0
Wind	244	1112	6139	10172	15585	15585	2084	5345	8979	51.4	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	697	1126	1126	0	697	1126			
Net Generation Capacity in MW_e												
Net Generation Capacity in MW_e	4627	6052	7927	9671	13566	13566	-230	668	3275	-2.8	7.4	31.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2490	4219	6184	6184	675	2080	3332	37.2	97.2	116.8
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2222	3568	5258	5258	675	1719	2747	43.7	92.9	109.4
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	362	585	585	0	362	585			
<u>Thermal power</u>	4284	5338	5437	5452	7382	7382	-906	-1412	-57	-14.3	-20.6	-0.8
of which cogeneration units	108	561	555	596	587	587	-52	70	-323	-8.6	13.4	-35.5
Solids fired	1282	1367	1335	1314	1312	1312	-261	-460	-1163	-16.4	-26.0	-47.0
Gas fired	1974	2937	3889	3710	5314	5314	-649	-1172	481	-14.3	-24.0	10.0
Oil fired	1010	995	92	64	8	8	0	-17	1	0.0	-20.7	18.9
Biomass-waste fired	18	39	120	365	747	747	5	238	624	4.1	187.0	503.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	39.7	33.8	32.1	32.1	-5.9	-10.6	-9.1			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.5	50.1	57.5	57.5	-1.0	0.6	4.4			
% of gross electricity from CHP	1.1	0.9	6.9	7.9	8.4	8.4	-0.3	0.1	0.5			
Carbon free gross electricity generation (%)	5.0	7.5	25.9	46.3	55.5	55.5	10.3	29.3	33.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	25.9	46.3	55.5	55.5	10.3	29.3	33.5			
Transport sector												
Passenger transport activity (Gpkm)												
Passenger transport activity (Gpkm)	22.0	37.6	45.4	61.6	69.4	81.6	-1.4	-2.3	-3.1	-2.2	-3.2	-3.7
Public road transport	3.9	6.1	6.7	7.7	8.2	8.9	0.2	0.3	0.4	2.6	3.8	4.3
Private cars and motorcycles	12.6	21.1	26.0	35.6	39.9	45.3	-1.2	-2.0	-2.6	-3.2	-4.7	-5.4
Rail	1.2	1.4	1.8	2.8	3.4	4.8	0.1	0.1	0.3	2.4	3.8	5.6
Aviation	3.2	7.9	9.6	14.0	16.4	21.1	-0.5	-0.8	-1.1	-3.2	-4.4	-5.1
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.2	0.2	0.2
Freight transport activity (Gtkm)												
Freight transport activity (Gtkm)	5.9	13.3	18.8	26.4	28.8	32.3	-1.0	-1.5	-2.0	-3.8	-5.1	-5.7
Trucks	5.1	12.3	17.9	25.2	27.4	30.6	-1.1	-1.6	-2.1	-4.2	-5.6	-6.4
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.1	8.8	11.2	12.5
Inland navigation	0.2	0.6	0.6	0.8	1.0	1.2	0.0	0.1	0.1	4.6	6.1	6.9
Energy demand in transport (ktoe)												
Energy demand in transport (ktoe)	1985	4005	4981	5702	5757	5761	-368	-614	-849	-6.1	-9.6	-12.8
Public road transport	58	99	101	91	85	87	-1	-5	-8	-0.9	-5.1	-8.2
Private cars and motorcycles	993	1695	1915	2067	2044	1909	-118	-180	-192	-5.4	-8.1	-9.1
Trucks	495	1532	2066	2341	2343	2363	-204	-348	-511	-8.0	-12.9	-17.8
Rail	48	42	44	51	39	28	1	1	1	2.7	2.7	4.7
Aviation	365	613	836	1129	1222	1348	-46	-82	-139	-3.9	-6.3	-9.4
Inland navigation	26	25	18	22	24	25	0	0	0	0.2	-0.2	-1.6

Source: PRIMES

Italy: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	25537	29408	27099	28044	30982	32832	35475	38286	40857	0.6	1.3	1.4	1.4	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5943	5719	5630	5618	5500	0.1	2.2	-0.5	-0.2	
Natural gas	14030	16347	13622	9886	10689	9730	8000	7951	8000	-0.3	-2.4	-2.9	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14351	17383	21845	24716	27357	2.9	5.1	4.3	2.3	
Hydro	2719	3249	3812	3101	3243	3204	3185	3172	3172	3.4	-1.6	-0.2	0.0	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9900	11122	7.3	11.8	4.6	3.1	
Wind	0	1	48	202	464	858	1522	2015	2421	73.3	25.4	12.6	4.7	
Solar and others	5	8	12	23	120	1378	3472	4061	4910	9.2	25.6	40.0	3.5	
Geothermal	2971	3167	3103	4791	5266	5372	5452	5568	5733	0.4	5.4	0.3	0.5	
Net Imports	132060	134651	152953	160475	163921	152242	151809	153582	154108	1.5	0.7	-0.8	0.2	
Solids	13792	12987	13188	16366	16919	15958	14212	15314	14509	-0.4	2.5	-1.7	0.2	
Oil	89885	89684	88458	79421	76202	70189	67862	67945	67214	-0.2	-1.5	-1.2	-0.1	
- Crude oil and Feedstocks	84284	82558	90244	94404	90782	87240	85829	85918	85535	0.7	0.1	-0.6	0.0	
- Oil products	5602	7126	-1786	-14983	-14580	-17051	-17967	-17973	-18321					
Natural gas	25311	28530	47008	59840	65697	59806	60650	60282	61582	6.4	3.4	-0.8	0.2	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	191364	181435	183615	188177	191277	1.2	1.0	-0.4	0.4	
Solids	14621	12272	12659	16477	16919	15958	14212	15314	14509	-1.4	2.9	-1.7	0.2	
Oil	89860	93248	88947	83169	78606	72269	69823	69872	69026	-0.1	-1.2	-1.2	-0.1	
Natural gas	39001	44652	57940	70651	76386	69536	68650	68233	69582	4.0	2.8	-1.1	0.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	15661	19723	27073	31017	34436	3.3	5.5	5.6	2.4	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.8	8.8	7.7	8.1	7.6					
Oil	58.7	57.8	51.6	44.5	41.1	39.8	38.0	37.1	36.1					
Natural gas	25.5	27.7	33.6	37.8	39.9	38.3	37.4	36.3	36.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	8.2	10.9	14.7	16.5	18.0					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314952	294795	312941	344870	372417	2.4	1.6	-0.1	1.8	
Self consumption and grid losses	30076	32312	36552	38396	33448	31185	32392	36107	38578	2.0	-0.9	-0.3	1.8	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	49149	43425	43946	47774	49044	1.7	0.3	-1.1	1.1	
Solids	7017	5287	5836	10001	10139	9111	7674	8893	8349	-1.8	5.7	-2.7	0.8	
Oil (including refinery gas)	21528	25009	18955	9642	3085	245	120	381	408	-1.3	-16.6	-27.7	13.0	
Gas (including derived gases)	8971	10234	19665	26402	29232	26229	25211	25001	25676	8.2	4.0	-1.5	0.2	
Biomass & Waste	39	94	419	2270	1624	2683	5713	8153	9071	26.8	14.5	13.4	4.7	
Geothermal heat	2770	2954	2890	4578	5068	5157	5228	5345	5540	0.4	5.8	0.3	0.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	106020	103669	103330	103441	102902	0.3	0.3	-0.3	0.0	
Refineries	91545	92283	96749	102214	98837	95115	93635	93625	93048	0.6	0.2	-0.5	-0.1	
Biofuels and hydrogen production	0	0	0	162	1937	3225	4658	4978	5335			9.2	1.4	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5246	5329	5037	4837	4518	-2.8	-1.0	-0.4	-1.1	
Energy Branch Consumption	7045	7362	7289	8620	7953	7450	7242	7296	7214	0.3	0.9	-0.9	0.0	
Non-Energy Uses	9896	13633	10838	11007	11299	11869	12333	12419	12403	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	142284	135889	137661	140047	143004	1.4	1.4	-0.3	0.4	
by sector														
Industry	36221	36430	39489	40729	43472	43943	44777	45859	47240	0.9	1.0	0.3	0.5	
- energy intensive industries	25218	24737	24840	25798	27469	28072	28342	28673	29117	-0.2	1.0	0.3	0.3	
- other industrial sectors	11002	11692	14648	14931	16003	15871	16435	17186	18123	2.9	0.9	0.3	1.0	
Residential	26284	26673	28331	31849	34133	30782	32353	32815	33226	0.8	1.9	-0.5	0.3	
Tertiary	11252	12970	14171	17898	18769	16636	16837	17131	17400	2.3	2.8	-1.1	0.3	
Transport	33404	37636	41263	43604	45910	44527	43694	44242	45137	2.1	1.1	-0.5	0.3	
by fuel														
Solids	4209	4012	3681	4220	4674	4761	4526	4441	4306	-1.3	2.4	-0.3	-0.5	
Oil	53623	53099	56147	58196	59980	56351	53896	53769	53098	0.5	0.7	-1.1	-0.1	
Gas	29813	34652	37984	43747	45351	41597	41609	42196	42869	2.5	1.8	-0.9	0.3	
Electricity	18408	20442	23435	25828	27366	25996	27368	29680	31827	2.4	1.6	0.0	1.5	
Heat (from CHP and District Heating)	0	0	0	0	12	11	12	12	13			-0.3	1.0	
Renewable energy forms	1107	1505	2007	2089	4897	7164	10240	9937	10878	6.1	9.3	7.7	0.6	
Other	0	0	0	0	3	9	11	11	12			14.2	1.3	
RES in Gross Final Energy Consumption ^(A)			6472	7301	10316	14386	21024	24353	27329		4.8	7.4	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	574.4	518.8	495.4	498.0	495.2	0.7	0.6	-1.5	0.0	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	447.2	406.2	388.2	391.5	388.9	0.9	0.6	-1.4	0.0	
Power generation/District heating	118.9	126.1	130.7	133.8	120.1	99.9	91.5	96.6	95.9	1.0	-0.8	-2.7	0.5	
Energy Branch	16.6	17.0	16.6	20.2	18.5	17.0	16.3	14.0	13.3	0.1	1.0	-1.2	-2.0	
Industry	79.6	75.4	77.5	81.6	86.3	87.1	86.1	87.4	85.7	-0.3	1.1	0.0	-0.1	
Residential	55.6	52.8	54.7	61.3	65.0	57.2	56.6	55.9	55.7	-0.2	1.7	-1.4	-0.2	
Tertiary	19.1	21.2	22.0	27.2	27.9	22.8	21.8	21.2	20.7	1.4	2.4	-2.4	-0.5	
Transport	97.1	108.9	119.7	126.8	129.5	122.1	115.9	116.5	117.8	2.1	0.8	-1.1	0.2	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	37.5	37.8	38.5	39.1	-1.6	2.2	0.0	0.3	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	75.1	69.4	68.0	67.2	0.8	-0.2	-2.5	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	113.3	102.3	97.7	98.2	97.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Italy: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.1	106.4	98.5	93.0	88.2	-0.4	-0.1	-2.3	-1.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.34	2.24	2.11	2.08	2.03	-0.3	-0.4	-1.0	-0.4
Import Dependency %	84.8	82.3	87.3	84.4	84.1	82.3	81.1	80.0	79.0				
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	171.1	203.2	227.9	244.1	259.0		2.3	2.9	1.3
as % of GDP			9.9	10.3	11.1	11.9	12.2	12.1	11.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.9	98.3	90.9	84.7	80.8	-0.3	0.8	-1.7	-1.2
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.6	89.2	86.2	80.9	76.8	-0.9	0.8	-2.3	-1.1
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.8	92.7	85.6	80.2	76.0	0.4	1.5	-3.0	-1.2
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	30.4	30.1	29.9	30.2	-0.5	-0.1	-0.2	0.0
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	49.8	44.3	42.5	41.1	-1.1	1.5	-2.1	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.34	0.29	0.28	0.26	-1.4	-2.4	-2.6	-1.3
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.17	2.13	2.04	2.01	1.96	-0.5	-0.2	-0.6	-0.4
Industry	2.20	2.07	1.96	2.00	1.98	1.98	1.92	1.91	1.81	-1.1	0.1	-0.3	-0.6
Residential	2.11	1.98	1.93	1.93	1.90	1.86	1.75	1.70	1.68	-0.9	-0.1	-0.8	-0.4
Tertiary	1.70	1.63	1.55	1.52	1.49	1.37	1.29	1.24	1.19	-0.9	-0.4	-1.4	-0.9
Transport	2.91	2.89	2.90	2.91	2.82	2.74	2.65	2.63	2.61	0.0	-0.3	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	7.1	10.4	15.0	17.0	18.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	7.1	10.7	11.5	12.2				
Gross Electricity generation by source (in GWh)													
			270016	296786	314952	294795	312941	344870	372417		1.6	-0.1	1.8
Nuclear energy			0	0	0	0	0	0	0				
Solids			25679	45155	48870	48869	41956	47834	45216		6.6	-1.5	0.8
Oil (including refinery gas)			82354	43300	14905	1327	698	1928	2053		-15.7	-26.4	11.4
Gas (including derived gases)			109707	154992	192865	176010	177550	179287	187843		5.8	-0.8	0.6
Biomass-waste			2685	7485	6863	12540	26004	40178	48825		9.8	14.2	6.5
Hydro (pumping excluded)			44328	36061	37714	37253	37035	36886	36885		-1.6	-0.2	0.0
Wind			563	2344	5398	9980	17699	23432	28150		25.4	12.6	4.7
Solar			18	31	84	369	3417	6548	14747		16.6	44.9	15.7
Geothermal and other renewables			4682	7417	8253	8447	8583	8776	8698		5.8	0.4	0.1
Net Generation Capacity in MW_e			69851	76966	100345	92029	96155	100765	112804		3.7	-0.4	1.6
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			14588	15810	17313	19980	25969	32648	41990		1.7	4.1	4.9
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0
Wind			427	1639	3085	5468	9414	13946	17778		21.9	11.8	6.6
Solar			26	38	93	339	2353	4471	9925		13.6	38.2	15.5
Other renewables (tidal etc.)			0	0	0	35	63	93	148				8.9
<u>Thermal power</u>			55264	61156	83032	72049	70186	68116	70815		4.2	-1.7	0.1
of which cogeneration units			9682	10847	11430	11822	12688	13865	14651		1.7	1.0	1.4
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8
Gas fired			27466	33995	53491	50654	48500	46120	49650		6.9	-1.0	0.2
Oil fired			16795	15253	15327	7597	5527	3889	1113		-0.9	-9.7	-14.8
Biomass-waste fired			597	1223	1392	3155	5803	8464	10357		8.8	15.3	6.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			785	971	971	979	995	1021	1092		2.1	0.3	0.9
Avg. Load factor of net power capacity (%)			41.7	41.7	34.6	35.2	35.9	37.6	36.4				
Efficiency of gross thermal power generation (%)			40.5	42.0	47.6	48.9	49.8	50.0	51.3				
% of gross electricity from CHP			11.6	8.1	17.5	20.1	22.1	23.2	22.9				
Carbon free gross electricity generation (%)			19.4	18.0	18.5	23.3	29.6	33.6	36.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			19.4	18.0	18.5	23.3	29.6	33.6	36.9				
Transport sector													
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	998.3	1023.9	1055.4	1081.5	3.0	0.3	0.3	0.5
Public road transport	84.0	87.1	93.6	101.3	107.1	112.6	116.4	118.1	118.7	1.1	1.4	0.8	0.2
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	765.4	774.9	792.0	806.0	3.3	0.0	-0.1	0.4
Rail	48.9	49.1	52.7	52.3	51.8	52.6	55.1	59.5	64.0	0.8	-0.2	0.6	1.5
Aviation	21.3	27.9	38.2	43.1	51.3	61.9	71.6	79.8	86.7	6.0	3.0	3.4	1.9
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.8	5.9	6.0	6.1	-0.8	-0.1	0.1	0.4
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	283.6	290.8	299.1	303.9	2.5	1.6	0.4	0.4
Trucks	130.9	174.4	184.7	211.8	229.4	229.8	233.5	238.7	240.8	3.5	2.2	0.2	0.3
Rail	19.4	21.7	22.8	20.1	21.3	24.5	26.6	28.8	30.8	1.7	-0.7	2.2	1.5
Inland navigation	35.8	35.4	30.2	28.1	28.2	29.3	30.7	31.6	32.4	-1.7	-0.7	0.9	0.5
Energy demand in transport (ktoe)	33404	37636	41263	43604	45910	44527	43694	44242	45137	2.1	1.1	-0.5	0.3
Public road transport	684	599	656	701	752	743	687	670	671	-0.4	1.4	-0.9	-0.2
Private cars and motorcycles	20584	23615	25521	24557	25004	24076	24010	24272	25072	2.2	-0.2	-0.4	0.4
Trucks	9137	9737	10559	13327	14505	13322	12082	11875	11698	1.5	3.2	-1.8	-0.3
Rail	738	819	834	907	920	944	904	925	919	1.2	1.0	-0.2	0.2
Aviation	1872	2418	3491	3863	4481	5196	5763	6254	6532	6.4	2.5	2.5	1.3
Inland navigation	389	448	202	248	247	246	247	247	246	-6.3	2.0	0.0	0.0

Source: PRIMES

Italy: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	32832	35475	40857	785	3637	6497	2.5	11.4	18.9
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	5719	5630	5500	-628	-370	0	-9.9	-6.2	0.0
Natural gas	14030	13622	9886	9730	8000	8000	-270	0	0	-2.7	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	17383	21845	27357	1683	4007	6497	10.7	22.5	31.1
Hydro	2719	3812	3101	3204	3185	3172	58	85	104	1.8	2.7	3.4
Biomass & Waste	849	1716	3505	6571	8214	11122	356	610	1479	5.7	8.0	15.3
Wind	0	48	202	858	1522	2421	0	323	1240	0.0	26.9	105.1
Solar and others	5	12	23	1378	3472	4910	833	2527	3589	152.6	267.4	271.8
Geothermal	2971	3103	4791	5372	5452	5733	437	462	85	8.8	9.3	1.5
Net Imports	132060	152953	160475	152242	151809	154108	-29875	-41205	-46819	-16.4	-21.3	-23.3
Solids	13792	13188	16366	15958	14212	14509	-3851	-6531	-6649	-19.4	-31.5	-31.4
Oil	89885	88458	79421	70189	67862	67214	-14170	-18330	-19098	-16.8	-21.3	-22.1
- Crude oil and Feedstocks	84284	90244	94404	87240	85829	85535	-9798	-13161	-13869	-10.1	-13.3	-14.0
- Oil products	5602	-1786	-14983	-17051	-17967	-18321	-4372	-5169	-5229	34.5	40.4	39.9
Natural gas	25311	47008	59840	59806	60650	61582	-13092	-20224	-26442	-18.0	-25.0	-30.0
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	181435	183615	191277	-29085	-37557	-40307	-13.8	-17.0	-17.4
Solids	14621	12659	16477	15958	14212	14509	-3851	-6531	-6649	-19.4	-31.5	-31.4
Oil	89860	88947	83169	72269	69823	69026	-14793	-18689	-19082	-17.0	-21.1	-21.7
Natural gas	39001	57940	70651	69536	68650	69582	-13361	-20224	-26442	-16.1	-22.8	-27.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	19723	27073	34436	2921	7888	11867	17.4	41.1	52.6
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.8	7.7	7.6	-0.6	-1.6	-1.6			
Oil	58.7	51.6	44.5	39.8	38.0	36.1	-1.5	-2.0	-2.0			
Natural gas	25.5	33.6	37.8	38.3	37.4	36.4	-1.1	-2.8	-5.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	10.9	14.7	18.0	2.9	6.1	8.3			
Gross Electricity Generation in GWh_e	213400	270016	296786	294795	312941	372417	-98605	-124817	-123783	-25.1	-28.5	-24.9
Self consumption and grid losses	30076	36552	38396	31185	32392	38578	-11389	-14800	-14609	-26.8	-31.4	-27.5
Fuel Inputs to Thermal Power Generation	40325	47764	52894	43425	43946	49044	-16720	-21499	-21716	-27.8	-32.9	-30.7
Solids	7017	5836	10001	9111	7674	8349	-3869	-6005	-5963	-29.8	-43.9	-41.7
Oil (including refinery gas)	21528	18955	9642	245	120	408	-6630	-6099	-4670	-96.4	-98.1	-92.0
Gas (including derived gases)	8971	19665	26402	26229	25211	25676	-6605	-12381	-15786	-20.1	-32.9	-38.1
Biomass & Waste	39	419	2270	2683	5713	9071	-9	2597	4703	-0.3	83.4	107.7
Geothermal heat	2770	2890	4578	5157	5228	5540	394	388	0	8.3	8.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	103669	103330	102902	-9410	-12787	-13911	-8.3	-11.0	-11.9
Refineries	91545	96749	102214	95115	93635	93048	-10439	-13545	-13884	-9.9	-12.6	-13.0
Biofuels and hydrogen production	0	0	162	3225	4658	5335	578	745	59	21.8	19.0	1.1
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5329	5037	4518	451	14	-86	9.2	0.3	-1.9
Energy Branch Consumption	7045	7289	8620	7450	7242	7214	-1004	-1429	-1469	-11.9	-16.5	-16.9
Non-Energy Uses	9896	10838	11007	11869	12333	12403	-46	-53	-62	-0.4	-0.4	-0.5
Final Energy Demand	107160	123254	134080	135899	137661	143004	-19185	-24970	-28969	-12.4	-15.4	-16.8
by sector												
Industry	36221	39489	40729	43943	44777	47240	-958	-1968	-3020	-2.1	-4.2	-6.0
- energy intensive industries	25218	24840	25798	28072	28342	29117	13	-754	-1430	0.0	-2.6	-4.7
- other industrial sectors	11002	14648	14931	15871	16435	18123	-972	-1214	-1590	-5.8	-6.9	-8.1
Residential	26284	28331	31849	30782	32353	33226	-6566	-6438	-6572	-17.6	-16.6	-16.5
Tertiary	11252	14171	17898	16636	16837	17400	-6296	-7609	-8442	-27.5	-31.1	-32.7
Transport	33404	41263	43604	44527	43694	45137	-5365	-8955	-10935	-10.8	-17.0	-19.5
by fuel												
Solids	4209	3681	4220	4761	4526	4306	65	-404	-565	1.4	-8.2	-11.6
Oil	53623	56147	58196	56351	53896	53098	-7581	-11734	-13486	-11.9	-17.9	-20.3
Gas	29813	37984	43747	41597	41609	42869	-6537	-7523	-9202	-13.6	-15.3	-17.7
Electricity	18408	23435	25828	25996	27368	31827	-7465	-9399	-9312	-22.3	-25.6	-22.6
Heat (from CHP and District Heating)	0	0	0	11	12	13	-11	-13	-14	-50.5	-52.6	-51.1
Renewable energy forms	1107	2007	2089	7164	10240	10878	2341	4103	3617	48.5	66.9	49.8
Other	0	0	0	9	11	12	3	1	-8	61.4	5.3	-37.9
RES in Gross Final Energy Consumption ^(A)		6472	7301	14386	21024	27329	2630	7398	11460	22.4	54.3	72.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	518.8	495.4	495.2	-105.6	-149.3	-166.0	-16.9	-23.2	-25.1
CO₂ Emissions (energy related)	386.9	421.3	451.0	406.2	388.2	388.9	-91.9	-130.3	-146.3	-18.5	-25.1	-27.3
Power generation/District heating	118.9	130.7	133.8	99.9	91.5	95.9	-51.9	-72.2	-75.4	-34.2	-44.1	-44.0
Energy Branch	16.6	16.6	20.2	17.0	16.3	13.3	-2.2	-3.2	-5.9	-11.3	-16.4	-30.7
Industry	79.6	77.5	81.6	87.1	86.1	85.7	0.1	-3.1	-6.9	0.2	-3.5	-7.5
Residential	55.6	54.7	61.3	57.2	56.6	55.7	-13.0	-14.8	-16.1	-18.6	-20.7	-22.4
Tertiary	19.1	22.0	27.2	22.8	21.8	20.7	-7.3	-8.0	-8.2	-24.3	-26.8	-28.4
Transport	97.1	119.7	126.8	122.1	115.9	117.8	-17.6	-29.0	-33.9	-12.6	-20.0	-22.3
CO₂ Emissions (non energy related)	35.5	30.2	36.1	37.5	37.8	39.1	-0.9	-1.8	-2.1	-2.4	-4.5	-5.2
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	75.1	69.4	67.2	-12.8	-17.3	-17.6	-14.5	-19.9	-20.8
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	102.3	97.7	97.6	-20.8	-29.4	-32.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	106.4	98.5	88.2	-17.1	-20.1	-18.6	-13.8	-17.0	-17.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.24	2.11	2.03	-0.13	-0.23	-0.28	-5.4	-9.8	-12.0
Import Dependency %	84.8	87.3	84.4	82.3	81.1	79.0	-2.8	-4.8	-6.4			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	203.2	227.9	259.0	13.9	17.5	24.4	7.4	8.3	10.4
as % of GDP		9.9	10.3	11.9	12.2	11.9	0.8	0.9	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				14.2	17.9	25.0						
as % of GDP				0.83	0.96	1.15						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	98.3	90.9	80.8	-2.1	-4.0	-5.2	-2.1	-4.2	-6.0
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	89.2	86.2	76.8	-19.0	-17.1	-15.2	-17.6	-16.6	-16.5
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	92.7	85.6	76.0	-35.1	-38.7	-36.9	-27.5	-31.1	-32.7
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	30.4	30.1	30.2	-1.2	-2.2	-2.1	-3.9	-6.8	-6.6
Freight transport (toe/Mtkm)	53.0	47.3	54.0	49.8	44.3	41.1	-6.4	-12.3	-16.4	-11.4	-21.8	-28.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.34	0.29	0.26	-0.05	-0.08	-0.09	-12.2	-21.8	-25.4
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.13	2.04	1.96	0.02	-0.03	-0.05	0.9	-1.2	-2.4
Industry	2.20	1.96	2.00	1.98	1.92	1.81	0.05	0.01	-0.03	2.4	0.7	-1.6
Residential	2.11	1.93	1.93	1.86	1.75	1.68	-0.02	-0.09	-0.13	-1.2	-5.0	-7.1
Tertiary	1.70	1.55	1.52	1.37	1.29	1.19	0.06	0.08	0.07	4.3	6.3	6.4
Transport	2.91	2.90	2.91	2.74	2.65	2.61	-0.06	-0.10	-0.10	-2.1	-3.6	-3.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	10.4	15.0	18.7	3.0	6.8	9.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	7.1	10.7	12.2	1.9	3.4	2.8			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	294795	312941	372417	372417	-98605	-124817	-123783	-25.1	-28.5	-24.9
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	48869	41956	45216	41956	-17195	-27697	-33519	-26.0	-39.8	-42.6
Oil (including refinery gas)	82354	43300	1327	698	2053	2053	-32597	-29412	-27764	-96.1	-97.7	-93.1
Gas (including derived gases)	109707	154992	176010	177550	187843	187843	-50064	-87094	-118076	-22.1	-32.9	-38.6
Biomass-waste	2685	7485	12540	26004	48825	48825	-102	11390	26973	-0.8	77.9	123.4
Hydro (pumping excluded)	44328	36061	37253	37035	36885	36885	671	987	1207	1.8	2.7	3.4
Wind	563	2344	9980	17699	28150	28150	0	3756	14424	0.0	26.9	105.1
Solar	18	31	369	3417	14747	14747	-8	2609	12834	-2.2	322.9	671.0
Geothermal and other renewables	4682	7417	8447	8583	8698	8698	691	644	139	8.9	8.1	1.6
Net Generation Capacity in MW_e	69851	76966	92029	96155	112804	112804	-6466	-7599	-5658	-6.6	-7.3	-4.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Renewable energy	14588	15810	19980	25969	41990	41990	-21	3635	18843	-0.1	16.3	81.4
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5468	9414	17778	17778	-52	1946	10567	-0.9	26.1	146.6
Solar	26	38	339	2353	9925	9925	-5	1656	8204	-1.5	237.6	476.8
Other renewables (tidal etc.)	0	0	35	63	148	148	35	33	72		110.6	94.5
Thermal power	55264	61156	72049	70186	70815	70815	-6444	-11234	-24501	-8.2	-13.8	-25.7
of which cogeneration units	9682	10847	11822	12688	14651	14651	-3091	-4696	-4102	-20.7	-27.0	-21.9
Solids fired	9621	9715	9662	9361	8602	8602	-269	-533	-1215	-2.7	-5.4	-12.4
Gas fired	27466	33995	50654	48500	49650	49650	-6259	-13290	-25279	-11.0	-21.5	-33.7
Oil fired	16795	15253	7597	5527	1113	1113	-292	-326	-4819	-3.7	-5.6	-81.2
Biomass-waste fired	597	1223	3155	5803	10357	10357	367	2891	6825	13.1	99.2	193.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	979	995	1092	1092	9	25	-13	0.9	2.5	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	35.2	35.9	36.4	36.4	-8.7	-10.6	-9.9			
Efficiency of gross thermal power generation (%)	40.5	42.0	48.9	49.8	51.3	51.3	-0.6	-1.0	-2.8			
% of gross electricity from CHP	11.6	8.1	20.1	22.1	22.9	22.9	-0.6	-1.3	-0.3			
Carbon free gross electricity generation (%)	19.4	18.0	23.3	29.6	36.9	36.9	6.1	12.9	20.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	23.3	29.6	36.9	36.9	6.1	12.9	20.4			
Transport sector												
Passenger transport activity (Gpkm)	722.2	969.5	980.5	998.3	1023.9	1081.5	-40.2	-54.4	-64.8	-3.9	-5.0	-5.7
Public road transport	84.0	93.6	101.3	112.6	116.4	118.7	4.3	6.0	6.9	4.0	5.4	6.2
Private cars and motorcycles	561.6	779.1	777.9	765.4	774.9	806.0	-43.4	-57.9	-68.5	-5.4	-6.9	-7.8
Rail	48.9	52.7	52.3	52.6	55.1	64.0	0.6	0.2	0.7	1.1	0.4	1.1
Aviation	21.3	38.2	43.1	61.9	71.6	86.7	-1.5	-2.6	-3.7	-2.4	-3.5	-4.1
Inland navigation	6.4	5.9	5.8	5.8	5.9	6.1	-0.1	-0.1	-0.1	-2.1	-2.0	-2.0
Freight transport activity (Gtkm)	186.1	237.6	260.0	283.6	290.8	303.9	-18.4	-23.8	-27.0	-6.1	-7.6	-8.2
Trucks	130.9	184.7	211.8	229.8	233.5	240.8	-21.8	-28.0	-32.3	-8.7	-10.7	-11.8
Rail	19.4	22.8	20.1	24.5	26.6	30.8	2.2	2.7	3.4	9.8	11.1	12.5
Inland navigation	35.8	30.2	28.1	29.3	30.7	32.4	1.2	1.6	1.8	4.2	5.4	5.9
Energy demand in transport (ktoe)	33404	41263	43604	44527	43694	45137	-5365	-8955	-10935	-10.8	-17.0	-19.5
Public road transport	684	656	701	743	687	671	-33	-109	-107	-4.3	-13.7	-13.8
Private cars and motorcycles	20584	25521	24557	24076	24010	25072	-2279	-3519	-3470	-8.6	-12.8	-12.2
Trucks	9137	10559	13327	13322	12082	11698	-2903	-4978	-6623	-17.9	-29.2	-36.2
Rail	738	834	907	944	904	919	24	6	51	2.6	0.6	5.9
Aviation	1872	3491	3863	5196	5763	6532	-172	-349	-774	-3.2	-5.7	-10.6
Inland navigation	389	202	248	246	247	246	-2	-5	-13	-0.7	-2.1	-4.8

Source: PRIMES

Latvia: EC proposal with RES trading	SUMMARY ENERGY BALANCE AND INDICATORS (A)													
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	1245	1639	1576	2304	2826	3363	4358	4965	5268	2.4	6.0	4.4	1.9	
Solids	182	234	49	6	4	0	0	0	0	-12.3	-22.6			
Oil	1	0	0	7	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1062	1405	1527	2291	2822	3363	4358	4965	5268	3.7	6.3	4.4	1.9	
Hydro	387	253	242	286	261	255	262	262	261	-4.6	0.8	0.0	0.0	
Biomass & Waste	675	1153	1284	2001	2529	3027	3974	4532	4806	6.6	7.0	4.6	1.9	
Wind	0	0	0	4	30	76	112	157	181		56.5	14.0	4.9	
Solar and others	0	0	0	0	1	5	10	15	19			24.7	6.8	
Geothermal	0	0	0	0	0	0	0	0	0			14.5	0.6	
Net Imports	7440	3358	2253	2783	2848	2827	2340	2130	2192	-11.3	2.4	-1.9	-0.7	
Solids	627	170	62	76	76	60	60	64	66	-20.7	2.1	-2.3	0.9	
Oil	3944	2086	1096	1662	1969	2141	2157	2248	2307	-12.0	6.0	0.9	0.7	
- Crude oil and Feedstocks	1	2	93	4	1	1	2	2	2	55.9	-34.6	1.5	0.2	
- Oil products	3942	2084	1003	1658	1967	2139	2155	2247	2306	-12.8	7.0	0.9	0.7	
Natural gas	2561	999	1113	1434	1356	1313	1036	808	886	-8.0	2.0	-2.7	-1.6	
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Gross Inland Consumption	8059	4854	4007	4720	5349	5798	6248	6596	6924	-6.7	2.9	1.6	1.0	
Solids	867	456	252	83	80	60	60	64	66	-11.6	-10.9	-2.8	0.9	
Oil	3458	1885	1155	1376	1644	1748	1708	1749	1772	-10.4	3.6	0.4	0.4	
Natural gas	2380	1010	1092	1358	1356	1313	1036	808	886	-7.5	2.2	-2.7	-1.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Renewable energy forms	1045	1309	1354	1718	2097	2495	3220	3667	3891	2.6	4.5	4.4	1.9	
as % in Gross Inland Consumption														
Solids	10.8	9.4	6.3	1.8	1.5	1.0	1.0	1.0	0.9					
Oil	42.9	38.8	28.8	29.2	30.7	30.2	27.3	26.5	25.6					
Natural gas	29.5	20.8	27.3	28.8	25.4	22.6	16.6	12.3	12.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	13.0	27.0	33.8	36.4	39.2	43.0	51.5	55.6	56.2					
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6325	7364	8367	9183	10624	-4.6	4.3	2.8	2.4	
Self consumption and grid losses	1248	732	720	783	477	537	651	823	985	-5.4	-4.0	3.2	4.2	
Fuel Inputs to Thermal Power Generation	926	722	607	591	556	671	770	861	1074	-4.1	-0.9	3.3	3.4	
Solids	59	194	142	0	0	0	0	0	0	9.2				
Oil (including refinery gas)	177	242	77	13	0	0	0	0	0	-8.0				
Gas (including derived gases)	690	286	388	541	503	594	365	67	96	-5.6	2.6	-3.2	-12.5	
Biomass & Waste	0	0	0	37	52	77	405	793	977			22.7	9.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2601	941	645	591	667	670	759	720	740	-13.0	0.3	1.3	-0.3	
Refineries	1	1	1	1	1	1	2	2	2	0.0	1.9	1.5	0.2	
Biofuels and hydrogen production	0	0	0	3	51	89	152	175	195			11.6	2.5	
District heating	2573	930	643	587	615	580	606	544	544	-12.9	-0.4	-0.2	-1.1	
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3				
Energy Branch Consumption	130	149	151	102	100	104	106	113	121	1.5	-4.0	0.6	1.3	
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1	
Final Energy Demand	6445	3880	3332	4046	4794	5164	5570	5952	6189	-6.4	3.7	1.5	1.1	
by sector														
Industry	1972	701	614	827	1130	1317	1480	1693	1843	-11.0	6.3	2.7	2.2	
- energy intensive industries	707	305	219	282	452	527	553	585	604	-11.1	7.5	2.0	0.9	
- other industrial sectors	1265	396	396	545	678	790	927	1108	1238	-11.0	5.5	3.2	2.9	
Residential	1632	1663	1368	1476	1548	1550	1649	1714	1741	-1.7	1.2	0.6	0.5	
Tertiary	1747	804	606	744	860	896	944	977	975	-10.0	3.6	0.9	0.3	
Transport	1094	712	744	999	1255	1400	1496	1568	1631	-3.8	5.4	1.8	0.9	
by fuel														
Solids	330	126	58	73	75	59	60	64	65	-16.0	2.6	-2.3	0.9	
Oil	2047	1119	1003	1220	1435	1540	1577	1608	1628	-6.9	3.6	0.9	0.3	
Gas	672	366	329	508	570	636	656	728	773	-6.9	5.7	1.4	1.7	
Electricity	768	470	443	537	672	766	886	1025	1136	-5.3	4.2	2.8	2.5	
Heat (from CHP and District Heating)	2013	905	590	598	549	520	584	647	690	-11.5	-0.7	0.6	1.7	
Renewable energy forms	616	894	909	1111	1492	1644	1807	1879	1895	4.0	5.1	1.9	0.5	
Other	0	0	0	0	0	0	1	1	2			23.0	6.1	
RES in Gross Final Energy Consumption ^(A)			1305	1787	2018	2361	2984	3398	3550		4.5	4.0	1.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	12.9	12.6	12.0	11.0	11.0	-9.3	2.4	-0.8	-0.8	
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.1	8.2	7.4	6.9	7.2	-9.7	1.6	-0.9	-0.3	
Power generation/District heating	10.0	4.5	2.8	2.1	2.1	1.8	0.9	0.2	0.2	-12.0	-2.7	-8.7	-12.2	
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	5.0	-11.3	-2.9	-1.5	
Industry	2.5	1.3	0.9	1.0	1.2	1.3	1.4	1.5	1.6	-9.7	2.9	1.5	1.1	
Residential	1.2	0.5	0.3	0.5	0.5	0.5	0.6	0.7	0.8	-13.7	6.8	0.7	2.6	
Tertiary	2.1	0.8	0.5	0.6	0.6	0.5	0.5	0.4	0.4	-12.8	0.6	-1.7	-0.9	
Transport	3.2	2.1	2.2	2.9	3.6	3.9	4.0	4.1	4.2	-3.7	5.1	1.2	0.4	
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	0.9	1.2	1.4	1.5	-8.5	11.4	5.2	2.4	
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.5	3.4	2.7	2.3	-8.3	3.0	-1.9	-3.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	47.8	46.7	44.2	40.7	40.7					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Latvia: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4	
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1	
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	283.3	228.2	196.4	172.4	159.7	-3.4	-4.8	-3.6	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.51	1.41	1.18	1.05	1.04	-3.1	-1.3	-2.4	-1.3	
Import Dependency %	87.3	67.1	56.1	55.9	50.2	45.7	34.9	30.0	29.4					
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.4	5.3	6.0	6.6		6.6	4.5	2.2	
as % of GDP			20.5	18.8	17.9	17.2	16.5	15.7	15.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.1	71.1	62.9	59.5	57.1	-3.7	-1.7	-2.9	-1.0	
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.1	38.4	32.8	28.5	25.7	1.7	-6.5	-4.3	-2.4	
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	65.2	50.4	42.3	36.3	31.8	-10.7	-4.2	-4.2	-2.8	
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.2	29.0	27.4	27.7	1.4	-0.5	-1.3	-0.4	
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	16.5	15.9	15.2	14.6	-2.5	-0.1	-0.8	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.15	0.12	0.05	0.01	0.01	-3.0	-3.6	-10.3	-13.7	
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.22	1.16	1.13	1.12	-1.8	0.5	-0.6	-0.4	
Industry	1.28	1.88	1.48	1.26	1.07	1.02	0.95	0.89	0.85	1.5	-3.2	-1.2	-1.1	
Residential	0.75	0.31	0.21	0.33	0.35	0.34	0.35	0.40	0.43	-12.1	5.4	0.0	2.1	
Tertiary	1.21	1.02	0.89	0.85	0.66	0.57	0.51	0.47	0.45	-3.0	-2.8	-2.6	-1.2	
Transport	2.90	2.89	2.92	2.94	2.85	2.79	2.68	2.61	2.55	0.1	-0.2	-0.6	-0.5	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	40.9	44.6	52.3	55.8	56.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.8	9.3	10.5	11.3					
Gross Electricity generation by source (in GWh)														
			4135	4904	6325	7364	8367	9183	10624		4.3	2.8	2.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids			91	0	0	0	0	0	0					
Oil (including refinery gas)			117	0	0	0	0	0	0					
Gas (including derived gases)			1104	1490	2698	3172	2023	360	549		9.3	-2.8	-12.2	
Biomass-waste			0	43	233	350	1993	3954	4928			24.0	9.5	
Hydro (pumping excluded)			2818	3324	3040	2961	3042	3043	3036		0.8	0.0	0.0	
Wind			4	47	353	879	1305	1820	2106		56.5	14.0	4.9	
Solar			0	0	0	2	3	5	7			21.7	7.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2062	2144	2783	3063	3428	3692	3911		3.0	2.1	1.3	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1519	1578	1730	1970	2164	2445	2617		1.3	2.3	1.9	
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0	
Wind			2	24	170	404	591	864	1029		56.0	13.2	5.7	
Solar			0	0	1	4	7	11	14			21.4	7.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			543	565	1053	1093	1263	1248	1294		6.8	1.8	0.2	
of which cogeneration units			542	564	446	614	747	925	855		-1.9	5.3	1.4	
Solids fired			29	2	2	2	2	0	0		-23.3	1.1		
Gas fired			414	502	949	957	868	581	578		8.7	-0.9	-4.0	
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0	
Biomass-waste fired			2	16	42	73	332	651	700		33.5	23.0	7.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			20.4	23.5	25.5	27.0	27.3	27.6	30.1					
Efficiency of gross thermal power generation (%)			18.6	22.3	45.3	45.1	44.8	43.1	43.9					
% of gross electricity from CHP			24.0	11.8	43.4	43.5	40.7	43.9	41.3					
Carbon free gross electricity generation (%)			68.3	69.6	57.3	56.9	75.8	96.1	94.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			68.3	69.6	57.3	56.9	75.8	96.1	94.8					
Transport sector														
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.3	24.5	26.7	28.0	-3.6	4.7	2.3	1.3	
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.4	3.4	-8.7	2.7	0.8	0.2	
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	16.8	18.7	20.5	21.6	4.2	5.4	2.5	1.5	
Rail	5.8	1.8	1.1	1.3	1.5	1.7	2.0	2.2	2.3	-15.5	3.2	3.0	1.6	
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.6	2.4	
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4				
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	42.9	49.5	55.1	58.5	-3.1	7.0	3.4	1.7	
Trucks	5.9	1.8	4.8	8.4	11.8	14.9	18.2	21.5	24.1	-2.0	9.5	4.4	2.9	
Rail	18.5	9.8	13.3	17.9	23.7	28.0	31.3	33.6	34.4	-3.3	5.9	2.8	0.9	
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1094	712	744	999	1255	1400	1496	1568	1631	-3.8	5.4	1.8	0.9	
Public road transport	111	41	23	25	26	25	24	22	21	-14.6	1.3	-0.6	-1.5	
Private cars and motorcycles	317	284	373	451	539	574	592	613	659	1.7	3.7	0.9	1.1	
Trucks	370	240	241	371	495	576	654	741	799	-4.2	7.5	2.8	2.0	
Rail	188	90	75	93	118	135	134	98	57	-8.7	4.6	1.2	-8.2	
Aviation	73	26	27	59	77	89	92	94	94	-9.6	11.1	1.8	0.3	
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7				

Source: PRIMES

Latvia: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	3363	4358	5268	504	1221	1893	17.6	38.9	56.1
Solids	182	49	6	0	0	0	-4	-4	-3	-100.0	-100.0	-100.0
Oil	1	0	7	0	0	0	0	0	0	55.3	-103.4	-279.4
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	1062	1527	2291	3363	4358	5268	508	1224	1896	17.8	39.1	56.2
Hydro	387	242	286	255	262	261	10	0	1	4.3	0.1	0.4
Biomass & Waste	675	1284	2001	3027	3974	4806	488	1197	1823	19.2	43.1	61.1
Wind	0	0	4	76	112	181	6	20	59	8.2	21.6	48.5
Solar and others	0	0	0	5	10	19	4	7	12	206.6	184.3	173.4
Geothermal	0	0	0	0	0	0	0	0	0	108.5	301.6	320.0
Net Imports	7440	2253	2783	2827	2340	2192	-1050	-1938	-2769	-27.1	-45.3	-55.8
Solids	627	62	76	60	60	66	-12	-23	-22	-16.7	-27.5	-25.0
Oil	3944	1096	1662	2141	2157	2307	-302	-500	-724	-12.4	-18.8	-23.9
- Crude oil and Feedstocks	1	93	4	1	2	2	0	0	0	-10.8	-17.0	-22.7
- Oil products	3942	1003	1658	2139	2155	2306	-302	-499	-724	-12.4	-18.8	-23.9
Natural gas	2561	1113	1434	1313	1036	886	-596	-1072	-1501	-31.2	-50.8	-62.9
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	5798	6248	6924	-546	-716	-875	-8.6	-10.3	-11.2
Solids	867	252	83	60	60	66	-16	-26	-25	-20.8	-30.4	-27.4
Oil	3458	1155	1376	1748	1708	1772	-302	-499	-723	-14.7	-22.6	-29.0
Natural gas	2380	1092	1358	1313	1036	886	-596	-1072	-1501	-31.2	-50.8	-62.9
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2495	3220	3891	368	881	1374	17.3	37.7	54.6
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.0	1.0	0.9	-0.2	-0.3	-0.2			
Oil	42.9	28.8	29.2	30.2	27.3	25.6	-2.2	-4.4	-6.4			
Natural gas	29.5	27.3	28.8	22.6	16.6	12.8	-7.4	-13.7	-17.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	43.0	51.5	56.2	9.5	18.0	23.9			
Gross Electricity Generation in GWh_e	6647	4135	4904	7364	8367	10624	-871	-866	-384	-10.6	-9.4	-3.5
Self consumption and grid losses	1248	720	783	537	651	985	-100	-89	73	-15.7	-12.0	8.0
Fuel Inputs to Thermal Power Generation	926	607	591	671	770	1074	-206	-211	-106	-23.5	-21.5	-9.0
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	0	0	0	-42	-41	0	-100.0	-100.0	
Gas (including derived gases)	690	388	541	594	365	96	-151	-492	-926	-20.3	-57.4	-90.6
Biomass & Waste	0	0	37	77	405	977	-13	322	820	-14.3	388.5	521.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	670	759	740	-97	-65	-163	-12.7	-7.9	-18.0
Refineries	1	1	1	1	2	2	0	0	0	-10.8	-17.0	-22.7
Biofuels and hydrogen production	0	0	3	89	152	195	12	26	5	15.5	20.4	2.7
District heating	2573	643	587	580	606	544	-109	-91	-168	-15.8	-13.0	-23.6
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	104	106	121	-26	-34	-33	-20.0	-24.4	-21.6
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5164	5570	6189	-425	-581	-721	-7.6	-9.4	-10.4
by sector												
Industry	1972	614	827	1317	1480	1843	-33	-83	-89	-2.4	-5.3	-4.6
- energy intensive industries	707	219	282	527	553	604	-6	-15	-13	-1.1	-2.7	-2.1
- other industrial sectors	1265	396	545	790	927	1238	-27	-68	-77	-3.3	-6.8	-5.8
Residential	1632	1368	1476	1550	1649	1741	-126	-102	-104	-7.5	-5.8	-5.6
Tertiary	1747	606	744	896	944	975	-116	-131	-175	-11.5	-12.2	-15.2
Transport	1094	744	999	1400	1496	1631	-150	-265	-352	-9.7	-15.0	-17.8
by fuel												
Solids	330	58	73	59	60	65	-11	-15	-17	-15.9	-19.8	-21.1
Oil	2047	1003	1220	1540	1577	1628	-229	-350	-654	-12.9	-18.2	-28.7
Gas	672	329	508	636	656	773	-94	-151	-289	-12.8	-18.7	-27.2
Electricity	768	443	537	766	886	1136	-66	-66	-39	-7.9	-7.0	-3.3
Heat (from CHP and District Heating)	2013	590	598	520	584	690	-173	-150	-109	-25.0	-20.5	-13.7
Renewable energy forms	616	909	1111	1644	1807	1895	147	152	387	9.8	9.2	25.6
Other	0	0	0	0	1	2	0	0	1	67.9	47.6	63.9
RES in Gross Final Energy Consumption ^(A)		1305	1787	2361	2984	3550	333	755	1215	16.4	33.9	52.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	12.6	12.0	11.0	-3.4	-5.7	-7.2	-21.3	-32.5	-39.4
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.2	7.4	7.2	-2.4	-4.1	-5.8	-22.5	-36.0	-44.8
Power generation/District heating	10.0	2.8	2.1	1.8	0.9	0.2	-1.2	-2.4	-2.8	-40.4	-74.1	-92.3
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.0	-0.2	-0.2	-0.3	-75.2	-80.9	-85.3
Industry	2.5	0.9	1.0	1.3	1.4	1.6	-0.2	-0.3	-1.3	-13.6	-15.9	-44.5
Residential	1.2	0.3	0.5	0.5	0.6	0.8	-0.1	-0.2	-0.2	-20.2	-23.3	-22.3
Tertiary	2.1	0.5	0.6	0.5	0.5	0.4	-0.1	-0.2	-0.2	-20.2	-25.1	-29.6
Transport	3.2	2.2	2.9	3.9	4.0	4.2	-0.5	-0.9	-1.1	-10.9	-17.9	-21.1
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.9	1.2	1.5	0.0	0.0	-0.1	-1.8	-2.9	-3.5
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.5	3.4	2.3	-1.0	-1.6	-1.3	-22.6	-31.5	-35.2
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	46.7	44.2	40.7	-12.6	-21.2	-26.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	228.2	196.4	159.7	-21.5	-22.5	-20.2	-8.6	-10.3	-11.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.41	1.18	1.04	-0.25	-0.47	-0.63	-15.2	-28.6	-37.9
Import Dependency %	87.3	56.1	55.9	45.7	34.9	29.4	-11.9	-22.8	-30.1			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.4	5.3	6.6	0.3	0.5	0.7	7.5	9.6	12.6
as % of GDP		20.5	18.8	17.2	16.5	15.1	1.2	1.4	1.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.5	0.8						
as % of GDP				1.28	1.56	1.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	71.1	62.9	57.1	-1.8	-3.5	-2.8	-2.4	-5.3	-4.6
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	38.4	32.8	25.7	-3.1	-2.0	-1.5	-7.5	-5.8	-5.6
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	50.4	42.3	31.8	-6.5	-5.9	-5.7	-11.5	-12.2	-15.2
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.2	29.0	27.7	-1.1	-1.8	0.0	-3.5	-5.8	-0.1
Freight transport (toe/Mtkm)	22.3	17.3	17.5	16.5	15.9	14.6	-1.9	-3.0	-4.2	-10.3	-15.9	-22.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.12	0.05	0.01	-0.05	-0.12	-0.13	-30.0	-70.6	-91.9
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.22	1.16	1.12	-0.08	-0.13	-0.28	-6.0	-10.0	-20.3
Industry	1.28	1.48	1.26	1.02	0.95	0.85	-0.13	-0.12	-0.61	-11.5	-11.1	-41.8
Residential	0.75	0.21	0.33	0.34	0.35	0.43	-0.05	-0.08	-0.09	-13.7	-18.6	-17.6
Tertiary	1.21	0.89	0.85	0.57	0.51	0.45	-0.06	-0.09	-0.09	-9.8	-14.7	-17.0
Transport	2.90	2.92	2.94	2.79	2.68	2.55	-0.04	-0.09	-0.11	-1.4	-3.3	-4.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	44.6	52.3	56.1	9.3	17.0	23.0				
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.8	9.3	11.3	1.2	2.8	2.3				
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7364	8367	10624	871	-866	-384		-10.6	-9.4	-3.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	0	0	0	0	-161	-159	0	-100.0	-100.0	
Gas (including derived gases)	1104	1490	3172	2023	549	810	-2520	-5243		-20.3	-55.5	-90.5
Biomass-waste	0	43	350	1993	4928	89	1578	4157		-20.2	380.8	539.6
Hydro (pumping excluded)	2818	3324	2961	3042	3036	122	3	13		4.3	0.1	0.4
Wind	4	47	879	1305	2106	67	232	688		8.2	21.6	48.5
Solar	0	0	2	3	7	0	0	0		0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0				
Net Generation Capacity in MW_e												
	2062	2144	3063	3428	3911	11	338	690		0.4	10.9	21.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	1519	1578	1970	2164	2617	0	75	364		0.0	3.6	16.2
Hydro (pumping excluded)	1517	1554	1563	1567	1574	0	0	0		0.0	0.0	0.0
Wind	2	24	404	591	1029	0	75	364		-0.1	14.6	54.8
Solar	0	0	4	7	14	0	0	0		0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
<u>Thermal power</u>	543	565	1093	1263	1294	12	263	326		1.1	26.2	33.7
of which cogeneration units	542	564	614	747	855	50	-11	111		8.8	-1.5	15.0
Solids fired	29	2	2	2	0	0	0	0		0.0	0.0	
Gas fired	414	502	957	868	578	0	-8	-274		0.0	-0.9	-32.2
Oil fired	98	45	61	62	15	0	0	0		0.0	0.0	0.0
Biomass-waste fired	2	16	73	332	700	12	270	601		18.8	439.0	602.2
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	20.4	23.5	27.0	27.3	30.1	-3.2	-6.1	-8.2				
Efficiency of gross thermal power generation (%)	18.6	22.3	45.1	44.8	43.9	0.2	0.0	-4.0				
% of gross electricity from CHP	24.0	11.8	43.5	40.7	41.3	1.2	3.0	0.3				
Carbon free gross electricity generation (%)	68.3	69.6	56.9	75.8	94.8	7.2	26.7	47.4				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	68.3	69.6	56.9	75.8	94.8	7.2	26.7	47.4				
Transport sector												
Passenger transport activity (Gpkm)												
	17.7	12.3	15.8	22.3	24.5	28.0	-0.6	-1.0	-1.4	-2.7	-3.9	-4.6
Public road transport	5.9	2.3	2.8	3.2	3.3	3.4	0.1	0.2	0.2	3.4	4.7	5.4
Private cars and motorcycles	5.8	8.7	11.6	16.8	18.7	21.6	-0.8	-1.2	-1.6	-4.4	-6.1	-7.0
Rail	5.8	1.1	1.3	1.7	2.0	2.3	0.1	0.1	0.1	3.7	5.0	5.9
Aviation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-3.5	-4.8	-5.5
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	24.8	18.1	26.3	42.9	49.5	58.5	-1.3	-2.2	-3.5	-3.0	-4.3	-5.6
Trucks	5.9	4.8	8.4	14.9	18.2	24.1	-1.8	-2.9	-4.3	-10.9	-13.8	-15.3
Rail	18.5	13.3	17.9	28.0	31.3	34.4	0.5	0.7	0.8	1.8	2.3	2.5
Inland navigation	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1094	744	999	1400	1496	1631	-150	-265	-352	-9.7	-15.0	-17.8
Public road transport	111	23	25	25	24	21	0	-1	-3	0.1	-2.1	-11.1
Private cars and motorcycles	317	373	451	574	592	659	-40	-62	-20	-6.4	-9.5	-2.9
Trucks	370	241	371	576	654	799	-106	-190	-307	-15.6	-22.5	-27.8
Rail	188	75	93	135	134	57	1	-1	-7	0.9	-0.7	-10.4
Aviation	73	27	59	89	92	94	-6	-11	-16	-5.9	-11.1	-14.5
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1271	1757	4935	5452	5904	-3.9	-8.9	14.5	1.8	
Solids	42	43	35	39	9	6	4	1	1	-1.7	-12.5	-7.1	-13.0	
Oil	12	130	347	239	235	261	257	261	267	40.0	-3.8	0.9	0.4	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Renewable energy sources	321	501	656	777	1026	1490	1873	2344	2744	7.4	4.6	6.2	3.9	
Hydro	36	32	29	39	36	36	37	37	37	-2.0	2.0	0.3	0.2	
Biomass & Waste	285	469	627	735	944	1363	1723	2154	2496	8.2	4.2	6.2	3.8	
Wind	0	0	0	0	45	86	105	138	191			8.8	6.2	
Solar and others	0	0	0	0	1	5	9	15	19			24.2	7.7	
Geothermal	0	0	0	3	0	0	0	0	0			13.1	0.8	
Net Imports	11666	5643	4327	5096	6627	7178	6019	6142	6348	-9.4	4.4	-1.0	0.5	
Solids	758	157	84	190	232	218	161	159	161	-19.8	10.7	-3.6	0.0	
Oil	7260	3686	2299	2677	2834	3121	3012	3055	3117	-10.9	2.1	0.6	0.3	
- Crude oil and Feedstocks	9531	3609	4827	9054	9933	10971	10794	10966	11190	-6.6	7.5	0.8	0.4	
- Oil products	-2271	77	-2528	-6377	-7099	-7850	-7782	-7911	-8072					
Natural gas	4678	2029	2065	2492	3561	3945	2651	2334	2322	-7.9	5.6	-2.9	-1.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7728	8745	10749	11381	12038	-7.9	0.9	3.4	1.1	
Solids	831	285	121	215	242	224	165	160	162	-17.5	7.2	-3.7	-0.2	
Oil	6878	3080	2190	2746	2900	3192	3064	3104	3171	-10.8	2.9	0.6	0.3	
Natural gas	4678	2029	2064	2476	3561	3945	2651	2334	2322	-7.9	5.6	-2.9	-1.3	
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	1001	1454	2486	3350	3911	7.3	4.4	9.5	4.6	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	3.1	2.6	1.5	1.4	1.3					
Oil	42.8	35.4	30.9	31.9	37.5	36.5	28.5	27.3	26.3					
Natural gas	29.1	23.3	29.1	28.8	46.1	45.1	24.7	20.5	19.3					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	26.0	25.0	24.0					
Renewable energy forms	2.0	5.7	9.2	8.8	13.0	16.6	23.1	29.4	32.5					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11488	14396	21166	22771	24729	-9.0	0.3	6.3	1.6	
Self consumption and grid losses	3486	2241	1906	1788	866	1087	1711	1957	2155	-5.9	-7.6	7.0	2.3	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2271	2730	1623	1863	2110	-10.0	9.6	-3.3	2.7	
Solids	0	0	0	0	53	53	1	1	1			-30.9	-0.1	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.3		
Gas (including derived gases)	1543	433	716	1044	2154	2432	910	486	476	-7.4	11.6	-8.3	-6.3	
Biomass & Waste	0	0	0	5	63	245	712	1376	1632			27.5	8.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10500	11577	11658	11751	11870	-6.6	6.2	1.1	0.2	
Refineries	9561	3392	5086	9418	10100	11194	11030	11217	11451	-6.1	7.1	0.9	0.4	
Biofuels and hydrogen production	0	0	0	3	14	57	170	193	204			28.3	1.8	
District heating	1823	1079	657	522	382	324	456	339	215	-9.7	-5.3	1.8	-7.3	
Derived gases, cokeries etc.	24	18	12	8	4	2	2	1	1	-7.0	-10.4	-9.1	-3.1	
Energy Branch Consumption	991	601	655	915	778	870	977	1018	1052	-4.1	1.7	2.3	0.7	
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0	
Final Energy Demand	9696	4728	3820	4527	5141	5757	6247	6662	7104	-8.9	3.0	2.0	1.3	
by sector														
Industry	3334	1025	782	996	1132	1311	1478	1662	1873	-13.5	3.8	2.7	2.4	
- energy intensive industries	1678	482	362	436	532	611	689	774	867	-14.2	3.9	2.6	2.3	
- other industrial sectors	1656	543	420	560	600	700	789	888	1006	-12.8	3.6	2.8	2.5	
Residential	1854	1733	1402	1437	1524	1684	1843	1993	2156	-2.8	0.8	1.9	1.6	
Tertiary	2518	933	589	697	791	856	938	972	1019	-13.5	3.0	1.7	0.8	
Transport	1990	1037	1048	1397	1694	1907	1988	2035	2057	-6.2	4.9	1.6	0.3	
by fuel														
Solids	760	241	96	197	175	162	157	157	159	-18.7	6.2	-1.1	0.2	
Oil	4055	1666	1348	1599	1961	2158	2164	2208	2243	-10.4	3.8	1.0	0.4	
Gas	1483	510	363	503	547	578	459	497	560	-13.1	4.2	-1.8	2.0	
Electricity	1048	670	606	749	864	994	1149	1267	1411	-5.3	3.6	2.9	2.1	
Heat (from CHP and District Heating)	2078	1193	828	905	959	1006	1005	1034	1056	-8.8	1.5	0.5	0.5	
Renewable energy forms	272	448	579	574	635	858	1313	1498	1675	7.9	0.9	7.5	2.5	
Other	0	0	0	0	0	0	1	1	1			16.5	1.9	
RES in Gross Final Energy Consumption ^(A)			671	726	967	1381	2268	2959	3387		3.7	8.9	4.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	21.7	22.9	19.5	16.7	15.5	-9.1	2.3	-1.1	-2.2	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	15.3	16.5	12.6	11.6	11.4	-10.8	3.9	-1.9	-1.0	
Power generation/District heating	12.0	5.6	3.9	4.0	5.6	6.2	2.7	1.7	1.4	-10.5	3.6	-7.1	-6.1	
Energy Branch	1.7	0.9	1.2	2.0	1.9	2.0	1.8	1.6	1.4	-3.3	4.4	-0.2	-2.4	
Industry	6.1	1.7	1.1	1.3	1.6	1.6	1.3	1.4	1.5	-15.9	4.0	-2.0	1.4	
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.6	2.4	2.7	
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	2.1	-0.4	-0.3	
Transport	5.8	3.0	3.1	4.1	4.9	5.5	5.4	5.5	5.5	-6.2	4.9	0.9	0.1	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.4	6.9	5.2	4.1	-5.7	-0.6	0.7	-5.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	48.4	51.0	43.4	37.3	34.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3	
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8	
Gross Int. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	275.1	242.7	240.7	209.1	186.3	-5.1	-5.8	-1.3	-2.5	
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	1.97	1.89	1.17	1.02	0.95	-3.2	3.0	-5.1	-2.1	
Import Dependency %	72.2	63.8	60.3	58.3	83.9	80.3	54.9	53.0	51.8					
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.5	5.5	6.7	7.8	8.6		5.1	4.2	2.5	
as % of GDP			19.0	15.2	15.9	15.4	15.0	14.3	13.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.6	55.8	50.0	46.2	43.8	-9.4	-4.4	-2.4	-1.3	
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.4	47.5	42.4	38.0	34.9	0.0	-5.9	-2.5	-1.9	
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	75.7	64.7	57.3	48.5	42.7	-13.8	-2.7	-2.7	-2.9	
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.2	25.1	24.4	24.1	0.4	-2.6	-0.7	-0.4	
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.3	16.5	15.8	15.5	-7.6	-2.1	-0.6	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.22	0.21	0.08	0.05	0.04	-2.7	3.2	-10.1	-7.0	
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.51	1.45	1.29	1.24	1.20	-3.5	1.0	-1.5	-0.7	
Industry	1.83	1.70	1.38	1.35	1.42	1.25	0.88	0.82	0.80	-2.8	0.3	-4.6	-1.0	
Residential	1.26	0.47	0.41	0.46	0.39	0.39	0.41	0.44	0.46	-10.8	-0.3	0.5	1.1	
Tertiary	1.80	1.66	0.85	0.83	0.78	0.70	0.63	0.60	0.57	-7.2	-0.9	-2.1	-1.1	
Transport	2.93	2.91	2.93	2.92	2.91	2.87	2.72	2.69	2.66	0.0	-0.1	-0.7	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	17.9	23.0	34.8	42.7	46.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.8	3.0	8.9	9.9	10.4					
Gross Electricity generation by source (in GWh)														
			11118	14410	11488	14396	21166	22771	24729		0.3	6.3	1.6	
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3	
Solids			0	0	255	255	6	2	6				-31.2	
Oil (including refinery gas)			603	379	4	0	0	0	0		-40.2	-30.7		
Gas (including derived gases)			1759	3226	10000	11664	3959	2145	2141		19.0	-8.8	-6.0	
Biomass-waste			0	19	292	1055	3161	5993	7118			26.9	8.5	
Hydro (pumping excluded)			339	451	413	424	425	428	431		2.0	0.3	0.2	
Wind			0	0	524	998	1216	1601	2225			8.8	6.2	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			4839	3827	3886	4376	6384	6554	6690		-2.2	5.1	0.5	
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0	
<u>Renewable energy</u>			98	115	615	999	1141	1434	2058		20.2	6.4	6.1	
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7	
Wind			0	6	499	878	992	1273	1890			7.1	6.7	
Solar			0	0	1	4	7	13	16			21.3	8.6	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2451	2512	3271	3377	3728	3605	3117		2.9	1.3	-1.8	
of which cogeneration units			2442	2498	2473	2413	2616	2807	2641		0.1	0.6	0.1	
Solids fired			0	0	29	29	29	29	29			0.0	0.0	
Gas fired			1838	1877	2596	2586	2586	2271	1865		3.5	0.0	-3.2	
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-64.8	
Biomass-waste fired			0	5	42	174	524	1030	1223			28.7	8.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			23.0	39.4	32.7	36.3	36.1	37.7	40.1					
Efficiency of gross thermal power generation (%)			22.3	25.6	40.0	40.9	37.8	37.6	37.8					
% of gross electricity from CHP			18.5	22.7	72.6	67.8	33.4	35.6	37.1					
Carbon free gross electricity generation (%)			78.8	75.0	10.7	17.2	81.3	90.6	91.3					
- nuclear			75.7	71.7	0.0	0.0	58.6	55.3	51.8					
- renewable energy forms			3.0	3.3	10.7	17.2	22.7	35.2	39.5					
Transport sector														
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.4	45.0	47.0	48.7	-0.8	7.0	1.5	0.8	
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.9	5.0	5.1	-10.0	4.6	1.2	0.4	
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.5	36.7	38.7	40.3	41.7	5.6	7.6	1.5	0.7	
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.8	
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.9	5.4	4.8	3.9	
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9	
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.5	45.9	52.1	56.2	57.0	-4.6	8.4	3.4	0.9	
Trucks	7.3	5.2	7.8	15.9	21.4	26.3	29.9	32.3	32.7	0.6	10.7	3.4	0.9	
Rail	19.3	7.2	8.9	12.5	16.1	19.6	22.2	23.9	24.3	-7.4	6.1	3.3	0.9	
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	1990	1037	1048	1397	1694	1907	1988	2035	2057	-6.2	4.9	1.6	0.3	
Public road transport	164	50	25	30	34	35	35	35	35	-17.1	3.0	0.4	-0.2	
Private cars and motorcycles	396	485	630	823	939	997	1002	1012	1034	4.8	4.1	0.7	0.3	
Trucks	1159	374	288	414	556	679	740	774	779	-13.0	6.8	2.9	0.5	
Rail	132	86	75	79	100	119	122	116	106	-5.5	2.9	2.1	-1.4	
Aviation	135	41	27	46	60	71	82	91	97	-14.9	8.4	3.2	1.7	
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6	

Source: PRIMES

Lithuania: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1757	4935	5904	446	610	822	34.1	14.1	16.2
Solids	42	35	39	6	4	1	-1	-1	-3	-11.1	-18.3	-71.1
Oil	12	347	239	261	257	267	-2	-22	-18	-0.8	-8.0	-6.2
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1490	1873	2744	449	633	842	43.2	51.1	44.3
Hydro	36	29	39	36	37	37	1	1	0	2.5	2.3	0.0
Biomass & Waste	285	627	735	1363	1723	2496	383	548	683	39.1	46.6	37.7
Wind	0	0	0	86	105	191	62	78	144	254.0	291.3	304.5
Solar and others	0	0	0	5	9	19	4	7	14	330.4	278.4	298.9
Geothermal	0	0	3	0	0	0	0	0	0	94.2	283.7	274.9
Net Imports	11666	4327	5096	7178	6019	6348	-630	-800	-1116	-8.1	-11.7	-15.0
Solids	758	84	190	218	161	161	-121	-147	-156	-35.6	-47.8	-49.2
Oil	7260	2299	2677	3121	3012	3117	-26	-320	-264	-0.8	-9.6	-7.8
- Crude oil and Feedstocks	9531	4827	9054	10971	10794	11190	-87	-925	-728	-0.8	-7.9	-6.1
- Oil products	-2271	-2528	-6377	-7850	-7782	-8072	61	605	465	-0.8	-7.2	-5.4
Natural gas	4678	2065	2492	3945	2651	2322	-473	-977	-1910	-10.7	-26.9	-45.1
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8745	10749	12038	-184	-190	-294	-2.1	-1.7	-2.4
Solids	831	121	215	224	165	162	-122	-148	-159	-35.2	-47.3	-49.5
Oil	6878	2190	2746	3192	3064	3171	-28	-342	-281	-0.9	-10.0	-8.1
Natural gas	4678	2064	2476	3945	2651	2322	-473	-977	-1910	-10.7	-26.9	-45.1
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1454	2486	3911	439	1277	2056	43.3	105.6	110.9
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	2.6	1.5	1.3	-1.3	-1.3	-1.3			
Oil	42.8	30.9	31.9	36.5	28.5	26.3	0.4	-2.6	-1.6			
Natural gas	29.1	29.1	28.8	45.1	24.7	19.3	-4.4	-8.5	-15.0			
Nuclear	27.3	30.7	31.0	0.0	26.0	24.0	0.0	0.5	0.6			
Renewable energy forms	2.0	9.2	8.8	16.6	23.1	32.5	5.3	12.1	17.4			
Gross Electricity Generation in GWh_e	28400	11118	14410	14396	21166	24729	-732	-507	-528	-4.8	-2.3	-2.1
Self consumption and grid losses	3486	1906	1788	1087	1711	2155	-67	-12	51	-5.8	-0.7	2.4
Fuel Inputs to Thermal Power Generation	2610	911	1218	2730	1623	2110	-238	-191	-225	-8.0	-10.5	-9.6
Solids	0	0	0	53	1	1	-115	-136	-142	-68.3	-99.0	-99.1
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-88.7	188.1	35667.1
Gas (including derived gases)	1543	716	1044	2432	910	476	-331	-725	-1550	-12.0	-44.3	-76.5
Biomass & Waste	0	0	5	245	712	1632	208	671	1467	555.7	1619.8	887.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11577	11658	11870	-117	-1036	-898	-1.0	-8.2	-7.0
Refineries	9561	5086	9418	11194	11030	11451	-89	-947	-746	-0.8	-7.9	-6.1
Biofuels and hydrogen production	0	0	3	57	170	204	8	42	34	16.6	33.0	20.2
District heating	1823	657	522	324	456	215	-36	-130	-186	-9.9	-22.2	-46.4
Derived gases, cokeries etc.	24	12	8	2	2	1	0	0	-1	-6.1	-18.3	-31.9
Energy Branch Consumption	991	655	915	870	977	1052	-9	4	-13	-1.0	0.4	-1.2
Non-Energy Uses	852	648	775	1112	1239	1509	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5757	6247	7104	-48	-50	-111	-0.8	-0.8	-1.5
by sector												
Industry	3334	782	996	1311	1478	1873	-27	-30	-44	-2.0	-2.0	-2.3
- energy intensive industries	1678	362	436	611	689	867	-16	-14	-13	-2.6	-1.9	-1.5
- other industrial sectors	1656	420	560	700	789	1006	-11	-16	-31	-1.6	-2.0	-3.0
Residential	1854	1402	1437	1684	1843	2156	9	23	35	0.5	1.3	1.7
Tertiary	2518	589	697	856	938	1019	-16	-8	-39	-1.9	-0.9	-3.7
Transport	1990	1048	1397	1907	1988	2057	-13	-35	-62	-0.7	-1.7	-2.9
by fuel												
Solids	760	96	197	162	157	159	-5	-10	-13	-2.9	-5.9	-7.5
Oil	4055	1348	1599	2158	2164	2243	-17	-80	-102	-0.8	-3.6	-4.4
Gas	1483	363	503	578	459	560	-14	-228	-70	-2.3	-33.2	-11.1
Electricity	1048	606	749	994	1149	1411	-57	-42	-48	-5.4	-3.5	-3.3
Heat (from CHP and District Heating)	2078	828	905	1006	1005	1056	-26	-61	-60	-2.5	-5.7	-5.4
Renewable energy forms	272	579	574	858	1313	1675	70	371	183	8.9	39.3	12.2
Other	0	0	0	0	1	1	0	0	0	1.6	2.2	0.5
RES in Gross Final Energy Consumption ^(A)		671	726	1381	2268	3387	393	1102	1663	39.8	94.6	96.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	22.9	19.5	15.5	-1.8	-4.0	-6.0	-7.1	-17.0	-27.9
CO₂ Emissions (energy related)	32.5	10.4	12.6	16.5	12.6	11.4	-1.7	-3.9	-5.9	-9.1	-23.5	-34.1
Power generation/District heating	12.0	3.9	4.0	6.2	2.7	1.4	-1.5	-2.7	-4.8	-20.0	-50.3	-77.1
Energy Branch	1.7	1.2	2.0	2.0	1.8	1.4	0.0	-0.3	-0.6	-1.0	-14.5	-28.5
Industry	6.1	1.1	1.3	1.6	1.3	1.5	0.0	-0.6	-0.2	-2.8	-32.0	-12.0
Residential	2.3	0.6	0.7	0.7	0.8	1.0	0.0	0.0	0.0	-1.3	-0.8	-3.0
Tertiary	4.5	0.5	0.6	0.6	0.6	0.6	0.0	0.0	0.0	2.0	2.3	-1.7
Transport	5.8	3.1	4.1	5.5	5.4	5.5	-0.1	-0.2	-0.3	-1.1	-3.8	-5.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.3	-7.1	-11.9
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	6.4	6.9	4.1	-0.1	-0.1	-0.1	-1.5	-1.9	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	51.0	43.4	34.6	-3.9	-8.9	-13.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Lithuania: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	242.7	240.7	186.3	-5.1	-4.3	-4.5	-2.1	-1.7	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.89	1.17	0.95	-0.15	-0.33	-0.46	-7.2	-22.1	-32.5
Import Dependency %	72.2	60.3	58.3	80.3	54.9	51.8	-5.3	-6.2	-7.7			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.5	6.7	8.6	0.0	0.2	0.5	0.6	3.6	5.9
as % of GDP		19.0	15.2	15.4	15.0	13.2	0.1	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.2	0.5						
as % of GDP				0.10	0.52	0.74						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	55.8	50.0	43.8	-1.2	-1.0	-1.0	-2.0	-2.0	-2.3
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	47.5	42.4	34.9	0.3	0.5	0.6	0.5	1.3	1.7
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	64.7	57.3	42.7	-1.2	-0.5	-1.7	-1.9	-0.9	-3.7
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	26.2	25.1	24.1	-0.1	-0.2	-0.4	-0.4	-0.7	-1.7
Freight transport (toe/Mtkm)	47.8	21.6	17.3	17.3	16.5	15.5	-0.1	-0.2	-0.4	-0.5	-1.4	-2.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.21	0.08	0.04	-0.04	-0.07	-0.12	-17.0	-48.5	-76.3
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.45	1.29	1.20	-0.01	-0.12	-0.06	-0.4	-8.5	-4.4
Industry	1.83	1.38	1.35	1.25	0.88	0.80	-0.01	-0.39	-0.09	-0.8	-30.6	-10.0
Residential	1.26	0.41	0.46	0.39	0.41	0.46	-0.01	-0.01	-0.02	-1.8	-2.1	-4.6
Tertiary	1.80	0.85	0.83	0.70	0.63	0.57	0.03	0.02	0.01	4.0	3.2	2.1
Transport	2.93	2.93	2.92	2.87	2.72	2.66	-0.01	-0.06	-0.06	-0.4	-2.2	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	23.0	34.8	46.0	6.7	17.1	22.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.0	8.9	10.4	0.5	2.4	2.0			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	14396	21166	24729	24729	-732	-507	-528	-4.8	-2.3	-2.1
Nuclear energy	8417	10335	0	12399	12808		0	0	0		0.0	0.0
Solids	0	0	255	6	6		-631	-735	-762	-71.2	-99.2	-99.2
Oil (including refinery gas)	603	379	0	0	0		0	0	0	-82.6	178.8	29943.3
Gas (including derived gases)	1759	3226	11664	3959	2141		-1709	-3654	-7745	-12.8	-48.0	-78.3
Biomass-waste	0	19	1055	3161	7118		882	2968	6304	509.1	1536.5	774.1
Hydro (pumping excluded)	339	451	424	425	431		10	9	0	2.5	2.3	0.0
Wind	0	0	998	1216	2225		716	905	1675	254.0	291.3	304.5
Solar	0	0	0	0	0		0	0	0			
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	4839	3827	4376	6384	6690		633	1073	2386	16.9	20.2	55.4
<u>Nuclear energy</u>	2291	1200	0	1515	1515		0	0	0		0.0	0.0
<u>Renewable energy</u>	98	115	999	1141	2058		674	768	1564	207.6	205.7	316.4
Hydro (pumping excluded)	98	108	117	141	152		0	0	0	0.0	0.0	0.0
Wind	0	6	878	992	1890		674	768	1564	330.2	341.7	479.2
Solar	0	0	4	7	16		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2451	2512	3377	3728	3117		-41	306	822	-1.2	8.9	35.8
of which cogeneration units	2442	2498	2413	2616	2641		194	139	661	8.7	5.6	33.4
Solids fired	0	0	29	29	29		-74	-74	-74	-71.7	-71.7	-71.7
Gas fired	1838	1877	2586	2586	1865		-116	-116	-213	-4.3	-4.3	-10.2
Oil fired	613	631	588	589	0		0	0	0	0.0	0.0	141.2
Biomass-waste fired	0	5	174	524	1223		149	495	1109	591.0	1744.3	971.2
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	23.0	39.4	36.3	36.1	40.1		-8.3	-8.4	-24.0			
Efficiency of gross thermal power generation (%)	22.3	25.6	40.9	37.8	37.8		-0.9	-2.8	-4.5			
% of gross electricity from CHP	18.5	22.7	67.8	33.4	37.1		1.2	-1.3	-1.3			
Carbon free gross electricity generation (%)	78.8	75.0	17.2	81.3	91.3		11.5	19.8	33.5			
- nuclear	75.7	71.7	0.0	58.6	51.8		0.0	1.4	1.1			
- renewable energy forms	3.0	3.3	17.2	22.7	39.5		11.5	18.4	32.4			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	42.4	45.0	48.7	-0.1	-0.3	-0.5	-0.3	-0.7	-1.0
Public road transport	7.9	2.8	3.8	4.7	4.9	5.1	0.0	0.0	0.0	0.3	0.7	1.0
Private cars and motorcycles	9.3	16.1	29.3	36.7	38.7	41.7	-0.1	-0.3	-0.5	-0.3	-0.9	-1.2
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	0.2	0.8	1.1
Aviation	0.2	0.2	0.3	0.5	0.6	0.9	0.0	0.0	-0.1	-4.4	-5.9	-6.5
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.5
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.9	52.1	57.0	-0.1	-0.3	-0.5	-0.2	-0.6	-0.9
Trucks	7.3	7.8	15.9	26.3	29.9	32.7	-0.2	-0.5	-0.7	-0.6	-1.6	-2.2
Rail	19.3	8.9	12.5	19.6	22.2	24.3	0.1	0.2	0.2	0.3	0.7	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1
Energy demand in transport (ktoe)												
	1990	1048	1397	1907	1988	2057	-13	-35	-62	-0.7	-1.7	-2.9
Public road transport	164	25	30	35	35	35	0	0	0	0.1	0.2	-1.0
Private cars and motorcycles	396	630	823	997	1002	1034	-3	-9	-15	-0.3	-0.9	-1.4
Trucks	1159	288	414	679	740	779	-6	-18	-31	-0.9	-2.4	-3.8
Rail	132	75	79	119	122	106	0	1	1	0.2	0.5	0.7
Aviation	135	27	46	71	82	97	-4	-8	-17	-5.4	-8.5	-15.2
Inland navigation	5	3	5	6	6	7	0	0	0	0.0	0.3	0.3

Source: PRIMES

Luxembourg: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	161	203	252	269	282	1.9	11.0	4.6	1.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	161	203	252	269	282	1.9	11.0	4.6	1.1	
Hydro	6	7	10	8	9	9	10	10	10	5.8	-0.9	0.1	0.1	
Biomass & Waste	41	39	44	59	89	111	139	153	168	0.7	7.3	4.6	1.9	
Wind	0	0	2	5	14	14	21	21	17		19.5	4.1	-1.9	
Solar and others	0	0	0	2	48	68	83	86	87			5.6	0.4	
Geothermal	0	0	0	0	0	0	0	0	0			3.2	0.8	
Net Imports	3520	3257	3620	4606	4825	4446	4223	4275	4389	0.3	2.9	-1.3	0.4	
Solids	1134	514	125	82	53	47	43	32	26	-19.8	-8.2	-2.1	-5.1	
Oil	1620	1756	2332	3066	3269	2804	2512	2453	2448	3.7	3.4	-2.6	-0.3	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3269	2804	2512	2453	2448	3.7	3.4	-2.6	-0.3	
Natural gas	430	557	670	1179	1103	1123	1130	1199	1264	4.6	5.1	0.2	1.1	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	4985	4649	4475	4545	4671	0.2	3.2	-1.1	0.4	
Solids	1134	514	125	82	53	47	43	32	26	-19.8	-8.2	-2.1	-5.1	
Oil	1609	1788	2283	3084	3269	2804	2512	2453	2448	3.6	3.7	-2.6	-0.3	
Natural gas	430	557	670	1179	1103	1123	1130	1199	1264	4.6	5.1	0.2	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	208	332	459	497	532	1.9	13.9	8.3	1.5	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	1.0	1.0	0.7	0.6					
Oil	45.2	53.6	62.9	65.6	65.6	60.3	56.1	54.0	52.4					
Natural gas	12.1	16.7	18.5	25.1	22.1	24.2	25.2	26.4	27.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	4.2	7.1	10.3	10.9	11.4					
Gross Electricity Generation in GWh_e	627	498	433	3344	2605	2895	3217	3987	4618	-3.6	19.7	2.1	3.7	
Self consumption and grid losses	410	497	439	448	181	192	206	265	321	0.7	-8.5	1.3	4.6	
Fuel Inputs to Thermal Power Generation	190	132	75	568	437	475	504	610	706	-8.8	19.2	1.4	3.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	387	421	427	515	595	-11.6	23.4	1.0	3.4	
Biomass & Waste	25	24	28	43	50	54	76	94	111	1.0	5.9	4.4	3.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	69	169	253	273	299			13.8	1.7	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	69	169	253	273	299			13.8	1.7	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	6	7	8	9	11	-1.8	-13.2	2.2	3.2	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4766	4392	4196	4218	4296	0.6	3.0	-1.3	0.2	
by sector														
Industry	1729	1196	958	937	980	1033	1072	1120	1172	-5.7	0.2	0.9	0.9	
- energy intensive industries	1525	900	501	470	477	497	493	496	494	-10.5	-0.5	0.3	0.0	
- other industrial sectors	204	296	457	467	502	536	579	624	678	8.4	1.0	1.4	1.6	
Residential	519	563	596	649	673	584	577	557	537	1.4	1.2	-1.5	-0.7	
Tertiary	74	99	118	130	133	119	100	103	106	4.7	1.2	-2.8	0.6	
Transport	1007	1307	1877	2708	2980	2655	2447	2438	2480	6.4	4.7	-2.0	0.1	
by fuel														
Solids	756	369	125	82	53	47	43	32	26	-16.5	-8.1	-2.1	-5.1	
Oil	1581	1752	2266	3065	3242	2775	2481	2421	2413	3.7	3.6	-2.6	-0.3	
Gas	622	585	623	678	716	702	701	682	668	0.0	1.4	-0.2	-0.5	
Electricity	355	430	491	529	561	575	590	683	769	3.3	1.3	0.5	2.7	
Heat (from CHP and District Heating)	0	14	27	55	72	70	74	78	81		10.4	0.3	0.9	
Renewable energy forms	15	15	16	16	120	220	304	320	337	0.4	22.4	9.7	1.0	
Other	0	0	0	0	0	1	1	2	2			15.5	6.2	
RES in Gross Final Energy Consumption ^(A)			34	48	188	292	402	433	461		18.5	7.9	1.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.1	12.6	11.6	11.6	11.7	-2.1	3.1	-1.9	0.0	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.6	11.2	10.3	10.2	10.3	-1.8	3.6	-2.0	0.0	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.0	1.0	1.2	1.4	-17.0	23.4	1.0	3.4	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.5	0.1	
Residential	1.3	1.3	1.4	1.4	1.3	1.0	1.0	0.8	0.7	1.1	-0.6	-3.0	-3.7	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.8	-1.3	-0.6	
Transport	3.0	3.9	5.6	8.1	8.8	7.5	6.7	6.6	6.6	6.5	4.7	-2.7	-0.1	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.6	0.6	-7.6	-0.6	-0.2	-0.4	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.7	0.7	0.7	0.7	2.4	0.6	-1.6	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	109.8	98.2	90.9	90.4	91.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Inl. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.3	106.2	87.3	77.2	70.6	-5.9	-0.5	-4.4	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.52	2.41	2.30	2.25	2.21	-2.0	0.3	-0.9	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	96.8	95.6	94.4	94.1	94.0				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.2	4.9	5.4	5.7	6.2		4.9	2.4	1.4
as % of GDP			10.4	11.4	11.6	11.2	10.5	9.8	9.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	77.8	70.0	64.3	60.5	-9.0	-1.4	-2.1	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.8	61.3	53.0	45.4	39.5	-2.2	-2.0	-4.2	-2.9
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.4	58.1	41.5	37.4	34.3	-0.5	-2.5	-6.1	-1.9
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	150.4	126.4	118.8	114.4	1.8	1.0	-2.7	-1.0
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	114.3	104.4	97.9	94.7	0.0	4.3	-3.0	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.26	0.26	0.24	0.24	0.25	-18.4	5.7	-0.6	0.3
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.45	2.32	2.22	2.14	2.08	-1.9	-0.1	-1.0	-0.6
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.46	1.39	1.34	-6.1	-1.4	-0.4	-0.8
Residential	2.45	2.39	2.37	2.21	1.98	1.79	1.70	1.46	1.25	-0.3	-1.8	-1.5	-3.0
Tertiary	0.21	0.34	0.65	0.48	0.48	0.49	0.56	0.52	0.49	12.0	-3.0	1.6	-1.2
Transport	2.95	2.96	2.97	3.00	2.95	2.84	2.74	2.71	2.68	0.1	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	3.9	6.6	9.5	10.2	10.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	6.5	10.5	11.3	12.1				
Gross Electricity generation by source (in GWh)													
			433	3344	2605	2895	3217	3987	4618		19.7	2.1	3.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	3	0	0	0	0		10.3		
Gas (including derived gases)			222	3083	2134	2378	2526	3216	3818		25.4	1.7	4.2
Biomass-waste			63	97	179	219	318	392	466		11.0	5.9	3.9
Hydro (pumping excluded)			120	93	110	110	111	111	112		-0.9	0.1	0.1
Wind			27	53	160	167	239	243	197		19.5	4.1	-1.9
Solar			0	18	20	21	23	25	26			1.7	1.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	888	913	1012	1178	1253		12.4	1.3	2.2
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	279	287	320	326	305		5.3	1.4	-0.5
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	99	104	134	138	117		25.7	3.1	-1.4
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	609	626	692	853	948		18.9	1.3	3.2
of which cogeneration units			61	112	223	223	224	230	213		13.8	0.1	-0.5
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	499	515	584	733	820		19.1	1.6	3.4
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	103	105	104	115	123		21.4	0.1	1.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	32.6	35.3	35.3	37.6	41.0				
Efficiency of gross thermal power generation (%)			32.7	48.1	45.5	47.0	48.6	50.9	52.2				
% of gross electricity from CHP			53.7	11.8	28.3	27.6	28.9	25.0	21.9				
Carbon free gross electricity generation (%)			48.5	7.8	18.0	17.9	21.5	19.3	17.3				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	18.0	17.9	21.5	19.3	17.3				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.3	9.6	10.0	10.4	3.5	2.0	0.6	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.8	1.0
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	6.9	7.1	7.3	7.5	3.4	1.8	0.3	0.7
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	1.2	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.3	1.4	5.8	3.7	2.6	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.0	11.8	12.8	13.7	8.0	2.4	1.3	1.5
Trucks	3.2	5.5	7.6	8.8	10.1	10.6	11.5	12.5	13.4	9.0	2.8	1.3	1.5
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-1.8	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	2655	2447	2438	2480	6.4	4.7	-2.0	0.1
Public road transport	18	18	24	29	32	29	25	24	24	2.9	2.9	-2.2	-0.4
Private cars and motorcycles	500	609	760	916	968	845	727	709	715	4.3	2.4	-2.8	-0.2
Trucks	345	482	757	1323	1474	1251	1229	1246	1290	8.2	6.9	-1.8	0.5
Rail	13	9	15	9	8	8	6	6	5	2.0	-5.9	-2.7	-1.8
Aviation	131	189	320	431	498	522	460	452	445	9.3	4.5	-0.8	-0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Luxembourg: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	203	252	282	25	30	9	13.7	13.7	3.2
Solids	0	0	0	0	0	0	0	0	0	0	0	0
Oil	0	0	0	0	0	0	0	0	0	0	0	0
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	47	57	74	203	252	282	25	30	9	13.7	13.7	3.2
Hydro	6	10	8	9	10	10	0	0	0	2.2	1.4	0.0
Biomass & Waste	41	44	59	111	139	168	0	0	-15	0.0	0.0	-8.2
Wind	0	2	5	14	21	17	3	3	3	23.7	16.0	21.2
Solar and others	0	0	2	68	83	87	22	27	21	46.4	49.4	31.8
Geothermal	0	0	0	0	0	0	0	0	0	33.3	42.6	50.9
Net Imports	3520	3620	4606	4446	4223	4389	-835	-1188	-1118	-15.8	-22.0	-20.3
Solids	1134	125	82	47	43	26	-2	-3	-4	-4.8	-7.0	-13.1
Oil	1620	2332	3066	2804	2512	2448	-671	-964	-1000	-19.3	-27.7	-29.0
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0	0	0	0
- Oil products	1620	2332	3066	2804	2512	2448	-671	-964	-1000	-19.3	-27.7	-29.0
Natural gas	430	670	1179	1123	1130	1264	-189	-276	-164	-14.4	-19.6	-11.5
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	4649	4475	4671	-811	-1158	-1109	-14.8	-20.6	-19.2
Solids	1134	125	82	47	43	26	-2	-3	-4	-4.8	-7.0	-13.1
Oil	1609	2283	3084	2804	2512	2448	-671	-964	-1000	-19.3	-27.7	-29.0
Natural gas	430	670	1179	1123	1130	1264	-189	-276	-164	-14.4	-19.6	-11.5
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	332	459	532	52	85	58	18.5	22.8	12.3
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	1.0	1.0	0.6	0.1	0.1	0.0			
Oil	45.2	62.9	65.6	60.3	56.1	52.4	-3.3	-5.6	-7.2			
Natural gas	12.1	18.5	25.1	24.2	25.2	27.1	0.1	0.3	2.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	7.1	10.3	11.4	2.0	3.6	3.2			
Gross Electricity Generation in GWh_e	627	433	3344	2895	3217	4618	-669	-893	681	-18.8	-21.7	17.3
Self consumption and grid losses	410	439	448	192	206	321	-45	-41	54	-19.1	-16.5	20.1
Fuel Inputs to Thermal Power Generation	190	75	568	475	504	706	-113	-149	78	-19.2	-22.8	12.4
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	0.0		
Gas (including derived gases)	162	47	525	421	427	595	-122	-181	30	-22.5	-29.7	5.2
Biomass & Waste	25	28	43	54	76	111	9	32	48	20.0	70.2	77.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	169	253	299	17	20	-12	11.0	8.8	-3.9
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	169	253	299	17	20	-12	11.0	8.8	-3.9
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	8	11	-2	-1	2	-25.8	-13.1	22.1
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4392	4196	4296	-770	-1103	-1160	-14.9	-20.8	-21.3
by sector												
Industry	1729	958	937	1033	1072	1172	-38	-56	-72	-3.5	-4.9	-5.8
- energy intensive industries	1525	501	470	497	493	494	-7	-14	-13	-1.4	-2.8	-2.6
- other industrial sectors	204	457	467	536	579	678	-31	-42	-59	-5.4	-6.7	-8.0
Residential	519	596	649	584	577	537	-122	-136	-184	-17.3	-19.0	-25.5
Tertiary	74	118	130	119	100	106	-36	-65	-66	-23.0	-39.5	-38.2
Transport	1007	1877	2708	2655	2447	2480	-574	-847	-838	-17.8	-25.7	-25.2
by fuel												
Solids	756	125	82	47	43	26	-2	-3	-4	-4.8	-7.0	-13.1
Oil	1581	2266	3065	2775	2481	2413	-671	-964	-1000	-19.5	-28.0	-29.3
Gas	622	623	678	702	701	668	-67	-95	-193	-8.7	-12.0	-22.4
Electricity	355	491	529	575	590	769	-54	-73	54	-8.5	-11.0	7.5
Heat (from CHP and District Heating)	0	27	55	70	74	81	-12	-13	-25	-14.2	-15.4	-23.8
Renewable energy forms	15	16	16	220	304	337	36	47	8	19.5	18.0	2.6
Other	0	0	0	1	1	2	0	0	0	35.9	12.3	-2.6
RES in Gross Final Energy Consumption ^(A)	34	48	292	402	461	47	77	53	19.4	23.7	13.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	12.6	11.6	11.7	-2.6	-3.7	-3.6	-17.2	-24.3	-23.6
CO₂ Emissions (energy related)	10.6	8.8	12.4	11.2	10.3	10.3	-2.5	-3.6	-3.4	-18.2	-25.8	-25.0
Power generation/District heating	0.7	0.1	1.2	1.0	1.0	1.4	-0.3	-0.4	0.1	-22.5	-29.7	5.2
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	-0.1	-0.2	-2.4	-4.6	-10.1
Residential	1.3	1.4	1.4	1.0	1.0	0.7	-0.4	-0.4	-0.7	-25.3	-29.4	-51.1
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-18.5	-32.7	-36.8
Transport	3.0	5.6	8.1	7.5	6.7	6.6	-1.8	-2.7	-2.6	-19.3	-28.3	-28.1
CO₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.6	0.0	0.0	0.0	-1.9	-3.3	-4.7
Non-CO₂ GHGs Emissions	0.6	0.8	0.9	0.7	0.7	0.7	-0.1	-0.1	-0.1	-12.1	-16.5	-15.9
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	98.2	90.9	91.2	-20.3	-29.2	-28.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Luxembourg: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	106.2	87.3	70.6	-18.5	-22.6	-16.8	-14.8	-20.6	-19.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.41	2.30	2.21	-0.10	-0.16	-0.17	-4.0	-6.6	-7.2
Import Dependency %	99.0	99.8	98.0	95.6	94.4	94.0	-1.1	-1.7	-1.3			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	4.9	5.4	6.2	0.4	0.4	0.7	9.1	9.1	13.7
as % of GDP		10.4	11.4	11.2	10.5	9.3	0.9	0.9	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.5	0.7						
as % of GDP				0.94	0.88	1.13						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	77.8	70.0	60.5	-2.8	-3.6	-3.7	-3.5	-4.9	-5.8
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	61.3	53.0	39.5	-12.8	-12.5	-13.6	-17.3	-19.0	-25.5
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	58.1	41.5	34.3	-17.4	-27.1	-21.2	-23.0	-39.5	-38.2
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	150.4	126.4	114.4	-10.7	-26.1	-15.1	-6.7	-17.1	-11.7
Freight transport (toe/Mtkm)	93.1	93.3	144.6	114.3	104.4	94.7	-26.9	-30.3	-29.8	-19.0	-22.5	-23.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.24	0.25	-0.02	-0.03	0.00	-5.7	-11.6	-1.7
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.32	2.22	2.08	-0.08	-0.14	-0.20	-3.4	-5.8	-8.8
Industry	3.28	1.74	1.63	1.50	1.46	1.34	0.02	0.01	-0.06	1.2	0.4	-4.5
Residential	2.45	2.37	2.21	1.79	1.70	1.25	-0.19	-0.25	-0.65	-9.7	-12.9	-34.3
Tertiary	0.21	0.65	0.48	0.49	0.56	0.49	0.03	0.06	0.01	5.8	11.2	2.2
Transport	2.95	2.97	3.00	2.84	2.74	2.68	-0.05	-0.10	-0.11	-1.8	-3.6	-3.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	6.6	9.5	10.7	1.9	3.4	3.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.5	10.5	12.1	1.8	3.5	2.9			
Gross Electricity generation by source (in GWh_e)												
	433	3344	2895	3217	4618	6618	-669	-893	681	-18.8	-21.7	17.3
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2378	2526	3818	735	-735	-1058	441	-23.6	-29.5	13.1
Biomass-waste	63	97	219	318	466	32	32	131	205	17.3	69.8	78.9
Hydro (pumping excluded)	120	93	110	111	112	2	2	2	0	2.2	1.4	0.0
Wind	27	53	167	239	197	32	32	33	35	23.7	16.0	21.2
Solar	0	18	21	23	26	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	913	1012	1253	1253	-51	-72	160	-5.3	-6.7	14.7
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	287	320	305	30	30	30	32	11.5	10.5	11.8
Hydro (pumping excluded)	155	155	155	155	155	0	0	0	0	0.0	0.0	0.0
Wind	10	35	104	134	117	30	30	32	32	39.9	29.3	38.2
Solar	2	23	28	30	33	0	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	626	692	948	81	-81	-103	128	-11.4	-12.9	15.6
of which cogeneration units	61	112	223	224	213	-31	-31	-64	-82	-12.1	-22.3	-27.7
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	515	584	820	-101	-101	-139	78	-16.5	-19.2	10.5
Oil fired	6	7	6	4	4	0	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	105	104	123	21	21	36	50	24.2	52.7	67.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	35.3	35.3	41.0	41.0	-5.9	-6.9	0.9			
Efficiency of gross thermal power generation (%)	32.7	48.1	47.0	48.6	52.2	52.2	-1.3	-1.1	2.4			
% of gross electricity from CHP	53.7	11.8	27.6	28.9	21.9	21.9	-2.0	0.0	-13.2			
Carbon free gross electricity generation (%)	48.5	7.8	17.9	21.5	17.3	17.3	5.2	8.7	3.1			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	17.9	21.5	17.3	17.3	5.2	8.7	3.1			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	5.2	7.4	8.3	9.3	9.6	10.4	-0.4	-0.6	-0.7	-4.5	-5.8	-6.5
Private cars and motorcycles	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.8	3.0	3.6
Rail	4.2	5.8	6.4	6.9	7.1	7.5	-0.4	-0.6	-0.7	-6.0	-7.8	-8.8
Aviation	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	5.6	6.8	8.2
Inland navigation	0.4	0.7	0.8	1.1	1.3	1.4	0.0	0.0	-0.1	-2.6	-3.6	-4.0
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	3.8	8.2	9.2	11.0	11.8	13.7	-0.8	-1.1	-1.4	-6.5	-8.5	-9.6
Rail	3.2	7.6	8.8	10.6	11.5	13.4	-0.8	-1.1	-1.5	-7.1	-9.0	-10.1
Inland navigation	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.1	15.4	19.0	21.3
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1007	1877	2708	2655	2447	2480	-574	-847	-838	-17.8	-25.7	-25.2
Private cars and motorcycles	18	24	29	29	25	24	-2	-5	-4	-7.6	-16.2	-14.9
Trucks	500	760	916	845	727	715	-140	-226	-147	-14.3	-23.7	-17.0
Rail	345	757	1323	1251	1229	1290	-405	-505	-588	-24.4	-29.1	-31.3
Aviation	13	15	9	8	6	5	1	1	1	8.0	8.8	12.5
Inland navigation	131	320	431	522	460	445	-27	-111	-100	-5.0	-19.4	-18.3
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	0	0	0	0	4	23	37	46	51			24.7	3.1
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	0	0	0	0	4	23	37	46	51			24.7	3.1
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	0	0	0	0	0	0	0	0	0				
Wind	0	0	0	0	0	3	9	15	17				6.2
Solar and others	0	0	0	0	4	20	28	31	33			21.1	1.8
Geothermal	0	0	0	0	0	0	0	0	0			5.9	-1.1
Net Imports	611	890	818	953	929	799	785	756	768	3.0	1.3	-1.7	-0.2
Solids	0	0	0	0	0	0	0	0	0				
Oil	611	890	818	953	873	666	575	461	449	3.0	0.7	-4.1	-2.5
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	611	890	818	953	873	666	575	461	449	3.0	0.7	-4.1	-2.5
Natural gas	0	0	0	0	55	55	117	192	200			7.8	5.5
Electricity	0	0	0	0	0	73	85	95	108				2.4
Gross Inland Consumption	581	808	769	953	933	821	822	802	818	2.8	2.0	-1.3	0.0
Solids	0	0	0	0	0	0	0	0	0				
Oil	581	808	769	953	873	666	575	461	449	2.8	1.3	-4.1	-2.5
Natural gas	0	0	0	0	55	55	117	192	200			7.8	5.5
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	73	85	95	108				2.4
Renewable energy forms	0	0	0	0	5	26	45	55	62			25.2	3.3
as % in Gross Inland Consumption													
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Oil	100.0	100.0	100.0	100.0	93.6	81.2	70.0	57.4	54.9				
Natural gas	0.0	0.0	0.0	0.0	5.9	6.7	14.3	23.9	24.5				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.0	0.0	0.0	0.0	0.5	3.2	5.4	6.9	7.5				
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	2002	1260	1384	1603	1689	5.7	0.4	-3.6	2.0
Self consumption and grid losses	190	373	350	438	168	116	126	141	154	6.3	-7.1	-2.9	2.0
Fuel Inputs to Thermal Power Generation	321	463	494	580	499	271	238	216	223	4.4	0.1	-7.1	-0.6
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	321	463	494	580	443	215	118	21	19	4.4	-1.1	-12.4	-16.6
Gas (including derived gases)	0	0	0	0	55	55	117	192	200			7.8	5.5
Biomass & Waste	0	0	0	0	0	0	2	4	4				5.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	0	0	0	0	1	3	5	6	7			24.8	3.6
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	0	1	3	5	6	7			26.3	3.7
District heating	0	0	0	0	0	0	0	0	0			-5.3	-0.8
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	8	19	10	12	8	3	3	2	3	2.5	-2.0	-10.5	-0.5
Non-Energy Uses	6	0	0	0	0	0	0	0	0				
Final Energy Demand	332	451	408	528	592	645	682	696	709	2.1	3.8	1.4	0.4
by sector													
Industry	0	42	43	46	49	53	59	66	72		1.3	1.9	2.0
- energy intensive industries	0	0	0	0	0	0	0	0	0				
- other industrial sectors	0	42	43	46	49	53	59	66	72		1.3	1.9	2.0
Residential	55	73	76	89	101	114	120	122	124	3.2	2.9	1.8	0.3
Tertiary	56	32	52	66	68	77	81	85	87	-0.7	2.7	1.8	0.8
Transport	221	304	237	328	374	401	421	423	425	0.7	4.6	1.2	0.1
by fuel													
Solids	0	0	0	0	0	0	0	0	0				
Oil	254	342	274	373	430	451	457	440	430	0.8	4.6	0.6	-0.6
Gas	0	0	0	0	0	0	0	0	0			2.2	2.6
Electricity	78	108	135	155	158	172	193	220	240	5.6	1.6	2.0	2.2
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-5.3	-0.8
Renewable energy forms	0	0	0	0	5	22	32	36	39			21.5	2.1
Other	0	0	0	0	0	0	0	0	0			14.5	2.1
RES in Gross Final Energy Consumption ^(A)			0	0	5	25	42	52	58			24.9	3.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.3	2.6	2.5	2.3	2.3	2.9	1.7	-2.8	-0.6
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.8	2.2	2.0	1.8	1.8	3.0	1.7	-3.3	-1.1
Power generation/District heating	1.0	1.5	1.6	1.9	1.6	0.8	0.7	0.5	0.5	4.4	-0.2	-8.3	-2.1
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-1.8	4.2	-2.6	-10.3
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		5.9	-4.5	-10.1
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.2	1.2	1.2	0.7	4.7	1.1	0.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	-0.1	1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	156.9	126.0	117.9	110.4	110.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Malta: EC proposal with RES trading				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5	
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8	
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	180.9	134.6	110.9	92.8	83.9	-1.9	0.5	-4.8	-2.8	
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.04	2.64	2.46	2.28	2.22	0.1	-0.2	-2.1	-1.0	
Import Dependency %	100.0	104.5	100.8	100.0	99.6	97.2	95.5	94.3	93.8					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.8	0.9	1.0		6.3	2.0	1.6	
as % of GDP			8.3	12.2	13.3	12.0	11.3	10.6	10.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.3	81.8	77.0	73.4	71.0		-1.4	-1.2	-0.8	
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	114.2	108.4	93.6	80.9	72.8	-1.6	1.3	-2.0	-2.5	
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	120.0	112.8	96.9	87.1	78.9	-5.9	1.8	-2.1	-2.0	
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.0	57.1	56.0	52.6	50.2	-3.8	2.2	-0.3	-1.1	
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	166.9	162.4	152.7	144.5	138.6	2.5	4.8	-0.9	-1.0	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.77	0.65	0.47	0.32	0.31	-1.3	-0.6	-4.8	-4.0	
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.09	2.00	1.89	1.82	-1.3	0.9	-0.8	-1.0	
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.14	0.98	0.74	0.43	0.24	-4.9	1.3	-4.2	-10.6	
Tertiary	0.00	0.00	0.50	0.49	0.68	0.53	0.36	0.20	0.12		3.1	-6.2	-10.7	
Transport	2.97	2.96	2.98	3.00	2.99	2.98	2.96	2.95	2.93	0.0	0.1	-0.1	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.8	3.9	6.1	7.4	8.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.4	1.6	2.0					
Gross Electricity generation by source (in GWh)														
			1917	2240	2002	1260	1384	1603	1689		0.4	-3.6	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1638	859	471	114	107		-1.6	-11.7	-13.7	
Gas (including derived gases)			0	0	365	364	791	1294	1360			8.1	5.6	
Biomass-waste			0	0	0	2	12	19	19				5.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	35	110	175	202				6.2	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	536	556	535	635	698		1.3	0.0	2.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	15	45	71	82				6.3	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	15	45	71	82				6.3	
Solar			0	0	0	0	0	0	0					
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	536	542	490	564	616		1.3	-0.9	2.3	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	49	49	223	270	322			16.4	3.8	
Oil fired			472	483	488	493	266	292	292		0.3	-5.9	0.9	
Biomass-waste fired			0	0	0	0	1	2	2				5.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	40.6	25.2	28.9	28.3	27.1					
Efficiency of gross thermal power generation (%)			33.4	33.2	34.5	38.9	46.1	56.9	57.3					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	2.9	8.8	12.2	13.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	2.9	8.8	12.2	13.1					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.1	6.6	7.1	5.2	2.3	2.0	1.4	
Public road transport	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	5.9	1.8	1.6	1.3	
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	2.0	2.1	2.1	2.2	4.4	2.4	1.2	0.6	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.0	3.4	3.8	4.1	5.6	2.4	2.6	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.3	0.0	
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.3	0.0	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	374	401	421	423	425	0.7	4.6	1.2	0.1	
Public road transport	5	11	10	12	14	15	16	16	16	5.8	4.0	1.3	-0.2	
Private cars and motorcycles	87	160	89	142	174	189	205	207	210	0.2	6.9	1.6	0.3	
Trucks	57	59	52	84	83	82	78	74	71	-0.8	4.7	-0.6	-0.9	
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	103	115	123	126	129	1.8	1.8	1.8	0.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	23	37	51	15	21	26	202.2	128.1	101.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	23	37	51	15	21	26	202.2	128.1	101.8
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	3	9	17	3	7	13		320.3	270.5
Solar and others	0	0	0	20	28	33	12	14	13	162.0	97.1	62.9
Geothermal	0	0	0	0	0	0	0	0	0	147.6	146.7	161.8
Net Imports	611	818	953	799	785	768	-112	-120	-91	-12.3	-13.2	-10.6
Solids	0	0	0	0	0	0	0	0	0	-8.0	-35.1	-75.7
Oil	611	818	953	666	575	449	-110	-127	-64	-14.1	-18.1	-12.5
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	666	575	449	-110	-127	-64	-14.1	-18.1	-12.5
Natural gas	0	0	0	55	117	200	-2	11	-20	-2.8	10.5	-9.1
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	821	822	818	-96	-99	-65	-10.5	-10.7	-7.4
Solids	0	0	0	0	0	0	0	0	0	-8.0	-35.1	-75.7
Oil	581	769	953	666	575	449	-110	-127	-64	-14.1	-18.1	-12.5
Natural gas	0	0	0	55	117	200	-2	11	-20	-2.8	10.5	-9.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	26	45	62	15	17	19	131.2	63.8	44.0
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	81.2	70.0	54.9	-3.4	-6.3	-3.2			
Natural gas	0.0	0.0	0.0	6.7	14.3	24.5	0.5	2.7	-0.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	3.2	5.4	7.5	2.0	2.5	2.7			
Gross Electricity Generation in GWh_e	1100	1917	2240	1260	1384	1689	-313	-254	-25	-19.9	-15.5	-1.4
Self consumption and grid losses	190	350	438	116	126	154	-33	-23	-7	-22.1	-15.3	-4.2
Fuel Inputs to Thermal Power Generation	321	494	580	271	238	223	-102	-91	-28	-27.4	-27.6	-11.1
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	215	118	19	-100	-97	0	-31.7	-45.1	-1.1
Gas (including derived gases)	0	0	0	55	117	200	-2	11	-20	-2.8	10.5	-9.1
Biomass & Waste	0	0	0	0	2	4	-1	-5	-8	-61.7	-68.6	-68.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	3	5	7	0	1	1	15.3	30.7	16.0
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	3	5	7	0	1	1	15.7	31.0	15.9
District heating	0	0	0	0	0	0	0	0	0	-3.8	4.0	30.7
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	3	3	-2	-1	-1	-38.1	-28.6	-18.0
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	645	682	709	-21	-36	-52	-3.2	-5.0	-6.8
by sector												
Industry	0	43	46	53	59	72	-2	-2	-2	-2.8	-3.7	-2.8
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	53	59	72	-2	-2	-2	-2.8	-3.7	-2.8
Residential	55	76	89	114	120	124	0	-4	-10	-0.2	-3.3	-7.4
Tertiary	56	52	66	77	81	87	-11	-12	-13	-12.2	-13.1	-13.0
Transport	221	237	328	401	421	425	-9	-17	-27	-2.2	-3.9	-5.9
by fuel												
Solids	0	0	0	0	0	0	0	0	0	-8.0	-35.1	-75.7
Oil	254	274	373	451	457	430	-10	-30	-64	-2.1	-6.2	-12.9
Gas	0	0	0	0	0	0	0	0	0	19.2	-1.4	-2.1
Electricity	78	135	155	172	193	240	-24	-20	-2	-12.3	-9.3	-0.6
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	-3.8	4.0	30.6
Renewable energy forms	0	0	0	22	32	39	12	15	14	128.0	85.0	53.4
Other	0	0	0	0	0	0	0	0	0	4.2	4.6	-4.5
RES in Gross Final Energy Consumption ^(A)	0	0	0	25	42	58	15	20	23	148.8	88.5	65.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.5	2.3	-0.4	-0.4	-0.3	-12.3	-13.8	-10.2
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.2	2.0	1.8	-0.4	-0.4	-0.2	-14.1	-15.7	-11.5
Power generation/District heating	1.0	1.6	1.9	0.8	0.7	0.5	-0.3	-0.3	0.0	-28.4	-30.4	-8.3
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-20.9	-22.2	-16.6
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.6	-20.6	-69.1
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.6	-25.2	-74.6
Transport	0.7	0.7	1.0	1.2	1.2	1.2	0.0	-0.1	-0.1	-2.4	-4.4	-6.9
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-3.1	-4.5	-4.8
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	126.0	117.9	110.7	-17.6	-18.9	-12.5			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Malta: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	134.6	110.9	83.9	-15.8	-13.3	-6.7	-10.5	-10.7	-7.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.64	2.46	2.22	-0.11	-0.14	-0.10	-4.0	-5.5	-4.5
Import Dependency %	100.0	100.8	100.0	97.2	95.5	93.8	-1.9	-2.8	-3.3			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.8	1.0	0.0	0.0	0.0	1.3	1.5	1.6
as % of GDP		8.3	12.2	12.0	11.3	10.0	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.16	0.17	0.16						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	81.8	77.0	71.0	-2.4	-2.9	-2.0	-2.8	-3.7	-2.8
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	108.4	93.6	72.8	-0.2	-3.2	-5.8	-0.2	-3.3	-7.4
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	112.8	96.9	78.9	-15.7	-14.6	-11.8	-12.2	-13.1	-13.0
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	57.1	56.0	50.2	-0.3	-0.7	-1.3	-0.5	-1.2	-2.6
Freight transport (toe/Mtkm)	81.8	104.3	167.6	162.4	152.7	138.6	-3.8	-8.3	-12.5	-2.3	-5.2	-8.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.65	0.47	0.31	-0.08	-0.10	-0.02	-10.6	-17.6	-6.9
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.09	2.00	1.82	0.02	-0.03	-0.13	1.1	-1.3	-6.5
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-18.6	-19.3	-14.3
Residential	1.66	1.01	1.10	0.98	0.74	0.24	0.01	-0.16	-0.48	0.8	-17.9	-66.7
Tertiary	0.00	0.50	0.49	0.53	0.36	0.12	0.05	-0.06	-0.28	9.7	-14.0	-70.9
Transport	2.97	2.98	3.00	2.98	2.96	2.93	-0.01	-0.02	-0.03	-0.2	-0.5	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		0.0	0.0	3.9	6.1	8.1	2.4	3.0	3.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	0.9	1.4	2.0	0.1	0.4	0.4			
Gross Electricity generation by source (in GWh_e)												
	1917	2240	1260	1384	1689	1689	-313	-254	-25	-19.9	-15.5	-1.4
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	859	471	107	107	-334	-387	-1	-28.0	-45.1	-1.1
Gas (including derived gases)	0	0	364	791	1360	1360	-10	75	-129	-2.8	10.5	-8.7
Biomass-waste	0	0	2	12	19	19	-3	-26	-42	-61.7	-68.6	-68.4
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	35	110	202	202	35	84	148		320.3	270.5
Solar	0	0	0	0	0	0	0	0	0			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	472	483	556	535	698	698	13	-20	59	2.4	-3.5	9.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	0	0	15	45	82	82	15	35	61		347.2	294.9
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	15	45	82	82	15	35	61		347.2	294.9
Solar	0	0	0	0	0	0	0	0	0			
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	472	483	542	490	616	616	-2	-54	-2	-0.3	-10.0	-0.3
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	49	223	322	322	-3	-51	5	-5.3	-18.7	1.5
Oil fired	472	483	493	266	292	292	1	0	-2	0.3	0.0	-0.6
Biomass-waste fired	0	0	0	1	2	2	0	-3	-5	-61.7	-68.6	-68.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	43.6	49.5	25.2	28.9	27.1	27.1	-6.8	-4.0	-2.8			
Efficiency of gross thermal power generation (%)	33.4	33.2	38.9	46.1	57.3	57.3	2.6	3.9	0.5			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	2.9	8.8	13.1	13.1	2.6	4.9	6.3			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	2.9	8.8	13.1	13.1	2.6	4.9	6.3			
Transport sector												
Passenger transport activity (Gpkm)												
	2.4	4.0	4.4	5.6	6.1	7.1	-0.1	-0.1	-0.2	-1.3	-2.0	-2.5
Public road transport	0.3	0.5	0.5	0.6	0.6	0.7	0.0	0.0	0.0	2.4	3.2	3.6
Private cars and motorcycles	0.9	1.4	1.6	2.0	2.1	2.2	0.0	0.0	0.0	0.1	-0.1	-0.3
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Aviation	1.2	2.1	2.3	3.0	3.4	4.1	-0.1	-0.1	-0.2	-2.9	-4.0	-4.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.2
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.2
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	221	237	328	401	421	425	-9	-17	-27	-2.2	-3.9	-5.9
Public road transport	5	10	12	15	16	16	0	0	-1	-0.3	-1.8	-4.9
Private cars and motorcycles	87	89	142	189	205	210	-2	-4	-8	-1.2	-2.0	-3.5
Trucks	57	52	84	82	78	71	-3	-6	-8	-3.5	-6.9	-10.3
Rail	0	0	0	0	0	0	0	0	0			
Aviation	72	86	90	115	123	129	-4	-7	-10	-3.1	-5.3	-7.3
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	60478	65988	57172	61834	57046	53185	53368	48724	42203	-0.6	0.0	-0.7	-2.3	
Solids	0	0	0	0	0	0	0	0	0					
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0				
Natural gas	54613	60456	51904	56265	53300	47764	45896	40100	32670	-0.5	0.3	-1.5	-3.3	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Renewable energy sources	956	933	1831	2242	2724	4398	6447	7589	8488	6.7	4.1	9.0	2.8	
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0	
Biomass & Waste	942	894	1739	2035	2149	3090	4332	4957	5435	6.3	2.1	7.3	2.3	
Wind	5	27	71	178	440	706	1006	1438	1690	30.9	20.0	8.6	5.3	
Solar and others	2	4	9	22	126	594	1101	1185	1355	15.5	30.2	24.2	2.1	
Geothermal	0	0	0	0	0	0	0	0	0			4.0	1.9	
Net Imports	17443	16359	34331	36912	40020	43838	44342	49792	56958	7.0	1.5	1.0	2.5	
Solids	9574	8921	8222	8313	4728	7119	6912	5527	4664	-1.5	-5.4	3.9	-3.9	
Oil	30876	32829	41673	47392	49913	49952	49876	50382	50504	3.0	1.8	0.0	0.1	
- Crude oil and Feedstocks	47956	59277	60955	61302	65879	66013	66178	66718	66959	2.4	0.8	0.0	0.1	
- Oil products	-17080	-26448	-19282	-13910	-15966	-16061	-16303	-16337	-16455					
Natural gas	-23799	-26370	-17191	-20941	-16566	-14845	-14265	-8273	-321					
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Gross Inland Consumption	67059	73374	75712	80963	79461	78697	78657	78781	78877	1.2	0.5	-0.1	0.0	
Solids	9206	9098	8035	8190	4728	7119	6912	5527	4664	-1.4	-5.2	3.9	-3.9	
Oil	24415	27242	28496	32027	32308	31626	30823	30647	30220	1.6	1.3	-0.5	-0.2	
Natural gas	30810	34085	34711	35324	36734	32919	31631	31827	32349	1.2	0.6	-1.5	0.2	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Renewable energy forms	956	933	1831	2817	3331	5271	7671	8989	10023	6.7	6.2	8.7	2.7	
as % in Gross Inland Consumption														
Solids	13.7	12.4	10.6	10.1	6.0	9.0	8.8	7.0	5.9					
Oil	36.4	37.1	37.6	39.6	40.7	40.2	39.2	38.9	38.3					
Natural gas	45.9	46.5	45.8	43.6	46.2	41.8	40.2	40.4	41.0					
Nuclear	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3					
Renewable energy forms	1.4	1.3	2.4	3.5	4.2	6.7	9.8	11.4	12.7					
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	106009	107388	112616	122163	131786	2.2	1.7	0.6	1.6	
Self consumption and grid losses	5554	6853	7752	8521	8578	8962	9303	10270	10603	3.4	1.0	0.8	1.3	
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16511	16273	16657	16742	17366	2.2	-1.0	0.1	0.4	
Solids	5698	5900	5114	4958	1463	3881	3883	2631	1854	-1.1	-11.8	10.3	-7.1	
Oil (including refinery gas)	702	876	618	640	0	2	2	2	0	-1.3			-37.8	
Gas (including derived gases)	7651	9466	11071	11913	13292	9881	9254	9890	10778	3.8	1.8	-3.6	1.5	
Biomass & Waste	570	601	1430	2052	1757	2508	3518	4219	4735	9.6	2.1	7.2	3.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	72281	83698	85058	89914	88104	88307	88235	88386	88197	1.6	0.4	0.0	0.0	
Refineries	68767	80009	82188	86416	84182	84026	83627	83850	83652	1.8	0.2	-0.1	0.0	
Biofuels and hydrogen production	0	0	0	0	325	790	1363	1461	1565			15.4	1.4	
District heating	0	0	0	436	545	469	437	415	387			-2.2	-1.2	
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3021	2808	2660	2593	-2.0	0.6	-0.8	-0.8	
Energy Branch Consumption	5410	6247	5484	6580	6447	6406	6344	6247	6199	0.1	1.6	-0.2	-0.2	
Non-Energy Uses	9495	9406	9579	12301	13233	13700	13780	13825	13801	0.1	3.3	0.4	0.0	
Final Energy Demand	42924	47670	50125	51588	52179	51171	51103	51380	51878	1.6	0.4	-0.2	0.2	
by sector														
Industry	12643	12714	13812	14597	15379	15894	15915	16022	16121	0.9	1.1	0.3	0.1	
- energy intensive industries	9577	8701	9885	10367	10964	11406	11394	11461	11489	0.3	1.0	0.4	0.1	
- other industrial sectors	3066	4012	3927	4231	4416	4488	4521	4561	4632	2.5	1.2	0.2	0.2	
Residential	9932	11124	10286	10335	9919	9050	9287	9460	9654	0.4	-0.4	-0.7	0.4	
Tertiary	9993	11429	12207	11587	11095	10327	10028	9893	9676	2.0	-1.0	-1.0	-0.4	
Transport	10356	12404	13820	15068	15785	15899	15873	16005	16428	2.9	1.3	0.1	0.3	
by fuel														
Solids	1755	1461	1352	1515	1516	1510	1436	1394	1344	-2.6	1.1	-0.5	-0.7	
Oil	12790	14685	16469	17366	17861	17539	16981	17080	16869	2.6	0.8	-0.5	-0.1	
Gas	21244	22515	21008	20335	19919	18845	17838	17136	16604	-0.1	-0.5	-1.1	-0.7	
Electricity	6322	7143	8421	8986	9237	8723	9002	9901	10522	2.9	0.9	-0.3	1.6	
Heat (from CHP and District Heating)	439	1568	2558	2981	2848	2944	3266	3137	3580	19.3	1.1	1.4	0.9	
Renewable energy forms	374	298	317	405	797	1607	2576	2729	2955	-1.6	9.6	12.5	1.4	
Other	0	0	0	0	1	3	4	5	5			13.8	2.3	
RES in Gross Final Energy Consumption (A)			940	1828	2935	4775	6969	8178	9122		12.1	9.0	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.1	197.4	190.3	180.9	175.8	0.1	-0.2	-1.1	-0.8	
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.7	157.2	151.1	145.6	142.5	0.9	-0.4	-0.6	-0.6	
Power generation/District heating	43.3	49.1	48.9	51.1	38.8	40.2	38.7	35.2	34.2	1.2	-2.3	0.0	-1.2	
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.1	13.9	13.6	13.5	-0.4	1.0	-0.4	-0.3	
Industry	27.0	25.1	24.8	25.4	26.9	27.5	26.1	25.8	24.2	-0.8	0.8	-0.3	-0.7	
Residential	19.2	20.6	18.9	17.8	16.4	15.0	14.3	14.1	13.8	-0.2	-1.4	-1.4	-0.3	
Tertiary	18.9	20.7	19.5	18.1	17.3	15.4	14.6	13.5	12.5	0.3	-1.2	-1.7	-1.6	
Transport	30.1	36.2	40.5	44.4	45.7	44.9	43.4	43.4	44.3	3.0	1.2	-0.5	0.2	
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.6	11.6	11.7	11.8	-1.5	2.1	0.3	0.2	
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	28.7	27.6	23.6	21.5	-2.2	-0.2	-4.1	-2.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.4	91.2	87.9	83.6	81.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.0	122.1	112.0	103.6	97.2	-2.0	-1.5	-2.0	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	2.00	1.92	1.85	1.81	-0.4	-0.9	-0.5	-0.6
Import Dependency %	22.4	19.3	38.6	37.8	41.2	45.2	45.4	50.5	57.4				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	67.3	73.9	78.5	82.6		3.3	2.0	1.1
as % of GDP			9.2	10.4	10.5	10.4	10.5	10.3	10.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	95.5	89.9	85.3	81.8	-1.1	0.0	-1.1	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.4	67.3	63.8	60.5	58.2	-2.9	-2.0	-2.4	-0.9
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	60.2	53.7	49.0	44.9	-1.5	-3.2	-2.9	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.4	42.3	39.4	38.0	1.7	0.3	-1.3	-1.1
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	35.5	32.9	31.4	30.1	0.8	-0.3	-1.5	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.27	0.24	0.21	0.19	-3.4	-3.9	-0.7	-2.5
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	2.01	1.93	1.88	1.83	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.73	1.64	1.61	1.50	-1.7	-0.3	-0.6	-0.9
Residential	1.93	1.85	1.84	1.72	1.66	1.66	1.54	1.49	1.43	-0.5	-1.0	-0.7	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.49	1.46	1.37	1.29	-1.7	-0.2	-0.7	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.5	9.1	13.3	15.5	17.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.2	10.9	11.6				
Gross Electricity generation by source (in GWh)													
			89599	100202	106009	107388	112616	122163	131786		1.7	0.6	1.6
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5060	19045	19052	15071	10620		-13.7	14.2	-5.7
Oil (including refinery gas)			3769	1651	1231	444	383	167	110		-10.6	-11.0	-11.8
Gas (including derived gases)			55039	64687	83421	64186	60917	65703	74313		4.2	-3.1	2.0
Biomass-waste			3772	6720	6948	10934	15784	18831	21147		6.3	8.6	3.0
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8209	11696	16720	19654		20.0	8.6	5.3
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	76	308	374	374	374			17.2	0.0
Net Generation Capacity in MW_e			20113	19871	25601	27481	27580	30387	33235		2.4	0.7	1.9
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3353	3631	5102	7219	8543		21.1	4.3	5.3
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3134	4348	6200	7181		21.5	3.3	5.1
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	40	160	194	194	194			17.2	0.0
<u>Thermal power</u>			19116	17718	21741	23338	21964	22627	24145		1.3	0.1	1.0
of which cogeneration units			9089	9231	9610	10262	10748	10545	11374		0.6	1.1	0.6
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15276	14581	13103	14326	16807		1.2	-1.5	2.5
Oil fired			839	825	809	638	624	356	308		-0.4	-2.6	-6.8
Biomass-waste fired			533	1022	1483	2193	2910	3380	3836		10.8	7.0	2.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.5	42.7	44.7	44.0	43.7				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.3	50.0	49.6	51.3	52.6				
% of gross electricity from CHP			32.0	37.6	43.6	44.6	47.0	44.5	48.6				
Carbon free gross electricity generation (%)			9.7	12.9	15.4	22.1	28.6	33.7	35.5				
- nuclear			4.4	4.0	3.7	3.7	3.5	3.8	3.6				
- renewable energy forms			5.3	8.9	11.6	18.4	25.1	29.9	31.9				
Transport sector													
Passenger transport activity (Gpkm)	175.3	177.6	189.5	198.2	213.9	230.2	246.8	265.7	285.1	0.8	1.2	1.4	1.5
Public road transport	13.0	12.0	11.3	11.7	12.3	12.7	13.1	13.4	13.5	-1.4	0.9	0.7	0.3
Private cars and motorcycles	138.7	133.2	143.4	149.5	160.2	170.1	179.8	190.8	201.5	0.3	1.1	1.2	1.1
Rail	12.3	17.7	16.1	16.3	17.5	19.2	21.5	24.1	26.8	2.7	0.8	2.1	2.2
Aviation	9.8	13.5	17.8	19.7	23.1	27.2	31.3	36.4	42.1	6.2	2.6	3.1	3.0
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.0	1.1
Freight transport activity (Gtkm)	94.8	105.7	125.4	131.6	142.1	153.7	165.6	176.0	185.7	2.8	1.3	1.5	1.2
Trucks	56.1	67.1	79.6	84.2	90.8	96.9	104.0	111.6	118.0	3.6	1.3	1.4	1.3
Rail	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.8	3.9	3.0	2.3	1.4
Inland navigation	35.7	35.5	41.3	42.2	45.2	49.9	54.0	56.1	59.0	1.5	0.9	1.8	0.9
Energy demand in transport (ktoe)	10356	12404	13820	15068	15785	15899	15873	16005	16428	2.9	1.3	0.1	0.3
Public road transport	104	105	95	91	90	87	82	79	78	-0.9	-0.5	-1.0	-0.4
Private cars and motorcycles	5043	5525	5286	5999	6179	6094	5989	5882	5971	0.5	1.6	-0.3	0.0
Trucks	2899	3325	4254	4933	5140	5120	5105	5198	5276	3.9	1.9	-0.1	0.3
Rail	147	162	176	172	183	189	180	161	145	1.8	0.4	-0.1	-2.1
Aviation	1608	2589	3343	3670	3976	4174	4268	4429	4693	7.6	1.8	0.7	1.0
Inland navigation	556	697	667	204	217	235	249	255	264	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: EC proposal with RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	53185	53368	42203	-3021	-600	3540	-5.4	-1.1	9.2
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	47764	45896	32670	-4216	-3284	0	-8.1	-6.7	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4398	6447	8488	1195	2684	3540	37.3	71.3	71.6
Hydro	7	12	8	9	9	9	0	0	0	0.2	0.1	0.0
Biomass & Waste	942	1739	2035	3090	4332	5435	705	1487	1695	29.6	52.2	45.3
Wind	5	71	178	706	1006	1690	80	365	878	12.9	56.9	108.1
Solar and others	2	9	22	594	1101	1355	410	833	967	222.9	310.8	249.8
Geothermal	0	0	0	0	0	0	0	0	0	37.9	70.3	104.2
Net Imports	17443	34331	36912	43838	44342	56958	-5643	-10311	-16358	-11.4	-18.9	-22.3
Solids	9574	8222	8313	7119	6912	4664	-3136	-4718	-7973	-30.6	-40.6	-63.1
Oil	30876	41673	47392	49952	49876	50504	-1266	-2300	-3524	-2.5	-4.4	-6.5
- Crude oil and Feedstocks	47956	60955	61302	66013	66178	66959	-1152	-2012	-3268	-1.7	-3.0	-4.7
- Oil products	-17080	-19282	-13910	-16061	-16303	-16455	-113	-288	-256	0.7	1.8	1.6
Natural gas	-23799	-17191	-20941	-14845	-14265	-321	-1441	-3713	-5340	10.7	35.2	-106.4
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	78697	78657	78877	-8655	-10884	-12774	-9.9	-12.2	-13.9
Solids	9206	8035	8190	7119	6912	4664	-3136	-4718	-7973	-30.6	-40.6	-63.1
Oil	24415	28496	32027	31626	30823	30220	-1257	-2273	-3480	-3.8	-6.9	-10.3
Natural gas	30810	34711	35324	32919	31631	32349	-5657	-6997	-5340	-14.7	-18.1	-14.2
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5271	7671	10023	1395	3104	4019	36.0	68.0	66.9
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	9.0	8.8	5.9	-2.7	-4.2	-7.9			
Oil	36.4	37.6	39.6	40.2	39.2	38.3	2.5	2.2	1.5			
Natural gas	45.9	45.8	43.6	41.8	40.2	41.0	-2.3	-2.9	-0.1			
Nuclear	1.3	1.3	1.3	1.3	1.3	1.3	0.1	0.2	0.2			
Renewable energy forms	1.4	2.4	3.5	6.7	9.8	12.7	2.3	4.7	6.2			
Gross Electricity Generation in GWh_e	71824	89599	100202	107388	112616	131786	-31083	-38919	-36323	-22.4	-25.7	-21.6
Self consumption and grid losses	5554	7752	8521	8962	9303	10603	-2588	-3227	-4832	-22.4	-25.8	-31.3
Fuel Inputs to Thermal Power Generation	14621	18233	19563	16273	16657	17366	-5911	-7751	-7951	-26.6	-31.8	-31.4
Solids	5698	5114	4958	3881	3883	1854	-3140	-4623	-7872	-44.7	-54.4	-80.9
Oil (including refinery gas)	702	618	640	2	2	0	2	2	0	21391.7	21391.7	107.3
Gas (including derived gases)	7651	11071	11913	9881	9254	10778	-3600	-4646	-2044	-26.7	-33.4	-15.9
Biomass & Waste	570	1430	2052	2508	3518	4735	827	1516	1965	49.2	75.7	70.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88307	88235	88197	-1092	-1791	-3214	-1.2	-2.0	-3.5
Refineries	68767	82188	86416	84026	83627	83652	-1177	-2039	-3293	-1.4	-2.4	-3.8
Biofuels and hydrogen production	0	0	0	790	1363	1565	75	234	85	10.5	20.8	5.7
District heating	0	0	436	469	437	387	-50	-25	-48	-9.6	-5.4	-11.0
Derived gases, cokeries etc.	3514	2870	3062	3021	2808	2593	60	39	41	2.0	1.4	1.6
Energy Branch Consumption	5410	5484	6580	6406	6344	6199	-295	-419	-702	-4.4	-6.2	-10.2
Non-Energy Uses	9495	9579	12301	13700	13780	13801	-17	-19	-18	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	51171	51103	51878	-5118	-6518	-7784	-9.1	-11.3	-13.0
by sector												
Industry	12643	13812	14597	15894	15915	16121	-521	-802	-1150	-3.2	-4.8	-6.7
- energy intensive industries	9577	9885	10367	11406	11394	11489	-317	-553	-800	-2.7	-4.6	-6.5
- other industrial sectors	3066	3927	4231	4488	4521	4632	-204	-249	-351	-4.3	-5.2	-7.0
Residential	9932	10286	10335	9050	9287	9654	-1573	-1508	-1408	-14.8	-14.0	-12.7
Tertiary	9993	12207	11587	10327	10028	9676	-1966	-2401	-2845	-16.0	-19.3	-22.7
Transport	10356	13820	15068	15899	15873	16428	-1058	-1807	-2381	-6.2	-10.2	-12.7
by fuel												
Solids	1755	1352	1515	1510	1436	1344	-41	-144	-152	-2.6	-9.1	-10.2
Oil	12790	16469	17366	17539	16981	16869	-1201	-2113	-3167	-6.4	-11.1	-15.8
Gas	21244	21008	20335	18845	17838	16604	-1798	-1973	-2946	-8.7	-10.0	-15.1
Electricity	6322	8421	8986	8723	9002	10522	-2443	-3051	-2686	-21.9	-25.3	-20.3
Heat (from CHP and District Heating)	439	2558	2981	2944	3266	3580	-78	-239	147	-2.6	-6.8	4.3
Renewable energy forms	374	317	405	1607	2576	2955	441	1002	1021	37.8	63.7	52.8
Other	0	0	0	3	4	5	1	0	-2	40.6	7.6	-30.4
RES in Gross Final Energy Consumption ^(A)		940	1828	4775	6969	9122	1324	2868	3751	38.4	69.9	69.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	197.4	190.3	175.8	-35.9	-51.1	-63.1	-15.4	-21.2	-26.4
CO₂ Emissions (energy related)	152.2	165.8	171.6	157.2	151.1	142.5	-29.3	-41.7	-54.1	-15.7	-21.6	-27.5
Power generation/District heating	43.3	48.9	51.1	40.2	38.7	34.2	-20.9	-29.5	-36.2	-34.2	-43.2	-51.4
Energy Branch	13.7	13.1	14.8	14.1	13.9	13.5	-0.5	-0.7	-1.1	-3.3	-5.0	-7.6
Industry	27.0	24.8	25.4	27.5	26.1	24.2	0.0	-0.2	-2.3	0.0	-0.6	-8.6
Residential	19.2	18.9	17.8	15.0	14.3	13.8	-2.2	-2.6	-2.7	-13.0	-15.3	-16.4
Tertiary	18.9	19.5	18.1	15.4	14.6	12.5	-2.3	-2.7	-4.2	-13.1	-15.4	-25.1
Transport	30.1	40.5	44.4	44.9	43.4	44.3	-3.4	-6.1	-7.7	-7.0	-12.3	-14.8
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.6	11.6	11.8	-0.1	-0.3	-0.5	-1.1	-2.6	-4.3
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	28.7	27.6	21.5	-6.4	-9.1	-8.5	-18.3	-24.8	-28.3
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	91.2	87.9	81.2	-16.6	-23.6	-29.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Netherlands: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	122.1	112.0	97.2	-13.4	-15.5	-15.7	-9.9	-12.2	-13.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.00	1.92	1.81	-0.14	-0.23	-0.34	-6.5	-10.8	-15.8
Import Dependency %	22.4	38.6	37.8	45.2	45.4	57.4	-1.6	-4.9	-8.0			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	67.3	73.9	82.6	1.6	2.2	2.9	2.5	3.0	3.6
as % of GDP		9.2	10.4	10.4	10.5	10.2	0.3	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				1.8	2.4	3.1						
as % of GDP				0.27	0.34	0.39						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	95.5	89.9	81.8	-3.1	-4.5	-5.8	-3.2	-4.8	-6.7
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	67.3	63.8	58.2	-11.7	-10.4	-8.5	-14.8	-14.0	-12.7
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	60.2	53.7	44.9	-11.5	-12.9	-13.2	-16.0	-19.3	-22.7
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.4	42.3	38.0	-1.3	-2.3	-3.1	-2.7	-5.1	-7.5
Freight transport (toe/Mtkm)	36.4	39.5	39.6	35.5	32.9	30.1	-2.3	-3.9	-4.1	-6.1	-10.5	-11.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.27	0.24	0.19	-0.07	-0.10	-0.14	-20.2	-28.2	-42.1
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	2.01	1.93	1.83	0.04	0.02	-0.04	2.1	0.9	-2.4
Industry	2.14	1.80	1.74	1.73	1.64	1.50	0.05	0.07	-0.03	3.3	4.4	-2.1
Residential	1.93	1.84	1.72	1.66	1.54	1.43	0.04	-0.02	-0.06	2.2	-1.6	-4.2
Tertiary	1.89	1.60	1.56	1.49	1.46	1.29	0.05	0.07	-0.04	3.5	4.8	-3.1
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.07	-0.07	-0.8	-2.3	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	9.1	13.3	17.2	3.1	6.4	8.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.2	11.6	0.9	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	107388	112616	131786	131786	-31083	-38919	-36323	-22.4	-25.7	-21.6
Nuclear energy	3925	3996	3967	3971	4733	4733	0	0	0	0.0	0.0	0.0
Solids	22115	20959	19045	19052	10620	10620	-13878	-20432	-45332	-42.2	-51.7	-81.0
Oil (including refinery gas)	3769	1651	444	383	110	110	55	9	-1	14.2	2.3	-1.2
Gas (including derived gases)	55039	64687	64186	60917	74313	74313	-22497	-30007	-10793	-26.0	-33.0	-12.7
Biomass-waste	3772	6720	10934	15784	21147	21147	3992	6898	9219	57.5	77.6	77.3
Hydro (pumping excluded)	142	88	99	99	99	99	0	0	0	0.2	0.1	0.0
Wind	829	2067	8209	11696	19654	19654	935	4240	10209	12.9	56.9	108.1
Solar	8	34	195	340	735	735	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	308	374	374	374	308	374	374			
Net Generation Capacity in MW_e												
	20113	19871	27481	27580	33235	33235	-2152	-4452	-2693	-7.3	-13.9	-7.5
<u>Nuclear energy</u>	501	501	512	514	547	547	11	13	0	2.2	2.7	0.0
<u>Renewable energy</u>	495	1653	3631	5102	8543	8543	434	1670	3937	13.6	48.7	85.5
Hydro (pumping excluded)	37	37	37	37	37	37	0	0	0	0.0	0.0	0.0
Wind	446	1565	3134	4348	7181	7181	274	1476	3742	9.6	51.4	108.8
Solar	12	51	300	523	1131	1131	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	160	194	194	194	160	194	194			
<u>Thermal power</u>	19116	17718	23338	21964	24145	24145	-2597	-6136	-6629	-10.0	-21.8	-21.5
of which cogeneration units	9089	9231	10262	10748	11374	11374	-536	-1403	-464	-5.0	-11.5	-3.9
Solids fired	4171	4171	5926	5327	3194	3194	3	3	-4279	0.1	0.0	-57.3
Gas fired	13574	11700	14581	13103	16807	16807	-3234	-7201	-3809	-18.2	-35.5	-18.5
Oil fired	839	825	638	624	308	308	-56	-39	-373	-8.1	-5.9	-54.8
Biomass-waste fired	533	1022	2193	2910	3836	3836	690	1102	1831	45.9	60.9	91.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	42.7	44.7	43.7	43.7	-8.5	-7.2	-7.3			
Efficiency of gross thermal power generation (%)	39.9	41.3	50.0	49.6	52.6	52.6	0.8	0.4	0.6			
% of gross electricity from CHP	32.0	37.6	44.6	47.0	48.6	48.6	8.4	6.5	10.7			
Carbon free gross electricity generation (%)	9.7	12.9	22.1	28.6	35.5	35.5	8.7	15.0	19.4			
- nuclear	4.4	4.0	3.7	3.5	3.6	3.6	0.8	0.9	0.8			
- renewable energy forms	5.3	8.9	18.4	25.1	31.9	31.9	7.9	14.0	18.7			
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	230.2	246.8	285.1	-5.2	-8.1	-11.0	-2.2	-3.2	-3.7
Public road transport	13.0	11.3	11.7	12.7	13.1	13.5	0.3	0.5	0.5	2.5	3.6	4.1
Private cars and motorcycles	138.7	143.4	149.5	170.1	179.8	201.5	-4.4	-6.9	-9.2	-2.5	-3.7	-4.4
Rail	12.3	16.1	16.3	19.2	21.5	26.8	0.0	0.1	0.3	0.0	0.3	1.0
Aviation	9.8	17.8	19.7	27.2	31.3	42.1	-1.0	-1.6	-2.5	-3.7	-5.0	-5.7
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.9	-0.7	-0.6
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	153.7	165.6	185.7	-4.5	-6.6	-8.6	-2.9	-3.8	-4.4
Trucks	56.1	79.6	84.2	96.9	104.0	118.0	-5.3	-7.7	-10.1	-5.2	-6.9	-7.9
Rail	3.1	4.5	5.2	6.9	7.6	8.8	0.2	0.3	0.4	2.9	3.8	4.6
Inland navigation	35.7	41.3	42.2	49.9	54.0	59.0	0.6	0.8	1.0	1.1	1.6	1.8
Energy demand in transport (ktoe)												
	10356	13820	15068	15899	15873	16428	-1058	-1807	-2381	-6.2	-10.2	-12.7
Public road transport	104	95	91	87	82	78	-1	-4	-6	-0.6	-4.1	-7.3
Private cars and motorcycles	5043	5286	5999	6094	5989	5971	-277	-420	-541	-4.3	-6.6	-8.3
Trucks	2899	4254	4933	5120	5105	5276	-527	-881	-1042	-9.3	-14.7	-16.5
Rail	147	176	172	189	180	145	-2	-8	-13	-1.2	-4.5	-8.3
Aviation	1608	3343	3670	4174	4268	4693	-252	-492	-774	-5.7	-10.3	-14.2
Inland navigation	556	667	204	235	249	264	0	-1	-5	0.0	-0.5	-1.7

Source: PRIMES

Poland: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68615	67465	67423	67485	72069	-2.1	-1.6	-0.2	0.7	
Solids	94459	91104	71298	68876	57015	53594	50228	43445	41589	-2.8	-2.2	-1.3	-1.9	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	4995	9595					
Renewable energy sources	2369	4763	4256	5016	7650	10071	13495	15595	17584	6.0	6.0	5.8	2.7	
Hydro	139	162	181	189	263	273	283	290	299	2.7	3.8	0.7	0.5	
Biomass & Waste	2230	4600	4072	4806	6871	9011	11264	12563	13815	6.2	5.4	5.1	2.1	
Wind	0	0	0	12	495	656	1438	2038	2625		102.4	11.3	6.2	
Solar and others	0	0	0	0	7	107	482	673	814			52.1	5.4	
Geothermal	0	0	3	9	14	23	28	30	31		16.5	7.4	1.2	
Net Imports	2238	-152	10131	16954	29688	36805	42778	47978	50807	16.3	11.4	3.7	1.7	
Solids	-18913	-21202	-16309	-12482	-6921	-7693	-8565	-6991	-7532					
Oil	14468	15481	20381	21929	26377	30198	32214	34047	35073	3.5	2.6	2.0	0.9	
- Crude oil and Feedstocks	13085	13984	18827	18169	21875	24864	26402	27799	28563	3.7	1.5	1.9	0.8	
- Oil products	1383	1498	1554	3760	4502	5334	5812	6248	6510	1.2	11.2	2.6	1.1	
Natural gas	6773	5810	6607	8531	11180	13648	16205	17883	19916	-0.2	5.4	3.8	2.1	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	97934	103859	109760	114999	122397	-1.0	0.8	1.1	1.1	
Solids	75405	70500	56358	55184	50094	45901	41663	36453	34057	-2.9	-1.2	-1.8	-2.0	
Oil	13399	16003	20759	22525	26758	30487	32473	34233	35194	4.5	2.6	2.0	0.8	
Natural gas	8938	8995	9960	12235	14380	16748	19205	20683	22616	1.1	3.7	2.9	1.6	
Nuclear	0	0	0	0	0	0	0	4995	9595					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7561	11290	16928	19424	21795	6.0	5.9	8.4	2.6	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	51.2	44.2	38.0	31.7	27.8					
Oil	13.4	16.0	22.9	24.0	27.3	29.4	29.6	29.8	28.8					
Natural gas	8.9	9.0	11.0	13.0	14.7	16.1	17.5	18.0	18.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	7.8					
Renewable energy forms	2.4	4.8	4.7	5.3	7.7	10.9	15.4	16.9	17.8					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	155350	160144	170208	193884	213123	0.6	0.8	0.9	2.3	
Self consumption and grid losses	21063	28189	27977	28574	26673	27234	27552	34237	36319	2.9	-0.5	0.3	2.8	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	34402	32679	32367	27814	27531	-1.9	-0.4	-0.6	-1.6	
Solids	41138	35842	34793	35942	32605	29037	25521	21140	19712	-1.7	-0.6	-2.4	-2.5	
Oil (including refinery gas)	1236	405	228	179	25	20	423	195	7	-15.6	-19.9	32.8	-34.0	
Gas (including derived gases)	673	488	783	1483	1045	1282	1517	1063	1307	1.5	2.9	3.8	-1.5	
Biomass & Waste	372	114	157	546	727	2341	4906	5416	6505	-8.3	16.6	21.0	2.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32914	35913	37737	39283	39898	-1.1	-0.3	1.4	0.6	
Refineries	13160	14929	19949	19591	22886	25864	27422	28782	29494	4.2	1.4	1.8	0.7	
Biofuels and hydrogen production	0	0	0	55	454	978	1895	2287	2445			15.4	2.6	
District heating	9949	5985	4320	3639	3227	3287	3480	3529	3948	-8.0	-2.9	0.8	1.3	
Derived gases, cokeries etc.	14746	12045	9635	8541	6347	5784	4939	4686	4012	-4.2	-4.1	-2.5	-2.1	
Energy Branch Consumption	6809	7655	7401	7680	9514	10078	10315	11196	11335	0.8	2.5	0.8	0.9	
Non-Energy Uses	4193	3646	4218	4354	5145	6266	7249	8183	8946	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	63668	70635	76420	81140	84592	-0.7	1.3	1.8	1.0	
by sector														
Industry	25252	22720	18883	16373	17690	19775	21711	23509	24848	-2.9	-0.7	2.1	1.4	
- energy intensive industries	16252	15428	13374	11149	11573	12529	13340	14296	15090	-1.9	-1.4	1.4	1.2	
- other industrial sectors	9000	7292	5509	5225	6118	7246	8371	9214	9758	-4.8	1.1	3.2	1.5	
Residential	18126	23284	17516	18375	19576	20609	21630	22057	22574	-0.3	1.1	1.0	0.4	
Tertiary	8867	9229	10136	10334	11511	12634	13632	14697	15756	1.3	1.3	1.7	1.5	
Transport	7338	8256	9185	12087	14890	17617	19446	20877	21414	2.3	4.9	2.7	1.0	
by fuel														
Solids	17066	23299	13728	11262	11064	10914	10280	9473	9524	-2.2	-2.1	-0.7	-0.8	
Oil	9104	11582	15452	17798	21094	24242	25435	27065	27219	5.4	3.2	1.9	0.7	
Gas	7987	7735	7447	8400	11012	12493	13857	15207	16243	-0.7	4.0	2.3	1.6	
Electricity	8233	7703	8317	8498	8769	9460	10408	11618	13061	0.1	0.5	1.7	2.3	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6457	6994	7698	7823	8200	-7.8	-0.6	1.8	0.6	
Renewable energy forms	1631	4408	3889	4156	5271	6531	8738	9947	10338	9.1	3.1	5.2	1.7	
Other	0	0	0	0	1	3	5	7	7			16.6	2.9	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6926	10027	14514	17431	19775		5.2	7.7	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	368.9	370.1	367.2	328.1	286.7	-1.4	-0.2	0.0	-2.4	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	291.4	289.0	282.0	247.0	207.5	-1.3	0.0	-0.3	-3.0	
Power generation/District heating	209.3	169.9	158.8	162.1	146.5	132.2	121.4	81.3	38.8	-2.7	-0.8	-1.9	-10.8	
Energy Branch	5.8	12.7	11.4	10.6	11.9	11.7	11.6	11.9	12.1	6.9	0.5	-0.2	0.4	
Industry	44.0	59.9	46.3	33.2	36.8	41.1	42.5	44.1	46.3	0.5	-2.3	1.4	0.9	
Residential	33.1	44.4	27.9	30.2	32.2	31.8	31.0	30.4	29.5	-1.7	1.4	-0.4	-0.5	
Tertiary	19.4	20.7	20.1	20.4	22.4	24.1	24.5	25.1	25.6	0.4	1.1	0.9	0.5	
Transport	20.5	23.1	25.8	34.3	41.5	48.1	51.1	54.2	55.2	2.3	4.9	2.1	0.8	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.3	17.3	19.9	22.3	4.2	-1.0	4.2	2.6	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	85.8	86.1	85.4	76.3	66.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1	
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3	
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	325.1	269.5	232.5	203.3	187.1	-4.6	-2.8	-3.3	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.98	2.78	2.57	2.15	1.70	-0.4	-0.7	-1.5	-4.1	
Import Dependency %	2.2	-0.2	11.1	18.0	30.2	35.3	38.8	41.6	41.3					
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	48.6	60.9	72.8	83.9	92.2		3.7	4.1	2.4	
as % of GDP			16.1	15.8	16.1	15.8	15.4	14.8	14.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.5	50.5	44.5	40.8	38.6	-6.9	-5.1	-2.9	-1.4	
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.7	54.5	47.2	40.3	35.5	-5.8	-4.3	-3.1	-2.8	
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	81.5	70.7	62.5	55.7	50.8	-2.1	-2.0	-2.6	-2.1	
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.8	20.9	2.9	-0.2	-0.5	-1.4	
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.4	40.1	38.6	37.0	35.7	0.3	3.9	-0.4	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.58	0.49	0.42	0.26	0.11	0.8	-1.5	-3.1	-12.2	
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.09	2.05	1.95	1.89	1.85	0.9	-0.3	-0.7	-0.5	
Industry	1.74	2.64	2.45	2.02	2.08	2.08	1.96	1.88	1.86	3.5	-1.6	-0.6	-0.5	
Residential	1.83	1.90	1.59	1.64	1.65	1.54	1.44	1.38	1.31	-1.4	0.3	-1.4	-0.9	
Tertiary	2.19	2.25	1.98	1.97	1.95	1.91	1.79	1.71	1.62	-1.0	-0.2	-0.8	-1.0	
Transport	2.80	2.80	2.81	2.84	2.78	2.73	2.63	2.59	2.58	0.0	-0.1	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.5	13.8	18.4	20.7	22.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.1	5.8	10.2	11.5	12.1					
Gross Electricity generation by source (in GWh)														
			143147	155331	155350	160144	170208	193884	213123		0.8	0.9	2.3	
Nuclear energy			0	0	0	0	0	22623	43562					
Solids			134042	141361	131766	123381	106532	100350	89064		-0.2	-2.1	-1.8	
Oil (including refinery gas)			2936	2964	1090	614	1360	1180	823		-9.4	2.2	-4.9	
Gas (including derived gases)			2979	5603	8004	9692	12406	11264	13138		10.4	4.5	0.6	
Biomass-waste			1080	3068	5674	15656	29889	31385	32501		18.0	18.1	0.8	
Hydro (pumping excluded)			2105	2201	3060	3171	3296	3366	3478		3.8	0.7	0.5	
Wind			5	135	5756	7629	16722	23702	30519		102.4	11.3	6.2	
Solar			0	0	0	0	3	14	37			25.7	29.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			30194	31711	35021	41393	44949	50198	55606		1.5	2.5	2.2	
<u>Nuclear energy</u>			0	0	0	0	0	2611	5028					
<u>Renewable energy</u>			640	1038	3928	5208	9082	11984	14805		19.9	8.7	5.0	
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7	
Wind			5	124	2950	4135	7923	10734	13530		88.5	10.4	5.5	
Solar			0	0	0	0	3	15	40			25.7	29.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			29554	30673	31093	36186	35866	35602	35773		0.5	1.4	0.0	
of which cogeneration units			6632	6800	6898	8294	9101	10273	11154		0.4	2.8	2.1	
Solids fired			28139	28775	28755	29745	26850	22437	17059		0.2	-0.7	-4.4	
Gas fired			820	1263	1664	1699	1895	2311	3530		7.3	1.3	6.4	
Oil fired			472	474	461	472	472	212	156		-0.2	0.2	-10.5	
Biomass-waste fired			122	160	213	4270	6650	10642	15028		5.8	41.1	8.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.2	51.1	46.9	40.9	40.2	39.9	39.7					
Efficiency of gross thermal power generation (%)			33.7	34.5	36.6	39.3	39.9	44.6	42.3					
% of gross electricity from CHP			12.2	12.9	24.1	29.4	28.6	27.8	26.9					
Carbon free gross electricity generation (%)			2.2	3.5	9.3	16.5	29.3	41.8	51.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	11.7	20.4					
- renewable energy forms			2.2	3.5	9.3	16.5	29.3	30.2	31.2					
Transport sector														
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.3	329.8	380.9	435.8	488.1	0.5	2.7	3.1	2.5	
Public road transport	46.3	34.0	31.7	29.9	28.8	29.1	31.9	34.4	36.5	-3.7	-1.0	1.0	1.4	
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.5	315.9	361.2	404.3	4.1	4.0	3.3	2.5	
Rail	55.4	31.6	28.8	22.3	20.6	22.3	25.2	29.9	34.5	-6.3	-3.3	2.1	3.2	
Aviation	2.0	2.3	2.6	3.1	4.0	5.6	7.5	9.9	12.4	3.1	4.3	6.4	5.1	
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2	
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	233.7	267.1	294.9	314.8	0.6	4.0	3.3	1.7	
Trucks	40.3	51.2	75.0	111.8	143.3	173.7	197.9	218.3	232.8	6.4	6.7	3.3	1.6	
Rail	81.6	68.2	54.0	43.8	49.7	59.6	68.7	76.1	81.5	-4.0	-0.8	3.3	1.7	
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7	
Energy demand in transport (ktoe)	7338	8256	9185	12087	14890	17617	19446	20877	21414	2.3	4.9	2.7	1.0	
Public road transport	314	229	217	190	183	180	188	191	184	-3.6	-1.7	0.3	-0.2	
Private cars and motorcycles	3299	4112	4876	5324	6441	7506	8296	8996	9125	4.0	2.8	2.6	1.0	
Trucks	2335	2847	3178	5748	7356	8853	9759	10358	10769	3.1	8.8	2.9	1.0	
Rail	1095	667	539	502	534	610	634	643	553	-6.8	-0.1	1.7	-1.4	
Aviation	196	371	369	319	374	465	567	686	781	6.5	0.1	4.3	3.3	
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.3	

Source: PRIMES

Poland: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	67465	67423	72069	841	1808	3340	1.3	2.8	4.9
Solids	94459	71298	68876	53594	50228	41589	-284	-1299	-2327	-0.5	-2.5	-5.3
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	9595	0	0	1228			14.7
Renewable energy sources	2369	4256	5016	10071	13495	17584	1125	3107	4439	12.6	29.9	33.8
Hydro	139	181	189	273	283	299	38	23	0	16.4	8.7	0.0
Biomass & Waste	2230	4072	4806	9011	11264	13815	571	1560	1573	6.8	16.1	12.8
Wind	0	0	12	656	1438	2625	419	1138	2233	177.2	379.6	569.6
Solar and others	0	0	0	107	482	814	84	369	616	349.9	328.0	310.9
Geothermal	0	3	9	23	28	31	13	16	18	123.7	142.2	138.3
Net Imports	2238	10131	16954	36805	42778	50807	-8075	-9156	-8493	-18.0	-17.6	-14.3
Solids	-18913	-16309	-12482	-7693	-8565	-7532	-9541	-12268	-11425	-516.4	-331.3	-293.5
Oil	14468	20381	21929	30198	32214	35073	127	-558	-746	0.4	-1.7	-2.1
- Crude oil and Feedstocks	13085	18827	18169	24864	26402	28563	101	-437	-581	0.4	-1.6	-2.0
- Oil products	1383	1554	3760	5334	5812	6510	27	-121	-166	0.5	-2.0	-2.5
Natural gas	6773	6607	8531	13648	16205	19916	10	111	-690	0.1	0.7	-3.3
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	103859	109760	122397	-7233	-7347	-5152	-6.5	-6.3	-4.0
Solids	75405	56358	55184	45901	41663	34057	-9824	-13567	-13753	-17.6	-24.6	-28.8
Oil	13399	20759	22525	30487	32473	35194	127	-557	-745	0.4	-1.7	-2.1
Natural gas	8938	9960	12235	16748	19205	22616	10	111	-690	0.1	0.6	-3.0
Nuclear	0	0	0	0	0	9595	0	0	1228			14.7
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	11290	16928	21795	2453	6665	8808	27.8	64.9	67.8
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	44.2	38.0	27.8	-6.0	-9.2	-9.7			
Oil	13.4	22.9	24.0	29.4	29.6	28.8	2.0	1.4	0.6			
Natural gas	8.9	11.0	13.0	16.1	17.5	18.5	1.1	1.2	0.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	7.8	0.0	0.0	1.3			
Renewable energy forms	2.4	4.7	5.3	10.9	15.4	17.8	2.9	6.7	7.6			
Gross Electricity Generation in GWh_e	134591	143147	155331	160144	170208	213123	-24938	-33984	-23344	-13.5	-16.6	-9.9
Self consumption and grid losses	21063	27977	28574	27234	27552	36319	-5165	-7020	-1235	-15.9	-20.3	-3.3
Fuel Inputs to Thermal Power Generation	43419	35960	38149	32679	32367	27531	-9000	-9685	-9254	-21.6	-23.0	-25.2
Solids	41138	34793	35942	29037	25521	19712	-9781	-13618	-13290	-25.2	-34.8	-40.3
Oil (including refinery gas)	1236	228	179	20	423	7	-11	392	-18	-36.2	1264.8	-73.4
Gas (including derived gases)	673	783	1483	1282	1517	1307	-285	-124	-904	-18.2	-7.5	-40.9
Biomass & Waste	372	157	546	2341	4906	6505	1077	3665	4958	85.3	295.4	320.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	35913	37737	39898	713	294	-274	2.0	0.8	-0.7
Refineries	13160	19949	19591	25864	27422	29494	99	-439	-582	0.4	-1.6	-1.9
Biofuels and hydrogen production	0	0	55	978	1895	2445	138	484	463	16.4	34.3	23.4
District heating	9949	4320	3639	3287	3480	3948	-131	-93	-257	-3.8	-2.6	-6.1
Derived gases, cokeries etc.	14746	9635	8541	5784	4939	4012	607	342	102	11.7	7.4	2.6
Energy Branch Consumption	6809	7401	7680	10078	10315	11335	-126	-314	48	-1.2	-3.0	0.4
Non-Energy Uses	4193	4218	4354	6266	7249	8946	-22	-30	-18	-0.4	-0.4	-0.2
Final Energy Demand	59583	55720	57169	70635	76420	84592	-611	-1028	-875	-0.9	-1.3	-1.0
by sector												
Industry	25252	18883	16373	19775	21711	24848	-343	-676	-639	-1.7	-3.0	-2.5
- energy intensive industries	16252	13374	11149	12529	13340	15090	-292	-655	-652	-2.3	-4.7	-4.1
- other industrial sectors	9000	5509	5225	7246	8371	9758	-51	-20	13	-0.7	-0.2	0.1
Residential	18126	17516	18375	20609	21630	22574	97	315	388	0.5	1.5	1.7
Tertiary	8867	10136	10334	12634	13632	15756	-334	-535	-392	-2.6	-3.8	-2.4
Transport	7338	9185	12087	17617	19446	21414	-32	-132	-232	-0.2	-0.7	-1.1
by fuel												
Solids	17066	13728	11262	10914	10280	9524	-467	-584	-904	-4.1	-5.4	-8.7
Oil	9104	15452	17798	24242	25435	27219	754	-165	-115	3.2	-0.6	-0.4
Gas	7987	7447	8400	12493	13857	16243	61	-186	-150	0.5	-1.3	-0.9
Electricity	8233	8317	8498	9460	10408	13061	-1708	-2312	-1885	-15.3	-18.2	-12.6
Heat (from CHP and District Heating)	15563	6886	7056	6994	7698	8200	-210	89	120	-2.9	1.2	1.5
Renewable energy forms	1631	3889	4156	6531	8738	10338	959	2130	2060	17.2	32.2	24.9
Other	0	0	0	3	5	7	0	0	0	1.5	-0.8	-1.9
RES in Gross Final Energy Consumption ^(A)		4153	4481	10027	14514	19775	2428	5600	7739	31.9	62.8	64.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	370.1	367.2	286.7	-39.2	-56.0	-116.4	-9.6	-13.2	-28.9
CO₂ Emissions (energy related)	332.2	290.3	290.7	289.0	282.0	207.5	-38.9	-55.4	-115.8	-11.9	-16.4	-35.8
Power generation/District heating	209.3	158.8	162.1	132.2	121.4	38.8	-38.6	-50.9	-111.4	-22.6	-29.5	-74.2
Energy Branch	5.8	11.4	10.6	11.7	11.6	12.1	-1.0	-1.3	-0.1	-7.9	-10.3	-1.1
Industry	44.0	46.3	33.2	41.1	42.5	46.3	0.8	-1.1	-1.4	2.0	-2.5	-2.9
Residential	33.1	27.9	30.2	31.8	31.0	29.5	0.0	-0.4	-0.6	0.1	-1.2	-1.9
Tertiary	19.4	20.1	20.4	24.1	24.5	25.6	0.3	-0.1	-0.4	1.4	-0.5	-1.7
Transport	20.5	25.8	34.3	48.1	51.1	55.2	-0.4	-1.6	-1.9	-0.9	-3.1	-3.3
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.3	17.3	22.3	-0.3	-0.6	-0.6	-2.3	-3.1	-2.6
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	66.9	67.8	56.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	86.1	85.4	66.7	-9.1	-13.0	-27.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Poland: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	269.5	232.5	187.1	-18.8	-15.6	-7.9	-6.5	-6.3	-4.0
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.78	2.57	1.70	-0.17	-0.31	-0.84	-5.7	-10.8	-33.1
Import Dependency %	2.2	11.1	18.0	35.3	38.8	41.3	-5.0	-5.4	-5.0			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	60.9	72.8	92.2	1.3	2.2	5.7	2.2	3.2	6.6
as % of GDP		16.1	15.8	15.8	15.4	14.1	0.3	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				1.3	2.3	5.8						
as % of GDP				0.34	0.48	0.88						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	50.5	44.5	38.6	-0.9	-1.4	-1.0	-1.7	-3.0	-2.5
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	54.5	47.2	35.5	0.3	0.7	0.6	0.5	1.5	1.7
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	70.7	62.5	50.8	-1.9	-2.5	-1.3	-2.6	-3.8	-2.4
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	25.0	24.0	20.9	0.0	0.0	-0.1	0.0	-0.1	-0.5
Freight transport (toe/Mtkm)	26.9	27.6	39.4	40.1	38.6	35.7	0.1	0.0	-0.1	0.2	-0.1	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.49	0.42	0.11	-0.09	-0.12	-0.30	-14.8	-21.5	-72.5
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.05	1.95	1.85	0.03	-0.02	-0.03	1.4	-0.8	-1.6
Industry	1.74	2.45	2.02	2.08	1.96	1.86	0.07	0.01	-0.01	3.7	0.6	-0.4
Residential	1.83	1.59	1.64	1.54	1.44	1.31	-0.01	-0.04	-0.05	-0.4	-2.7	-3.5
Tertiary	2.19	1.98	1.97	1.91	1.79	1.62	0.08	0.06	0.01	4.1	3.4	0.8
Transport	2.80	2.81	2.84	2.73	2.63	2.58	-0.02	-0.07	-0.06	-0.7	-2.5	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	13.8	18.4	22.6	3.5	7.3	9.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.8	10.2	12.1	0.8	2.7	2.5			
Gross Electricity generation by source (in GWh_e)												
	143147	155331	160144	170208	213123	249338	-33984	-23344	-13.5	-16.6	-9.9	
Nuclear energy	0	0	0	0	43562	0	0	5567			14.7	
Solids	134042	141361	123381	106532	89064	-34913	-68997	-72854	-22.1	-39.3	-45.0	
Oil (including refinery gas)	2936	2964	614	1360	823	-1370	-807	-849	-69.1	-37.2	-50.8	
Gas (including derived gases)	2979	5603	9692	12406	13138	-723	1468	-2970	-6.9	13.4	-18.4	
Biomass-waste	1080	3068	15656	29889	32501	6746	20853	21800	75.7	230.8	203.7	
Hydro (pumping excluded)	2105	2201	3171	3296	3478	446	264	0	16.4	8.7	0.0	
Wind	5	135	7629	16722	30519	4877	13236	25961	177.2	379.6	569.6	
Solar	0	0	0	3	37	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	0	0	0	0	0	0				
Net Generation Capacity in MW_e												
	30194	31711	41393	44949	55606	6674	5876	12243	19.2	15.0	28.2	
<u>Nuclear energy</u>	0	0	0	0	5028	0	0	643			14.7	
<u>Renewable energy</u>	640	1038	5208	9082	14805	2822	6294	11452	118.3	225.8	341.6	
Hydro (pumping excluded)	635	914	1072	1156	1235	0	0	0	0.0	0.0	0.0	
Wind	5	124	4135	7923	13530	2822	6294	11452	215.0	386.5	551.4	
Solar	0	0	0	3	40	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
<u>Thermal power</u>	29554	30673	36186	35866	35773	3852	-419	148	11.9	-1.2	0.4	
of which cogeneration units	6632	6800	8294	9101	11154	984	1107	2057	13.5	13.8	22.6	
Solids fired	28139	28775	29745	26850	17059	0	-6846	-11243	0.0	-20.3	-39.7	
Gas fired	820	1263	1699	1895	3530	-108	88	153	-6.0	4.8	4.5	
Oil fired	472	474	472	472	156	0	0	-140	0.0	0.0	-47.3	
Biomass-waste fired	122	160	4270	6650	15028	3960	6340	11378	1277.5	2045.0	311.7	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	49.2	51.1	40.9	40.2	39.7	-15.2	-15.0	-17.8				
Efficiency of gross thermal power generation (%)	33.7	34.5	39.3	39.9	42.3	2.2	-0.5	-2.2				
% of gross electricity from CHP	12.2	12.9	29.4	28.6	26.9	11.0	9.1	9.6				
Carbon free gross electricity generation (%)	2.2	3.5	16.5	29.3	51.7	8.7	21.7	27.7				
- nuclear	0.0	0.0	0.0	0.0	20.4	0.0	0.0	4.4				
- renewable energy forms	2.2	3.5	16.5	29.3	31.2	8.7	21.7	23.3				
Transport sector												
Passenger transport activity (Gpkm)												
	207.0	216.5	243.8	329.8	380.9	488.1	-0.9	-2.4	-4.1	-0.3	-0.6	-0.8
Public road transport	46.3	31.7	29.9	29.1	31.9	36.5	0.0	0.1	0.2	0.2	0.5	0.6
Private cars and motorcycles	102.8	153.1	188.3	272.5	315.9	404.3	-0.4	-1.7	-3.5	-0.1	-0.5	-0.9
Rail	55.4	28.8	22.3	22.3	25.2	34.5	-0.3	-0.4	0.1	-1.4	-1.4	0.2
Aviation	2.0	2.6	3.1	5.6	7.5	12.4	-0.3	-0.5	-0.9	-4.3	-5.9	-6.7
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	0.2	0.5	0.7
Freight transport activity (Gtkm)												
	122.9	130.2	156.0	233.7	267.1	314.8	-0.5	-1.3	-1.9	-0.2	-0.5	-0.6
Trucks	40.3	75.0	111.8	173.7	197.9	232.8	-0.2	-1.0	-2.0	-0.1	-0.5	-0.9
Rail	81.6	54.0	43.8	59.6	68.7	81.5	-0.4	-0.3	0.1	-0.6	-0.5	0.2
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.5	0.0	0.0	0.0	0.2	0.5	0.5
Energy demand in transport (ktoe)												
	7338	9185	12087	17617	19446	21414	-32	-132	-232	-0.2	-0.7	-1.1
Public road transport	314	217	190	180	188	184	0	1	1	0.2	0.5	0.6
Private cars and motorcycles	3299	4876	5324	7506	8296	9125	-2	-23	-40	0.0	-0.3	-0.4
Trucks	2335	3178	5748	8853	9759	10769	-7	-49	-93	-0.1	-0.5	-0.9
Rail	1095	539	502	610	634	553	1	-16	0	0.1	-2.5	0.0
Aviation	196	369	319	465	567	781	-24	-45	-101	-4.9	-7.3	-11.4
Inland navigation	99	6	2	2	3	3	0	0	0	0.2	0.5	0.6

Source: PRIMES

Portugal: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	2808	2602	3109	3583	5474	6372	8093	9331	10742	1.0	5.8	4.0	2.9	
Solids	115	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	2692	2602	3109	3583	5474	6372	8093	9331	10742	1.4	5.8	4.0	2.9	
Hydro	787	717	974	407	871	871	872	872	872	2.1	-1.1	0.0	0.0	
Biomass & Waste	1891	1831	2053	2936	3432	3942	5030	5744	6206	0.8	5.3	3.9	2.1	
Wind	0	1	14	152	984	1073	1369	1569	1778	66.9	52.5	3.4	2.6	
Solar and others	11	15	18	23	102	359	682	993	1707	5.4	18.6	21.0	9.6	
Geothermal	3	37	49	66	85	127	141	154	180	31.4	5.6	5.2	2.5	
Net Imports	15160	17876	21588	24040	23238	23981	23508	23336	21883	3.6	0.7	0.1	-0.7	
Solids	2789	3797	3913	3223	3395	3307	3307	2071	312	3.4	-1.4	-0.3	-21.0	
Oil	12367	14001	15556	16338	16103	16469	15904	16534	16666	2.3	0.3	-0.1	0.5	
- Crude oil and Feedstocks	11360	13547	12022	13459	13482	13775	13537	14049	14157	0.6	1.2	0.0	0.4	
- Oil products	1007	454	3534	2878	2621	2694	2367	2485	2509	13.4	-2.9	-1.0	0.6	
Natural gas	0	0	2039	3893	3635	4054	4212	4654	4836		6.0	1.5	1.4	
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Gross Inland Consumption	16890	19611	24108	26677	28107	29711	30930	31968	31902	3.6	1.5	1.0	0.3	
Solids	2580	3493	3803	3347	3395	3307	3307	2071	312	4.0	-1.1	-0.3	-21.0	
Oil	11614	13437	15083	15410	15497	15828	15233	15835	15942	2.6	0.3	-0.2	0.5	
Natural gas	0	0	2034	3751	3635	4054	4212	4654	4836		6.0	1.5	1.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Renewable energy forms	2692	2602	3109	3583	5474	6372	8093	9331	10742	1.4	5.8	4.0	2.9	
as % in Gross Inland Consumption														
Solids	15.3	17.8	15.8	12.5	12.1	11.1	10.7	6.5	1.0					
Oil	68.8	68.5	62.6	57.8	55.1	53.3	49.3	49.5	50.0					
Natural gas	0.0	0.0	8.4	14.1	12.9	13.6	13.6	14.6	15.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	15.9	13.3	12.9	13.4	19.5	21.4	26.2	29.2	33.7					
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	58650	63440	70221	78040	85261	4.3	3.1	1.8	2.0	
Self consumption and grid losses	4441	4776	5435	6125	6461	7049	7863	9393	9639	2.0	1.7	2.0	2.1	
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	7395	7732	7600	7411	6171	4.2	1.3	0.3	-2.1	
Solids	2027	2919	3198	3319	3390	3302	3302	2066	308	4.7	0.6	-0.3	-21.1	
Oil (including refinery gas)	2105	2371	1670	1884	1196	1105	364	723	828	-2.3	-3.3	-11.2	8.6	
Gas (including derived gases)	19	18	1234	2309	1801	2143	2202	2541	2633	51.6	3.9	2.0	1.8	
Biomass & Waste	149	148	356	430	925	1059	1596	1932	2230	9.1	10.0	5.6	3.4	
Geothermal heat	3	37	49	65	82	123	136	148	174	31.4	5.2	5.2	2.5	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11484	14055	12700	13608	13956	14428	14454	15120	15301	1.0	0.9	0.4	0.6	
Refineries	11152	13579	12251	13608	13769	14058	13817	14322	14425	0.9	1.2	0.0	0.4	
Biofuels and hydrogen production	0	0	0	0	188	369	636	798	876			13.0	3.3	
District heating	0	16	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1				
Energy Branch Consumption	658	870	881	900	851	852	824	893	831	3.0	-0.3	-0.3	0.1	
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2839	2986	3113	1.0	1.0	1.0	0.9	
Final Energy Demand	11208	13042	16937	16654	20205	21525	22729	23886	24683	4.2	1.8	1.2	0.8	
by sector														
Industry	4139	4247	5518	5656	5879	6108	6332	6617	6814	2.9	0.6	0.7	0.7	
- energy intensive industries	2497	2646	3437	3757	3847	3940	4055	4226	4353	3.2	1.1	0.5	0.7	
- other industrial sectors	1642	1601	2081	1899	2032	2167	2277	2391	2461	2.4	-0.2	1.1	0.8	
Residential	2290	2569	2804	3206	3657	4115	4557	4898	5195	2.0	2.7	2.2	1.3	
Tertiary	1052	1373	2098	2766	3098	3207	3318	3490	3666	7.2	4.0	0.7	1.0	
Transport	3728	4853	6517	7026	7572	8096	8522	8880	9008	5.7	1.5	1.2	0.6	
by fuel														
Solids	617	546	465	16	5	5	5	5	4	-2.8	-36.0	-1.6	-0.7	
Oil	6683	8187	10469	10492	10984	11302	11342	11441	11336	4.6	0.5	0.3	0.0	
Gas	103	97	853	1307	1780	1854	1954	2054	2146	23.6	7.6	0.9	0.9	
Electricity	2024	2477	3299	3983	4544	4949	5395	5926	6518	5.0	3.3	1.7	1.9	
Heat (from CHP and District Heating)	28	36	134	328	324	314	360	406	449	16.8	9.2	1.1	2.2	
Renewable energy forms	1752	1698	1716	2529	2567	3100	3670	4052	4228	-0.2	4.1	3.6	1.4	
Other	0	0	0	0	1	1	2	3	3			15.0	2.7	
RES in Gross Final Energy Consumption ^(A)			2907	3266	5203	6019	7606	8758	10099	6.0	3.9	2.9		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	84.4	85.2	83.7	81.2	74.7	3.5	0.0	-0.1	-1.1	
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	61.1	62.3	60.2	57.8	51.2	4.1	0.4	-0.1	-1.6	
Power generation/District heating	14.8	19.2	20.9	24.5	21.4	21.6	19.3	16.4	10.0	3.5	0.2	-1.0	-6.4	
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.3	2.1	2.1	2.1	4.3	0.2	-0.9	-0.4	
Industry	8.2	8.4	10.8	7.3	8.4	8.6	8.3	8.0	7.8	2.8	-2.4	-0.2	-0.6	
Residential	1.6	1.9	2.0	2.3	2.4	2.6	2.8	2.9	3.0	2.0	2.0	1.4	0.8	
Tertiary	1.9	2.2	3.2	4.2	4.3	4.0	3.8	3.7	3.6	5.4	3.2	-1.3	-0.6	
Transport	11.0	14.4	19.4	21.0	22.1	23.3	23.9	24.6	24.8	5.8	1.3	0.8	0.4	
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.3	6.5	6.8	6.9	4.7	-1.4	0.4	0.6	
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	139.9	141.3	138.8	134.7	123.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: EC proposal with RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	172.7	160.5	145.4	131.2	116.9	0.2	0.2	-1.7	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.17	2.10	1.95	1.81	1.61	0.5	-1.1	-1.1	-1.9	
Import Dependency %	86.7	89.0	87.2	88.2	80.9	79.0	74.4	71.4	67.1					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.4	24.6	28.8	32.7	35.1		3.3	3.0	2.0	
as % of GDP			10.8	12.3	13.1	13.3	13.5	13.4	12.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.4	96.7	89.1	83.2	79.8	1.7	0.3	-1.5	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	110.5	110.4	107.7	102.2	97.5	-2.0	1.0	-0.3	-1.0	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	123.2	111.2	100.6	92.9	87.6	3.9	2.1	-2.0	-1.4	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.4	37.7	35.7	33.6	30.8	0.2	-1.1	-1.0	-1.5	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.1	57.1	56.3	1.3	-0.3	-0.4	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.32	0.26	0.20	0.11	-1.0	-3.0	-2.7	-8.2	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.85	1.79	1.71	1.64	1.59	0.3	-1.2	-0.8	-0.7	
Industry	1.99	1.97	1.96	1.30	1.44	1.41	1.31	1.22	1.14	-0.1	-3.0	-0.9	-1.4	
Residential	0.71	0.74	0.71	0.70	0.67	0.64	0.61	0.60	0.58	0.0	-0.7	-0.8	-0.5	
Tertiary	1.77	1.61	1.50	1.53	1.40	1.24	1.14	1.06	0.97	-1.6	-0.7	-2.0	-1.6	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.80	2.77	2.75	0.1	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.1	27.2	32.5	35.5	39.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.4	7.2	8.7	9.5					
Gross Electricity generation by source (in GWh)														
			43364	46180	58650	63440	70221	78040	85261		3.1	1.8	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15472	15072	15072	9856	1829		0.5	-0.3	-19.0	
Oil (including refinery gas)			9483	9244	7582	7075	2843	5118	4928		-2.2	-9.3	5.7	
Gas (including derived gases)			5745	11580	10372	12567	12857	16011	18201		6.1	2.2	3.5	
Biomass-waste			1802	3434	3403	5026	9300	11321	14103		6.6	10.6	4.3	
Hydro (pumping excluded)			11321	4730	10129	10134	10138	10138	10142		-1.1	0.0	0.0	
Wind			168	1773	11445	12478	15915	18240	20669		52.5	3.4	2.6	
Solar			1	3	114	176	2951	6042	14000		60.6	38.4	16.8	
Geothermal and other renewables			80	105	133	912	1144	1314	1390		5.2	24.0	2.0	
Net Generation Capacity in MW_e			10643	13440	21955	22498	26199	29864	38390		7.5	1.8	3.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10319	11353	15110	18548	26083		9.8	3.9	5.6	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5930	6401	8179	9331	11012		50.4	3.3	3.0	
Solar			1	3	80	138	1955	4160	9990		66.1	37.7	17.7	
Other renewables (tidal etc.)			0	0	0	379	486	567	591				2.0	
<u>Thermal power</u>			6585	8156	11635	11145	11088	11315	12306		5.9	-0.5	1.0	
of which cogeneration units			1372	1373	1845	2041	2380	2731	3109		3.0	2.6	2.7	
Solids fired			1903	1914	1866	1818	1818	1421	568		-0.2	-0.3	-11.0	
Gas fired			1868	3724	6038	5555	5233	5673	6565		12.5	-1.4	2.3	
Oil fired			2338	2008	1981	1919	1457	1229	1360		-1.6	-3.0	-0.7	
Biomass-waste fired			463	493	1734	1826	2547	2960	3772		14.1	3.9	4.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	28	33	33	41		2.1	7.5	2.1	
Avg. Load factor of net power capacity (%)			44.8	37.8	29.7	31.4	29.8	28.8	24.8					
Efficiency of gross thermal power generation (%)			42.1	42.6	43.0	44.4	45.6	49.4	54.8					
% of gross electricity from CHP			11.3	10.1	10.9	13.0	17.5	19.3	20.0					
Carbon free gross electricity generation (%)			30.8	21.8	43.0	45.3	56.2	60.3	70.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	43.0	45.3	56.2	60.3	70.7					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.7	124.2	135.4	147.1	157.7	5.3	2.4	1.9	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.9	12.2	12.5	1.4	-0.5	0.6	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.5	96.8	103.9	110.3	7.7	3.0	1.8	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.0	5.5	6.2	7.0	-3.2	0.4	1.4	2.5	
Aviation	7.1	9.1	11.7	13.2	15.3	17.8	20.8	24.3	27.3	5.1	2.7	3.1	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.5	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.9	63.5	68.9	73.6	4.7	2.1	2.1	1.5	
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	58.8	63.9	68.4	5.4	2.1	2.1	1.5	
Rail	1.5	2.0	2.2	2.4	2.7	3.0	3.3	3.5	3.7	4.1	2.2	1.9	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.4	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7572	8096	8522	8880	9008	5.7	1.5	1.2	0.6	
Public road transport	67	90	100	108	103	100	100	97	91	4.2	0.2	-0.2	-1.0	
Private cars and motorcycles	1575	2299	2945	3058	3288	3425	3486	3499	3343	6.5	1.1	0.6	-0.4	
Trucks	1387	1717	2551	2872	3062	3337	3605	3850	4073	6.3	1.8	1.6	1.2	
Rail	82	80	88	66	67	65	62	61	52	0.6	-2.6	-0.8	-1.8	
Aviation	574	620	790	881	1005	1116	1211	1314	1388	3.2	2.4	1.9	1.4	
Inland navigation	43	46	43	41	47	52	56	60	61	0.0	0.8	1.9	0.7	

Source: PRIMES

Portugal: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6372	8093	10742	884	2033	3199	16.1	33.6	42.4
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	42.5	-145.5	-630.8
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6372	8093	10742	884	2033	3199	16.1	33.6	42.4
Hydro	787	974	407	871	872	872	1	1	0	0.1	0.1	0.0
Biomass & Waste	1891	2053	2936	3942	5030	6206	353	1113	1329	9.8	28.4	27.2
Wind	0	14	152	1073	1369	1778	230	361	377	27.3	35.8	26.9
Solar and others	11	18	23	359	682	1707	257	509	1490	253.6	295.7	687.8
Geothermal	3	49	66	127	141	180	42	50	4	50.2	54.3	2.3
Net Imports	15160	21588	24040	23981	23508	21883	-1870	-3956	-6292	-7.2	-14.4	-22.3
Solids	2789	3913	3223	3307	3307	312	-990	-1839	-4436	-23.0	-35.7	-93.4
Oil	12367	15556	16338	16469	15904	16666	-454	-1579	-943	-2.7	-9.0	-5.4
- Crude oil and Feedstocks	11360	12022	13459	13775	13537	14157	-362	-1045	-582	-2.6	-7.2	-4.0
- Oil products	1007	3534	2878	2694	2367	2509	-92	-533	-360	-3.3	-18.4	-12.6
Natural gas	0	2039	3893	4054	4212	4836	-427	-538	-913	-9.5	-11.3	-15.9
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	29711	30930	31902	-986	-1922	-3091	-3.2	-5.9	-8.8
Solids	2580	3803	3347	3307	3307	312	-990	-1839	-4436	-23.0	-35.7	-93.4
Oil	11614	15083	15410	15828	15233	15942	-454	-1578	-941	-2.8	-9.4	-5.6
Natural gas	0	2034	3751	4054	4212	4836	-427	-538	-913	-9.5	-11.3	-15.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6372	8093	10742	884	2033	3199	16.1	33.6	42.4
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.1	10.7	1.0	-2.9	-5.0	-12.6			
Oil	68.8	62.6	57.8	53.3	49.3	50.0	0.2	-1.9	1.7			
Natural gas	0.0	8.4	14.1	13.6	13.6	15.2	-1.0	-0.8	-1.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	21.4	26.2	33.7	3.6	7.7	12.1			
Gross Electricity Generation in GWh_e	28350	43364	46180	63440	70221	85261	-4933	-7059	-8167	-7.2	-9.1	-8.7
Self consumption and grid losses	4441	5435	6125	7049	7863	9639	-858	-1233	-2259	-10.9	-13.6	-19.0
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7732	7600	6171	-1384	-2446	-4560	-15.2	-24.4	-42.5
Solids	2027	3198	3319	3302	3302	308	-990	-1840	-4437	-23.1	-35.8	-93.5
Oil (including refinery gas)	2105	1670	1884	1105	364	828	-250	-906	-173	-18.5	-17.3	-17.3
Gas (including derived gases)	19	1234	2309	2143	2202	2633	-368	-416	-703	-14.7	-15.9	-21.1
Biomass & Waste	149	356	430	1059	1596	2230	183	669	753	20.9	72.1	51.0
Geothermal heat	3	49	65	123	136	174	41	47	0	50.1	52.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	14428	14454	15301	-311	-885	-417	-2.1	-5.8	-2.7
Refineries	11152	12251	13608	14058	13817	14425	-362	-1046	-583	-2.5	-7.0	-3.9
Biofuels and hydrogen production	0	0	0	369	636	876	51	161	166	16.1	34.0	23.4
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	852	824	831	-58	-126	-176	-6.4	-13.3	-17.5
Non-Energy Uses	2103	2330	2405	2684	2839	3113	-2	-4	-3	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	21525	22729	24683	-233	-503	-606	-1.1	-2.2	-2.4
by sector												
Industry	4139	5518	5656	6108	6332	6814	-115	-287	-330	-1.8	-4.3	-4.6
- energy intensive industries	2497	3437	3757	3940	4055	4353	-103	-215	-223	-2.5	-5.0	-4.9
- other industrial sectors	1642	2081	1899	2167	2277	2461	-12	-72	-108	-0.5	-3.1	-4.2
Residential	2290	2804	3206	4115	4557	5195	102	164	226	2.5	3.7	4.5
Tertiary	1052	2098	2766	3207	3318	3666	-163	-268	-322	-4.8	-7.5	-8.1
Transport	3728	6517	7026	8096	8522	9008	-57	-112	-180	-0.7	-1.3	-2.0
by fuel												
Solids	617	465	16	5	5	4	1	1	2	20.3	34.6	58.2
Oil	6683	10469	10492	11302	11342	11336	-181	-593	-725	-1.6	-5.0	-6.0
Gas	103	853	1307	1854	1954	2146	-53	-116	-200	-2.8	-5.6	-8.5
Electricity	2024	3299	3983	4949	5395	6518	-350	-501	-507	-6.6	-8.5	-7.2
Heat (from CHP and District Heating)	28	134	328	314	360	449	-6	47	8	-2.0	15.2	1.9
Renewable energy forms	1752	1716	2529	3100	3670	4228	357	658	816	13.0	21.8	23.9
Other	0	0	0	1	2	3	0	0	0	1.1	3.0	2.6
RES in Gross Final Energy Consumption ^(A)	2907	3266	6019	7606	10099	810	1864	3068	15.5	32.5	43.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	85.2	83.7	74.7	-6.4	-13.6	-22.7	-7.0	-14.0	-23.3
CO₂ Emissions (energy related)	39.0	58.5	61.6	62.3	60.2	51.2	-6.3	-13.5	-22.5	-9.2	-18.3	-30.5
Power generation/District heating	14.8	20.9	24.5	21.6	19.3	10.0	-5.6	-11.1	-19.7	-20.5	-36.5	-66.3
Energy Branch	1.5	2.3	2.3	2.3	2.1	2.1	-0.1	-0.2	-0.1	-2.6	-10.0	-5.8
Industry	8.2	10.8	7.3	8.6	8.3	7.8	-0.1	-1.0	-1.4	-1.6	-11.2	-15.0
Residential	1.6	2.0	2.3	2.6	2.8	3.0	-0.1	-0.1	-0.2	-2.5	-4.1	-4.8
Tertiary	1.9	3.2	4.2	4.0	3.8	3.6	-0.2	-0.2	-0.2	-4.1	-5.3	-5.6
Transport	11.0	19.4	21.0	23.3	23.9	24.8	-0.3	-0.7	-1.0	-1.2	-3.0	-3.7
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.3	6.5	6.9	-0.1	-0.1	-0.2	-1.4	-2.2	-2.5
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	16.6	17.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	141.3	138.8	123.9	-10.6	-22.6	-37.6			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Portugal: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	160.5	145.4	116.9	-5.3	-9.0	-11.3	-3.2	-5.9	-8.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.10	1.95	1.61	-0.14	-0.30	-0.50	-6.2	-13.2	-23.8
Import Dependency %	86.7	87.2	88.2	79.0	74.4	67.1	-3.5	-7.5	-11.8			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	24.6	28.8	35.1	0.2	1.0	2.2	0.8	3.7	6.8
as % of GDP		10.8	12.3	13.3	13.5	12.9	0.1	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	1.0	2.2						
as % of GDP				0.10	0.48	0.82						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	96.7	89.1	79.8	-1.8	-4.0	-3.9	-1.8	-4.3	-4.6
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	110.4	107.7	97.5	2.7	3.9	4.2	2.5	3.7	4.5
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	111.2	100.6	87.6	-5.7	-8.1	-7.7	-4.8	-7.5	-8.1
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.7	35.7	30.8	-0.2	-0.3	-0.5	-0.5	-0.9	-1.6
Freight transport (toe/Mtkm)	55.4	62.9	63.8	59.0	58.1	56.3	0.0	0.1	0.1	0.0	0.1	0.1
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.26	0.11	-0.05	-0.12	-0.19	-14.6	-31.0	-63.3
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.79	1.71	1.59	-0.01	-0.05	-0.07	-0.7	-3.0	-4.2
Industry	1.99	1.96	1.30	1.41	1.31	1.14	0.00	-0.10	-0.14	0.2	-7.1	-10.9
Residential	0.71	0.71	0.70	0.64	0.61	0.58	-0.03	-0.05	-0.06	-4.9	-7.6	-9.0
Tertiary	1.77	1.50	1.53	1.24	1.14	0.97	0.01	0.03	0.03	0.8	2.4	2.7
Transport	2.95	2.97	2.98	2.87	2.80	2.75	-0.02	-0.05	-0.05	-0.6	-1.7	-1.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	27.2	32.5	39.6	49.6	4.0	8.6	12.9			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.4	7.2	9.5	12.9	0.6	1.9	1.9			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15072	15072	1829	1829	-5572	-10530	-26189	-27.0	-41.1	-93.5
Oil (including refinery gas)	9483	9244	7075	2843	4928	4928	-1402	-4902	-1416	-16.5	-63.3	-22.3
Gas (including derived gases)	5745	11580	12567	12857	18201	18201	-1694	-2794	-3386	-11.9	-17.9	-15.7
Biomass-waste	1802	3434	5026	9300	14103	14103	268	3764	4214	5.6	68.0	42.6
Hydro (pumping excluded)	11321	4730	10134	10138	10142	10142	12	6	0	0.1	0.1	0.0
Wind	168	1773	12478	15915	20669	20669	2676	4192	4379	27.3	35.8	26.9
Solar	1	3	176	2951	14000	14000	0	2733	13738	0.0	1252.7	5246.5
Geothermal and other renewables	80	105	912	1144	1390	1390	779	471	493	585.9	69.9	55.0
Net Generation Capacity in MW_e	10643	13440	22498	26199	38390	49960	498	2568	10402	2.3	10.9	37.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	4058	5284	11353	15110	26083	26083	1528	4083	12511	15.6	37.0	92.2
Hydro (pumping excluded)	3958	4234	4435	4490	4490	4490	0	0	0	0.0	0.0	0.0
Wind	100	1047	6401	8179	11012	11012	1149	2088	2498	21.9	34.3	29.3
Solar	1	3	138	1955	9990	9990	0	1783	9757	0.0	1036.0	4184.4
Other renewables (tidal etc.)	0	0	379	486	591	591	379	212	256		77.2	76.5
<u>Thermal power</u>	6585	8156	11145	11088	12306	12306	-1031	-1515	-2109	-8.5	-12.0	-14.6
of which cogeneration units	1372	1373	2041	2380	3109	3109	-165	158	-53	-7.5	7.1	-1.7
Solids fired	1903	1914	1818	1818	568	568	-647	-1222	-2677	-26.3	-40.2	-82.5
Gas fired	1868	3724	5555	5233	6565	6565	-362	-686	-531	-6.1	-11.6	-7.5
Oil fired	2338	2008	1919	1457	1360	1360	-228	-484	-187	-10.6	-25.0	-12.1
Biomass-waste fired	463	493	1826	2547	3772	3772	194	865	1287	11.9	51.4	51.8
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	13	16	28	33	41	41	12	12	0	75.5	57.5	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	31.4	29.8	24.8	24.8	-3.0	-6.3	-11.8			
Efficiency of gross thermal power generation (%)	42.1	42.6	44.4	45.6	54.8	54.8	-1.1	-1.2	1.8			
% of gross electricity from CHP	11.3	10.1	13.0	17.5	20.0	20.0	0.3	4.4	2.3			
Carbon free gross electricity generation (%)	30.8	21.8	45.3	56.2	70.7	70.7	8.7	19.6	30.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	30.8	21.8	45.3	56.2	70.7	70.7	8.7	19.6	30.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	10.3	11.8	11.1	11.5	11.9	12.5	0.0	0.1	0.1	0.2	0.5	0.7
Private cars and motorcycles	28.6	60.0	71.4	89.5	96.8	110.3	-0.1	-0.3	-0.7	-0.1	-0.3	-0.6
Rail	6.3	4.6	4.6	5.0	5.5	7.0	0.0	-0.1	-0.1	-0.8	-1.9	-1.9
Aviation	7.1	11.7	13.2	17.8	20.8	27.3	-0.7	-1.2	-1.7	-3.9	-5.3	-6.0
Inland navigation	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	0.2	0.5	0.7
Freight transport activity (Gtkm)												
Trucks	23.1	38.9	42.6	53.6	58.8	68.4	-0.1	-0.2	-0.5	-0.1	-0.4	-0.7
Rail	1.5	2.2	2.4	3.0	3.3	3.7	0.0	0.0	0.0	-0.6	-1.1	-1.0
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.5	0.0	0.0	0.0	0.0	0.2	0.4
Energy demand in transport (ktoe)												
Public road transport	67	100	108	100	100	91	0	0	0	0.2	0.5	0.0
Private cars and motorcycles	1575	2945	3058	3425	3486	3343	0	-8	-15	0.0	-0.2	-0.4
Trucks	1387	2551	2872	3337	3605	4073	-4	-13	-27	-0.1	-0.4	-0.7
Rail	82	88	66	65	62	52	0	1	2	-0.6	2.1	4.9
Aviation	574	790	881	1116	1211	1388	-53	-93	-141	-4.5	-7.1	-9.2
Inland navigation	43	43	41	52	56	61	0	0	0	0.1	0.3	0.5

Source: PRIMES

Romania: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	41400	32600	28774	28181	29294	30821	33812	36002	37702	-3.6	0.2	1.4	1.1	
Solids	7935	7889	5879	5793	6231	3471	3017	4133	4263	-3.0	0.6	-7.0	3.5	
Oil	7947	7104	6389	6120	5635	6183	6172	6167	6164	-2.2	-1.2	0.9	0.0	
Natural gas	22911	14446	10968	9701	9721	10655	11008	10383	9822	-7.1	-1.2	1.3	-1.1	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Renewable energy sources	2607	3162	4131	5134	6232	7644	10006	11638	13698	4.7	4.2	4.8	3.2	
Hydro	1460	1435	1271	1737	1711	1725	1733	1749	1788	-1.4	3.0	0.1	0.3	
Biomass & Waste	1147	1726	2854	3314	4332	5496	7589	8998	10900	9.5	4.3	5.8	3.7	
Wind	0	0	0	0	50	64	98	175	206			6.9	7.8	
Solar and others	0	0	0	0	12	141	249	357	427			34.9	5.5	
Geothermal	0	0	7	82	127	218	337	358	377		34.1	10.3	1.1	
Net Imports	20360	14542	8099	10719	12020	14516	16183	18915	21833	-8.8	4.0	3.0	3.0	
Solids	2423	2870	1905	2904	3044	4700	4618	4776	5047	-2.4	4.8	4.4	0.7	
Oil	11194	6852	3542	3874	5032	5655	6732	7640	8415	-10.9	3.6	3.0	2.3	
- Crude oil and Feedstocks	16094	8735	4836	8751	9796	10853	12319	13551	14600	-11.3	7.3	2.3	1.7	
- Oil products	-4900	-1883	-1294	-4877	-4764	-5198	-5587	-5911	-6185					
Natural gas	5928	4794	2712	4190	4249	4657	5202	6974	8878	-7.5	4.6	2.0	5.5	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Gross Inland Consumption	61492	47109	37069	39147	41314	45337	49995	54917	59536	-4.9	1.1	1.9	1.8	
Solids	10126	10796	7757	8769	9276	8088	7717	8909	9309	-2.6	1.8	-1.8	1.9	
Oil	19106	13886	10148	10162	10668	11838	12904	13806	14579	-6.1	0.5	1.9	1.2	
Natural gas	28838	19240	13680	13942	13970	15312	16210	17357	18700	-7.2	0.2	1.5	1.4	
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Renewable energy forms	2607	3162	4137	5090	6175	7571	9905	11519	13554	4.7	4.1	4.8	3.2	
as % in Gross Inland Consumption														
Solids	16.5	22.9	20.9	22.4	22.5	17.8	15.4	16.2	15.6					
Oil	31.1	29.5	27.4	26.0	25.8	26.1	25.8	25.1	24.5					
Natural gas	46.9	40.8	36.9	35.6	33.8	33.8	32.4	31.6	31.4					
Nuclear	0.0	0.0	3.8	3.7	3.6	6.3	7.2	6.7	6.3					
Renewable energy forms	4.2	6.7	11.2	13.0	14.9	16.7	19.8	21.0	22.8					
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	63290	71584	81486	95027	108997	-2.0	2.0	2.6	3.0	
Self consumption and grid losses	14388	11292	8909	10341	9039	8517	9462	11685	13612	-4.7	0.1	0.5	3.7	
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8243	7549	8808	11140	13525	-7.6	-2.5	0.7	4.4	
Solids	8166	7352	5442	5982	6128	4654	4483	5895	6740	-4.0	1.2	-3.1	4.2	
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	13	-12.2	-29.1			
Gas (including derived gases)	8984	6090	3507	3343	2061	2534	2609	2669	2934	-9.0	-5.2	2.4	1.2	
Biomass & Waste	36	37	4	3	0	307	1716	2576	3837	-19.0			8.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	25764	21571	14558	17946	19493	21249	22433	23662	24623	-5.5	3.0	1.4	0.9	
Refineries	23718	15646	11318	14978	15431	17036	18491	19718	20764	-7.1	3.1	1.8	1.2	
Biofuels and hydrogen production	0	0	0	0	82	188	312	577	989			14.3	12.2	
District heating	496	1901	1737	823	1306	1087	988	956	881	13.4	-2.8	-2.7	-1.1	
Derived gases, cokeries etc.	1551	4024	1503	2144	2674	2937	2642	2411	1988	-0.3	5.9	-0.1	-2.8	
Energy Branch Consumption	3594	5270	4137	4184	4323	4512	4712	5044	5329	1.4	0.4	0.9	1.2	
Non-Energy Uses	908	1326	2291	2448	2425	2633	2920	3226	3523	9.7	0.6	1.9	1.9	
Final Energy Demand	36548	26449	22374	24625	28112	31919	35489	38999	42460	-4.8	2.3	2.4	1.8	
by sector														
Industry	25106	14528	8788	9751	10891	12437	13729	15228	16889	-10.0	2.2	2.3	2.1	
- energy intensive industries	15699	10582	5962	6928	7597	8447	9089	9907	10731	-9.2	2.5	1.8	1.7	
- other industrial sectors	9407	3946	2826	2823	3294	3990	4640	5321	6158	-11.3	1.5	3.5	2.9	
Residential	4190	6461	8557	8093	8573	9297	10196	11014	11696	7.4	0.0	1.7	1.4	
Tertiary	2845	2401	1646	2576	3282	3746	4044	4204	4254	-5.3	7.1	2.1	0.5	
Transport	4407	3058	3384	4204	5365	6438	7520	8553	9621	-2.6	4.7	3.4	2.5	
by fuel														
Solids	2678	1529	703	1429	1827	1964	1857	1707	1448	-12.5	10.0	0.2	-2.5	
Oil	8030	5234	5292	6547	7712	8899	9964	10808	11535	-4.1	3.8	2.6	1.5	
Gas	20495	10249	6885	7721	8683	9482	10011	10685	11314	-10.3	2.3	1.4	1.2	
Electricity	4355	3282	3122	3481	3881	4491	5224	6178	7202	-3.3	2.2	3.0	3.3	
Heat (from CHP and District Heating)	377	4679	3570	2135	1675	1709	2197	2784	3510	25.2	-7.3	2.8	4.8	
Renewable energy forms	612	1476	2802	3312	4333	5372	6234	6833	7446	16.4	4.5	3.7	1.8	
Other	0	0	0	0	1	1	2	4	5			13.7	10.0	
RES in Gross Final Energy Consumption ^(A)			4197	5132	6149	7480	9586	11028	12806		3.9	4.5	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	155.4	159.3	165.2	167.8	170.0	-6.4	1.2	0.6	0.3	
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	94.2	95.1	98.2	105.1	109.1	-6.7	1.2	0.4	1.1	
Power generation/District heating	75.9	59.2	40.6	37.2	33.5	27.8	26.9	30.1	31.6	-6.1	-1.9	-2.2	1.6	
Energy Branch	6.2	7.5	7.4	8.0	8.5	8.9	9.1	9.5	9.7	1.8	1.3	0.8	0.6	
Industry	58.1	30.2	17.6	20.9	23.0	25.6	26.1	26.5	26.2	-11.3	2.7	1.3	0.0	
Residential	7.5	5.2	6.5	7.2	8.0	8.3	8.6	9.4	10.2	-1.4	2.1	0.6	1.8	
Tertiary	6.7	3.1	1.8	4.4	5.8	6.2	6.3	6.1	5.8	-12.1	12.1	0.8	-0.9	
Transport	12.3	8.6	9.6	12.1	15.4	18.3	21.2	23.5	25.6	-2.4	4.8	3.2	1.9	
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.8	21.2	23.7	26.3	28.5	-5.6	3.4	2.9	1.9	
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	43.0	43.2	36.4	32.4	32.4	-6.0	0.6	0.0	-2.8	
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	58.5	59.9	62.2	63.1	64.0						

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Romania: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6	
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0	
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	393.9	321.3	270.1	230.3	197.2	-3.3	-4.4	-3.7	-3.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.28	2.10	1.96	1.91	1.83	-1.8	0.1	-1.5	-0.7	
Import Dependency %	33.1	30.9	21.8	27.4	29.1	32.0	32.4	34.4	36.7					
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	20.8	26.4	32.9	38.7	45.2		4.0	4.7	3.2	
as % of GDP			23.4	18.7	19.8	18.7	17.8	16.2	15.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	75.0	65.2	56.5	50.2	45.1	-7.5	-2.8	-2.8	-2.2	
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.4	39.7	33.1	27.8	23.3	8.2	-6.8	-3.9	-3.5	
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.3	92.9	75.3	59.8	47.3	-4.0	1.0	-3.7	-4.5	
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.7	28.5	27.2	25.9	25.6	7.6	-2.6	-0.9	-0.6	
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.3	29.6	28.9	28.2	27.4	0.5	-3.1	-0.5	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.36	0.28	0.23	0.22	0.20	-10.1	-0.7	-4.4	-1.5	
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.86	1.83	1.75	1.68	1.60	-3.7	1.6	-0.6	-0.9	
Industry	2.31	2.08	2.00	2.14	2.11	2.06	1.90	1.74	1.55	-1.4	0.5	-1.0	-2.0	
Residential	1.78	0.81	0.76	0.89	0.94	0.89	0.84	0.85	0.88	-8.2	2.1	-1.1	0.4	
Tertiary	2.37	1.30	1.12	1.69	1.77	1.67	1.56	1.45	1.35	-7.2	4.6	-1.3	-1.4	
Transport	2.79	2.81	2.85	2.89	2.87	2.84	2.81	2.75	2.66	0.2	0.1	-0.2	-0.6	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	21.0	22.7	26.2	27.4	29.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.8	9.0					
Gross Electricity generation by source (in GWh)														
			51925	59402	63290	71584	81486	95027	108997		2.0	2.6	3.0	
Nuclear energy			5455	5554	6207	11614	14892	15219	15554		1.3	9.1	0.4	
Solids			16409	19761	22253	20547	21066	28661	33692		3.1	-0.5	4.8	
Oil (including refinery gas)			4145	3256	243	243	0	0	59		-24.7			
Gas (including derived gases)			11002	10316	13549	16464	16428	16954	18917		2.1	1.9	1.4	
Biomass-waste			138	311	561	1904	7801	11781	17527		15.1	30.1	8.4	
Hydro (pumping excluded)			14775	20203	19890	20056	20153	20343	20795		3.0	0.1	0.3	
Wind			0	0	583	748	1135	2038	2395			6.9	7.8	
Solar			0	0	4	7	12	31	58			12.0	17.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			19962	19838	23152	22670	23068	20349	20869		1.5	0.0	-1.0	
<u>Nuclear energy</u>			654	650	1330	1342	1726	1764	1802		7.4	2.6	0.4	
<u>Renewable energy</u>			5935	6215	6790	7285	7844	8665	8990		1.4	1.5	1.4	
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1	
Wind			0	0	422	566	843	1594	1898			7.2	8.5	
Solar			0	3	3	6	9	25	46			12.0	17.4	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			13373	12972	15032	14043	13498	9921	10077		1.2	-1.1	-2.9	
of which cogeneration units			5378	5459	1737	2237	3724	4490	5969		-10.7	7.9	4.8	
Solids fired			7285	7139	7122	7250	7345	4629	3795		-0.2	0.3	-6.4	
Gas fired			3692	3459	5374	4762	3512	2718	2861		3.8	-4.2	-2.0	
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0	
Biomass-waste fired			20	20	93	329	1437	2134	3122		16.4	31.5	8.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			27.0	30.8	29.1	34.4	38.4	50.2	55.7					
Efficiency of gross thermal power generation (%)			25.6	28.6	38.2	44.6	44.2	44.3	44.6					
% of gross electricity from CHP			30.2	25.8	18.4	20.5	26.3	28.6	33.0					
Carbon free gross electricity generation (%)			39.2	43.9	43.0	48.0	54.0	52.0	51.7					
- nuclear			10.5	9.3	9.8	16.2	18.3	16.0	14.3					
- renewable energy forms			28.7	34.5	33.2	31.7	35.7	36.0	37.4					
Transport sector														
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.9	121.5	148.2	178.1	-2.7	4.1	4.7	3.9	
Public road transport	24.0	12.3	7.7	9.4	11.7	14.5	16.8	18.8	20.8	-10.7	4.3	3.7	2.2	
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.4	71.3	89.1	109.2	132.1	9.6	5.8	4.9	4.0	
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.0	16.3	-9.2	-3.5	3.7	3.4	
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.1	8.9	1.6	7.3	9.1	8.4	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9	
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.8	123.3	145.8	167.7	184.9	-8.4	11.8	3.7	2.4	
Trucks	29.0	19.7	14.3	51.5	72.0	88.5	105.0	120.5	131.7	-6.8	17.6	3.8	2.3	
Rail	48.9	17.9	16.4	16.6	18.2	20.5	23.7	27.2	31.0	-10.4	1.1	2.7	2.7	
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.2	17.2	19.9	22.2	2.3	16.0	4.0	2.6	
Energy demand in transport (ktoe)	4407	3058	3384	4204	5365	6438	7520	8553	9621	-2.6	4.7	3.4	2.5	
Public road transport	329	176	117	93	109	129	144	153	160	-9.9	-0.6	2.8	1.0	
Private cars and motorcycles	591	845	1681	1609	1994	2430	2863	3292	3904	11.0	1.7	3.7	3.1	
Trucks	2617	1272	893	2130	2829	3369	3905	4384	4709	-10.2	12.2	3.3	1.9	
Rail	282	470	449	208	217	234	231	244	249	4.8	-7.0	0.7	0.7	
Aviation	275	192	128	113	147	192	276	363	472	-7.3	1.3	6.5	5.5	
Inland navigation	312	103	115	51	70	85	101	116	128	-9.5	-4.9	3.8	2.4	

Source: PRIMES

Romania: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	30821	33812	37702	-1376	-1160	987	-4.3	-3.3	2.7
Solids	7935	5879	5793	3471	3017	4263	-2220	-3937	-3203	-39.0	-56.6	-42.9
Oil	7947	6389	6120	6183	6172	6164	0	0	0	0.0	0.0	0.0
Natural gas	22911	10968	9701	10655	11008	9822	-270	0	0	-2.5	0.0	0.0
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Renewable energy sources	2607	4131	5134	7644	10006	13698	1114	2777	4190	17.1	38.4	44.1
Hydro	1460	1271	1737	1725	1733	1788	92	80	0	5.7	4.9	0.0
Biomass & Waste	1147	2854	3314	5496	7589	10900	765	2240	3487	16.2	41.9	47.0
Wind	0	0	0	64	98	206	56	83	180	702.0	591.3	694.6
Solar and others	0	0	0	141	249	427	105	178	301	297.5	252.6	238.5
Geothermal	0	7	82	218	337	377	95	195	222	77.3	137.4	143.3
Net Imports	20360	8099	10719	14516	16183	21833	-233	-1835	-3684	-1.6	-10.2	-14.4
Solids	2423	1905	2904	4618	4700	5047	-28	-877	-2616	-0.6	-15.7	-34.1
Oil	11194	3542	3874	5655	6732	8415	-77	-286	-370	-1.3	-4.1	-4.2
- Crude oil and Feedstocks	16094	4836	8751	10853	12319	14600	-105	-389	-500	-1.0	-3.1	-3.3
- Oil products	-4900	-1294	-4877	-5198	-5587	-6185	28	103	130	-0.5	-1.8	-2.1
Natural gas	5928	2712	4190	4657	5202	8878	-118	-644	-652	-2.5	-11.0	-6.8
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	45337	49995	59536	-1609	-2996	-2697	-3.4	-5.7	-4.3
Solids	10126	7757	8769	8088	7717	9309	-2248	-4814	-5819	-21.8	-38.4	-38.5
Oil	19106	10148	10162	11838	12904	14579	-77	-286	-370	-0.6	-2.2	-2.5
Natural gas	28838	13680	13942	15312	16210	18700	-388	-644	-652	-2.5	-3.8	-3.4
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7571	9905	13554	1104	2747	4144	17.1	38.4	44.0
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	17.8	15.4	15.6	-4.2	-8.2	-8.7			
Oil	31.1	27.4	26.0	26.1	25.8	24.5	0.7	0.9	0.5			
Natural gas	46.9	36.9	35.6	33.8	32.4	31.4	0.3	0.6	0.3			
Nuclear	0.0	3.8	3.7	6.3	7.2	6.3	0.2	0.4	0.3			
Renewable energy forms	4.2	11.2	13.0	16.7	19.8	22.8	2.9	6.3	7.6			
Gross Electricity Generation in GWh_e	63398	51925	59402	71584	81486	108997	-8100	-11451	-10727	-10.2	-12.3	-9.0
Self consumption and grid losses	14388	8909	10341	8517	9462	13612	-1730	-2245	-1255	-16.9	-19.2	-8.4
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7549	8808	13525	-2301	-3412	-2365	-23.4	-27.9	-14.9
Solids	8166	5442	5982	4654	4483	6740	-2417	-4566	-5103	-34.2	-50.5	-43.1
Oil (including refinery gas)	6202	1684	775	54	0	13	54	0	13			
Gas (including derived gases)	8984	3507	3343	2534	2609	2934	-219	-207	363	-7.9	-7.3	14.1
Biomass & Waste	36	4	3	307	1716	3837	281	1361	2362	1080.1	384.0	160.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	21249	22433	24623	221	-319	-547	1.1	-1.4	-2.2
Refineries	23718	11318	14978	17036	18491	20764	-105	-389	-500	-0.6	-2.1	-2.4
Biofuels and hydrogen production	0	0	0	188	312	989	27	78	189	16.6	33.4	23.7
District heating	496	1737	823	1087	988	881	38	-78	-170	3.6	-7.3	-16.1
Derived gases, cokeries etc.	1551	1503	2144	2937	2642	1988	262	70	-66	9.8	2.7	-3.2
Energy Branch Consumption	3594	4137	4184	4512	4712	5329	-142	-266	-203	-3.0	-5.4	-3.7
Non-Energy Uses	908	2291	2448	2633	2920	3523	-3	-5	-5	-0.1	-0.2	-0.1
Final Energy Demand	36548	22374	24625	31919	35489	42460	-100	-417	-692	-0.3	-1.2	-1.6
by sector												
Industry	25106	8788	9751	12437	13729	16889	-71	-388	-687	-0.6	-2.7	-3.9
- energy intensive industries	15699	5962	6928	8447	9089	10731	-43	-321	-501	-0.5	-3.4	-4.5
- other industrial sectors	9407	2826	2823	3990	4640	6158	-28	-67	-186	-0.7	-1.4	-2.9
Residential	4190	8557	8093	9297	10196	11696	72	202	270	0.8	2.0	2.4
Tertiary	2845	1646	2576	3746	4044	4254	-65	-118	-263	-1.7	-2.8	-5.8
Transport	4407	3384	4204	6438	7520	9621	-36	-112	-13	-0.6	-1.5	-0.1
by fuel												
Solids	2678	703	1429	1964	1857	1448	113	-36	-124	6.1	-1.9	-7.9
Oil	8030	5292	6547	8899	9964	11535	-57	-235	-320	-0.6	-2.3	-2.7
Gas	20495	6885	7721	9482	10011	11314	-160	-407	-1257	-1.7	-3.9	-10.0
Electricity	4355	3122	3481	4491	5224	7202	-551	-779	-795	-10.9	-13.0	-9.9
Heat (from CHP and District Heating)	377	3570	2135	1709	2197	3510	-108	-119	282	-5.9	-5.2	8.7
Renewable energy forms	612	2802	3312	5372	6234	7446	663	1159	1522	14.1	22.8	25.7
Other	0	0	0	1	2	5	0	0	0	2.3	1.6	4.1
RES in Gross Final Energy Consumption ^(A)		4197	5132	7480	9586	12806	1070	2534	3762	16.7	35.9	41.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	159.3	165.2	170.0	-11.4	-24.6	-34.5	-6.7	-13.0	-16.9
CO₂ Emissions (energy related)	166.7	83.6	89.7	95.1	98.2	109.1	-10.5	-22.2	-31.3	-9.9	-18.4	-22.3
Power generation/District heating	75.9	40.6	37.2	27.8	26.9	31.6	-10.2	-19.8	-26.1	-26.8	-42.4	-45.3
Energy Branch	6.2	7.4	8.0	8.9	9.1	9.7	-0.4	-0.6	-0.6	-4.0	-6.0	-6.2
Industry	58.1	17.6	20.9	25.6	26.1	26.2	0.7	-0.3	-2.5	2.7	-1.3	-8.7
Residential	7.5	6.5	7.2	8.3	8.6	10.2	-0.4	-0.6	-0.8	-4.2	-6.3	-7.0
Tertiary	6.7	1.8	4.4	6.2	6.3	5.8	-0.1	-0.3	-0.7	-0.9	-3.8	-10.2
Transport	12.3	9.6	12.1	18.3	21.2	25.6	-0.2	-0.6	-0.6	-1.0	-2.7	-2.3
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.2	23.7	28.5	0.1	-1.0	-2.1	0.6	-4.1	-6.8
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.0	43.2	32.4	-1.1	-1.5	-1.2	-2.5	-3.3	-3.4
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	59.9	62.2	64.0	-4.3	-9.3	-13.0			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Romania: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	321.3	270.1	197.2	-11.4	-16.2	-8.9	-3.4	-5.7	-4.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.10	1.96	1.83	-0.15	-0.31	-0.42	-6.7	-13.5	-18.8
Import Dependency %	33.1	21.8	27.4	32.0	32.4	36.7	0.6	-1.6	-4.3			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	26.4	32.9	45.2	0.2	0.6	2.0	0.9	1.9	4.7
as % of GDP		23.4	18.7	18.7	17.8	15.0	0.2	0.3	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.7	2.1						
as % of GDP				0.18	0.38	0.71						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	65.2	56.5	45.1	-0.4	-1.6	-1.8	-0.6	-2.7	-3.9
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	39.7	33.1	23.3	0.3	0.7	0.5	0.8	2.0	2.4
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	92.9	75.3	47.3	-1.6	-2.2	-2.9	-1.7	-2.8	-5.8
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.5	27.2	25.6	-0.1	-0.2	1.1	-0.3	-0.7	4.5
Freight transport (toe/Mtkm)	39.2	41.4	30.7	29.6	28.9	27.4	-0.1	-0.4	-0.7	-0.4	-1.4	-2.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.28	0.23	0.20	-0.07	-0.13	-0.15	-19.6	-35.6	-42.5
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.83	1.75	1.60	0.01	-0.03	-0.08	0.5	-1.6	-4.7
Industry	2.31	2.00	2.14	2.06	1.90	1.55	0.07	0.03	-0.08	3.3	1.5	-4.9
Residential	1.78	0.76	0.89	0.89	0.84	0.88	-0.05	-0.07	-0.09	-4.9	-8.1	-9.2
Tertiary	2.37	1.12	1.69	1.67	1.56	1.35	0.01	-0.02	-0.07	0.8	-1.0	-4.6
Transport	2.79	2.85	2.89	2.84	2.81	2.66	-0.01	-0.03	-0.06	-0.4	-1.2	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	22.7	26.2	29.2	3.4	7.3	9.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	9.0	0.4	0.9	1.7			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	71584	81486	108997	108997	-8100	-11451	-10727	-10.2	-12.3	-9.0
Nuclear energy	5455	5554	11614	14892	15554	15554	0	0	0	0.0	0.0	0.0
Solids	16409	19761	20547	21066	33692	33692	-9394	-17623	-25565	-31.4	-45.6	-43.1
Oil (including refinery gas)	4145	3256	243	0	59	59	243	0	59			
Gas (including derived gases)	11002	10316	16464	16428	18917	18917	-2368	-2354	1068	-12.6	-12.5	6.0
Biomass-waste	138	311	1904	7801	17527	17527	1691	6622	11617	790.3	561.6	196.6
Hydro (pumping excluded)	14775	20203	20056	20153	20795	20795	1074	933	0	5.7	4.9	0.0
Wind	0	0	748	1135	2395	2395	655	971	2094	702.0	591.3	694.6
Solar	0	0	7	12	58	58	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	19962	19838	22670	23068	20869	20869	26	975	447	0.1	4.4	2.2
<u>Nuclear energy</u>		654	650	1342	1726	1802	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>		5935	6215	7285	7844	8990	496	722	1680	7.3	10.1	23.0
Hydro (pumping excluded)		5935	6212	6713	6993	7046	0	0	0	0.0	0.0	0.0
Wind		0	0	566	843	1898	496	722	1680	706.2	598.9	770.7
Solar		0	3	6	9	46	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)		0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>		13373	12972	14043	13498	10077	-470	253	-1233	-3.2	1.9	-10.9
of which cogeneration units		5378	5459	2237	3724	5969	21	580	1613	1.0	18.5	37.0
Solids fired		7285	7139	7250	7345	3795	-425	-521	-3370	-5.5	-6.6	-47.0
Gas fired		3692	3459	4762	3512	2861	-353	-353	152	-6.9	-9.1	5.6
Oil fired		2375	2354	1702	1204	298	0	0	0	0.0	0.0	0.0
Biomass-waste fired		20	20	329	1437	3122	308	1127	1986	1411.5	362.6	174.7
Fuel Cells		0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat		0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)		27.0	30.8	34.4	38.4	55.7	-3.6	-6.9	-7.0			
Efficiency of gross thermal power generation (%)		25.6	28.6	44.6	44.2	44.6	1.8	2.9	-0.3			
% of gross electricity from CHP		30.2	25.8	20.5	26.3	33.0	2.1	5.6	9.5			
Carbon free gross electricity generation (%)		39.2	43.9	48.0	54.0	51.7	9.2	15.8	16.1			
- nuclear		10.5	9.3	16.2	18.3	14.3	1.6	2.3	1.3			
- renewable energy forms		28.7	34.5	31.7	35.7	37.4	7.5	13.6	14.8			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	68.0	51.7	60.9	97.9	121.5	178.1	-0.2	-0.5	-1.9	-0.2	-0.4	-1.0
Private cars and motorcycles	24.0	7.7	9.4	14.5	16.8	20.8	0.1	0.1	0.2	0.4	0.7	1.2
Rail	12.6	31.5	42.4	71.3	89.1	132.1	-0.2	-0.5	-1.8	-0.3	-0.6	-1.4
Aviation	30.6	11.6	8.0	9.7	11.7	16.3	0.0	0.0	0.1	0.2	0.2	0.6
Inland navigation	0.7	0.8	1.2	2.4	4.0	8.9	-0.1	-0.2	-0.4	-2.8	-3.8	-3.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5
Freight transport activity (Gtkm)												
Trucks	80.0	33.3	76.5	123.3	145.8	184.9	-0.2	-0.5	-1.5	-0.2	-0.3	-0.8
Rail	29.0	14.3	51.5	88.5	105.0	131.7	-0.4	-0.8	-2.1	-0.4	-0.7	-1.5
Inland navigation	48.9	16.4	16.6	20.5	23.7	31.0	0.1	0.2	0.4	0.6	0.8	1.3
Inland navigation	2.1	2.6	8.4	14.2	17.2	22.2	0.0	0.1	0.2	0.3	0.5	0.8
Energy demand in transport (ktoe)												
Public road transport	4407	3384	4204	6438	7520	9621	-36	-112	-13	-0.6	-1.5	-0.1
Private cars and motorcycles	329	117	93	129	144	160	0	0	-2	0.2	0.0	-1.0
Trucks	591	1681	1609	2430	2863	3904	-10	-25	176	-0.4	-0.8	4.7
Rail	2617	893	2130	3369	3905	4709	-22	-64	-163	-0.7	-1.6	-3.4
Aviation	282	449	208	234	231	249	1	-12	1	0.5	-4.9	0.2
Inland navigation	275	128	113	192	276	472	-6	-12	-25	-2.9	-4.2	-5.1
Inland navigation	312	115	51	85	101	128	0	0	1	0.2	0.3	0.5

Source: PRIMES

Slovak Republic: EC proposal with RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	5248	4808	5970	6305	5343	6399	6416	7531	7922	1.3	-1.1	1.8	2.1	
Solids	1397	1017	1018	637	846	700	342	590	584	-3.1	-1.8	-8.7	5.5	
Oil	81	74	59	55	37	36	37	38	38	-3.1	-4.6	0.1	0.3	
Natural gas	338	264	133	126	120	136	138	148	143	-8.9	-1.0	1.4	0.4	
Nuclear	3105	2950	4255	4573	3191	4071	4071	4576	4713	3.2	-2.8	2.5	1.5	
Renewable energy sources	328	503	506	914	1149	1457	1828	2179	2443	4.4	8.6	4.8	2.9	
Hydro	162	427	406	399	406	433	435	437	438	9.7	0.0	0.7	0.1	
Biomass & Waste	166	76	100	507	718	950	1188	1484	1695	-5.0	21.8	5.2	3.6	
Wind	0	0	0	1	17	20	112	121	131			21.0	1.6	
Solar and others	0	0	0	0	7	50	85	124	162			29.0	6.6	
Geothermal	0	0	0	8	3	4	8	12	17			12.5	7.5	
Net Imports	16086	12482	11623	13163	12964	13471	14286	14614	15305	-3.2	1.1	1.0	0.7	
Solids	6055	4131	3437	3794	3585	3236	3202	2708	3386	-5.5	0.4	-1.1	0.6	
Oil	4231	3704	2711	3935	3964	3913	3892	3942	3991	-4.4	3.9	-0.2	0.3	
- Crude oil and Feedstocks	5892	5405	5283	5768	5895	5854	5850	5937	6008	-1.1	1.1	-0.1	0.3	
- Oil products	-1661	-1701	-2573	-1833	-1930	-1941	-1958	-1995	-2017					
Natural gas	5353	4528	5707	5757	5516	6227	6331	6812	6563	0.6	-0.3	1.4	0.4	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18307	19870	20703	22145	23227	-1.8	0.5	1.2	1.2	
Solids	7771	5414	4261	4288	4431	3936	3544	3298	3970	-5.8	0.4	-2.2	1.1	
Oil	4229	3487	2925	4045	4001	3949	3929	3979	4029	-3.6	3.2	-0.2	0.3	
Natural gas	5088	5217	5776	5925	5637	6362	6469	6960	6706	1.3	-0.2	1.4	0.4	
Nuclear	3105	2950	4255	4573	3191	4071	4071	4576	4713	3.2	-2.8	2.5	1.5	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	1070	1608	2733	3588	4053	4.3	8.0	9.8	4.0	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	24.2	19.8	17.1	14.9	17.1					
Oil	20.2	19.7	16.7	20.8	21.9	19.9	19.0	18.0	17.3					
Natural gas	24.3	29.5	33.0	30.5	30.8	32.0	31.2	31.4	28.9					
Nuclear	14.8	16.7	24.3	23.6	17.4	20.5	19.7	20.7	20.3					
Renewable energy forms	1.6	2.8	2.8	4.4	5.8	8.1	13.2	16.2	17.4					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30516	35014	39078	47733	53158	2.6	0.0	2.5	3.1	
Self consumption and grid losses	4853	5351	5235	4704	3364	3694	4085	4996	6810	0.8	-4.3	2.0	5.2	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2625	2427	3044	3936	4667	-1.9	-0.1	1.5	4.4	
Solids	2054	1835	1617	1638	1467	915	496	423	1255	-2.4	-1.0	-10.3	9.7	
Oil (including refinery gas)	243	119	37	99	4	25	0	4	0	-17.1	-20.3			
Gas (including derived gases)	936	1216	1002	845	1042	1240	1114	1351	1034	0.7	0.4	0.7	-0.7	
Biomass & Waste	0	0	0	40	112	248	1434	2158	2378			29.0	5.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	9925	10075	10132	10178	10116	-1.2	2.2	0.2	0.0	
Refineries	6314	5182	5410	6374	6696	6669	6734	6883	6969	-1.5	2.2	0.1	0.3	
Biofuels and hydrogen production	0	0	0	11	52	123	234	280	323			16.3	3.3	
District heating	237	731	584	717	776	845	698	653	602	9.4	2.9	-1.1	-1.5	
Derived gases, cokeries etc.	2458	2060	2026	2233	2401	2437	2467	2363	2222	-1.9	1.7	0.3	-1.0	
Energy Branch Consumption	1154	990	905	2482	2031	2104	2106	2167	2222	-2.4	8.4	0.4	0.5	
Non-Energy Uses	1203	651	1109	1239	1252	1332	1499	1669	1772	-0.8	1.2	1.8	1.7	
Final Energy Demand	14893	11085	10822	10560	11635	12508	13208	13829	14358	-3.1	0.7	1.3	0.8	
by sector														
Industry	6706	4339	3953	4413	4920	5252	5435	5511	5550	-5.1	2.2	1.0	0.2	
- energy intensive industries	4081	3091	3145	3590	4021	4284	4378	4410	4418	-2.6	2.5	0.9	0.1	
- other industrial sectors	2626	1248	808	823	899	968	1057	1101	1132	-11.1	1.1	1.6	0.7	
Residential	2275	2158	2822	2533	2635	2784	3019	3261	3487	2.2	-0.7	1.4	1.5	
Tertiary	4473	3078	2498	1809	1936	2138	2307	2526	2754	-5.7	-2.5	1.8	1.8	
Transport	1440	1509	1549	1805	2144	2333	2448	2530	2567	0.7	3.3	1.3	0.5	
by fuel														
Solids	4319	2322	1511	1455	1893	1934	1933	1791	1687	-10.0	2.3	0.2	-1.4	
Oil	3294	1873	1870	2195	2465	2576	2592	2629	2618	-5.5	2.8	0.5	0.1	
Gas	4319	3907	4537	3651	3627	3944	4081	4232	4489	0.5	-2.2	1.2	1.0	
Electricity	2013	1868	1893	1965	2246	2560	2886	3328	3649	-0.6	1.7	2.5	2.4	
Heat (from CHP and District Heating)	781	1111	1011	951	1241	1134	1286	1286	1268	2.6	2.1	0.4	-0.1	
Renewable energy forms	166	4	1	344	162	361	428	562	647	-42.8	74.5	10.2	4.2	
Other	0	0	0	0	0	0	1	1	1			15.7	3.0	
RES in Gross Final Energy Consumption ^(A)			407	761	898	1239	2423	3202	3613		8.2	10.4	4.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	52.4	52.8	51.8	49.7	48.6	-3.7	1.1	-0.1	-0.6	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	38.4	37.8	35.8	34.0	33.0	-4.1	0.9	-0.7	-0.8	
Power generation/District heating	12.1	12.9	10.6	10.5	9.8	8.3	5.6	4.1	3.6	-1.3	-0.7	-5.5	-4.3	
Energy Branch	2.5	1.8	1.5	5.0	4.4	4.1	4.4	4.2	3.7	-4.6	11.1	-0.1	-1.8	
Industry	17.8	12.2	10.3	10.4	12.2	12.5	12.6	11.7	11.2	-5.3	1.7	0.3	-1.1	
Residential	4.4	2.9	4.1	3.5	3.5	3.9	4.3	4.8	5.4	-0.6	-1.6	2.0	2.3	
Tertiary	12.6	5.7	4.2	2.5	2.4	2.5	2.4	2.4	2.4	-10.3	-5.5	0.0	0.3	
Transport	4.0	4.2	4.4	5.2	6.1	6.5	6.6	6.7	6.7	0.8	3.5	0.7	0.2	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.1	5.8	6.2	6.5	-0.7	3.0	2.9	1.0	
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	9.9	10.2	9.5	9.2	-3.3	1.0	0.6	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	76.0	76.5	75.1	72.1	70.5					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Slovak Republic: EC proposal with RES trading						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	366.0	316.7	266.9	239.8	219.7	-3.2	-4.4	-3.1	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	1.90	1.73	1.53	1.42	-2.3	0.4	-1.9	-1.9
Import Dependency %	76.7	70.6	66.5	67.8	70.8	67.8	69.0	66.0	65.9				
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.3	11.3	13.3	15.4	16.6		2.7	3.6	2.3
as % of GDP			23.3	19.5	18.6	17.9	17.1	16.7	15.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.9	46.4	39.3	34.3	31.6	-6.4	-5.8	-3.3	-2.2
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.8	51.2	45.6	41.7	39.2	2.0	-5.0	-2.7	-1.5
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.9	50.1	43.9	40.2	37.3	-5.6	-5.5	-2.5	-1.6
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.3	27.2	26.0	24.4	3.6	0.6	-0.7	-1.1
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	24.0	23.1	22.3	21.8	2.0	1.0	-0.4	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.16	0.09	0.06	0.05	-3.8	-1.5	-7.2	-6.3
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.08	2.04	1.95	1.85	1.79	-2.0	-0.2	-0.6	-0.9
Industry	2.65	2.82	2.61	2.37	2.47	2.38	2.31	2.12	2.02	-0.2	-0.5	-0.7	-1.4
Residential	1.93	1.35	1.46	1.39	1.33	1.41	1.41	1.47	1.54	-2.8	-0.9	0.6	0.9
Tertiary	2.81	1.87	1.69	1.37	1.23	1.16	1.03	0.95	0.89	-4.9	-3.1	-1.8	-1.5
Transport	2.80	2.76	2.82	2.89	2.87	2.80	2.70	2.66	2.62	0.1	0.1	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.4	9.6	17.7	22.3	24.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.6	8.3	9.6	11.0				
Gross Electricity generation by source (in GWh)													
			30431	31346	30516	35014	39078	47733	53158		0.0	2.5	3.1
Nuclear energy			16491	17724	12371	16180	16180	19509	20135		-2.8	2.7	2.2
Solids			4969	4825	5471	4029	2377	1921	7464		1.0	-8.0	12.1
Oil (including refinery gas)			144	455	315	501	0	128	123		8.2		
Gas (including derived gases)			4102	3527	6910	7944	8151	10197	7587		5.4	1.7	-0.7
Biomass-waste			0	172	537	1083	5987	9456	11182			27.3	6.4
Hydro (pumping excluded)			4725	4637	4716	5038	5063	5078	5094		0.0	0.7	0.1
Wind			0	7	194	230	1300	1411	1524			21.0	1.6
Solar			0	0	2	9	18	33	49			24.7	10.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			6795	7307	7820	8313	8998	10183	10854		1.4	1.4	1.9
<u>Nuclear energy</u>			2326	2439	1652	2119	2132	2385	2457		-3.4	2.6	1.4
<u>Renewable energy</u>			1669	1838	2046	2189	2969	3059	3157		2.1	3.8	0.6
Hydro (pumping excluded)			1668	1832	1906	2018	2026	2026	2029		1.3	0.6	0.0
Wind			1	5	139	164	928	1007	1088		63.8	20.9	1.6
Solar			0	0	2	7	15	26	40			24.6	10.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2800	3031	4122	4006	3897	4739	5240		3.9	-0.6	3.0
of which cogeneration units			1220	1400	1725	1561	2302	2824	3108		3.5	2.9	3.0
Solids fired			1598	1661	1846	1502	1034	698	818		1.5	-5.6	-2.3
Gas fired			1184	1221	2084	2211	1639	2030	2037		5.8	-2.4	2.2
Oil fired			18	115	115	115	115	115	115		20.7	0.0	0.0
Biomass-waste fired			1	34	76	177	1109	1895	2270		54.6	30.7	7.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.5	44.3	42.4	46.0	47.5	51.0	52.0				
Efficiency of gross thermal power generation (%)			29.8	29.4	43.4	48.0	46.7	47.4	48.6				
% of gross electricity from CHP			26.0	15.8	32.4	27.1	34.6	31.7	27.1				
Carbon free gross electricity generation (%)			69.7	71.9	58.4	64.4	73.1	74.3	71.5				
- nuclear			54.2	56.5	40.5	46.2	41.4	40.9	37.9				
- renewable energy forms			15.5	15.4	17.9	18.2	31.7	33.5	33.6				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	41.5	34.2	35.8	36.4	39.1	42.4	47.5	52.7	57.3	-1.5	0.9	2.0	1.9
Private cars and motorcycles	19.5	11.2	8.4	8.1	7.9	7.8	7.7	7.6	7.7	-8.1	-0.6	-0.3	0.0
Rail	15.6	18.4	24.1	25.6	28.6	31.9	36.9	42.0	46.3	4.5	1.7	2.6	2.3
Aviation	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.5	0.9
Inland navigation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.0	4.6
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Trucks	35.6	29.7	25.6	32.0	41.6	47.3	50.0	52.1	53.7	-3.3	5.0	1.9	0.7
Rail	14.2	15.9	14.3	22.6	31.6	36.2	38.3	40.1	41.5	0.1	8.2	1.9	0.8
Inland navigation	21.4	13.8	11.2	9.5	10.0	11.1	11.7	12.0	12.2	-6.2	-1.1	1.6	0.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
Public road transport	1440	1509	1549	1805	2144	2333	2448	2530	2567	0.7	3.3	1.3	0.5
Private cars and motorcycles	96	79	70	59	55	51	49	45	42	-3.1	-2.5	-1.2	-1.3
Trucks	671	729	886	964	1017	1070	1164	1236	1258	2.8	1.4	1.4	0.8
Rail	572	583	510	693	969	1098	1121	1127	1136	-1.1	6.6	1.5	0.1
Aviation	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.1	-0.7
Inland navigation	0	0	0	39	54	64	65	75	86			1.9	2.8
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovak Republic: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	6399	6416	7922	436	-73	294	7.3	-1.1	3.8
Solids	1397	1018	637	700	342	584	-145	-489	-180	-17.1	-58.8	-23.6
Oil	81	59	55	36	37	38	-2	-3	-2	-4.2	-6.8	-5.8
Natural gas	338	133	126	136	138	143	-9	-19	-39	-6.3	-12.0	-21.4
Nuclear	3105	4255	4573	4071	4071	4713	216	5	5	5.6	0.1	0.1
Renewable energy sources	328	506	914	1457	1828	2443	375	432	510	34.7	31.0	26.4
Hydro	162	406	399	433	435	438	9	4	0	2.0	0.9	0.0
Biomass & Waste	166	100	507	950	1188	1695	311	257	270	48.6	27.6	19.0
Wind	0	0	1	20	112	131	15	101	103	353.6	917.4	360.3
Solar and others	0	0	0	50	85	162	39	66	124	350.0	336.0	321.0
Geothermal	0	0	8	4	8	17	2	6	14	79.3	203.1	409.8
Net Imports	16086	11623	13163	13471	14286	15305	-885	-1058	-1409	-6.2	-6.9	-8.4
Solids	6055	3437	3794	3236	3202	3386	-461	-828	-1068	-12.5	-20.5	-24.0
Oil	4231	2711	3935	3913	3892	3991	-226	-370	-321	-5.5	-8.7	-7.5
- Crude oil and Feedstocks	5892	5283	5768	5854	5850	6008	-279	-472	-406	-4.6	-7.5	-6.3
- Oil products	-1661	-2573	-1833	-1941	-1958	-2017	54	102	85	-2.7	-5.0	-4.0
Natural gas	5353	5707	5757	6227	6331	6563	-420	-867	-1787	-6.3	-12.0	-21.4
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19870	20703	23227	-449	-1131	-1115	-2.2	-5.2	-4.6
Solids	7771	4261	4288	3936	3544	3970	-606	-1317	-1248	-13.3	-27.1	-23.9
Oil	4229	2925	4045	3949	3929	4029	-227	-373	-324	-5.4	-8.7	-7.4
Natural gas	5088	5776	5925	6362	6469	6706	-429	-886	-1826	-6.3	-12.0	-21.4
Nuclear	3105	4255	4573	4071	4071	4713	216	5	5	5.6	0.1	0.1
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1608	2733	4053	597	1440	2277	59.0	111.4	128.2
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	19.8	17.1	17.1	-2.5	-5.1	-4.3			
Oil	20.2	16.7	20.8	19.9	19.0	17.3	-0.7	-0.7	-0.5			
Natural gas	24.3	33.0	30.5	32.0	31.2	28.9	-1.4	-2.4	-6.2			
Nuclear	14.8	24.3	23.6	20.5	19.7	20.3	1.5	1.0	0.9			
Renewable energy forms	1.6	2.8	4.4	8.1	13.2	17.4	3.1	7.3	10.2			
Gross Electricity Generation in GWh_e	23428	30431	31346	35014	39078	53158	-2650	-3954	-1995	-7.0	-9.2	-3.6
Self consumption and grid losses	4853	5235	4704	3694	4085	6810	-296	-519	691	-7.4	-11.3	11.3
Fuel Inputs to Thermal Power Generation	3232	2656	2622	2427	3044	4667	-890	-932	-322	-26.8	-23.4	-6.4
Solids	2054	1617	1638	915	496	1255	-679	-1305	-1020	-42.6	-72.5	-44.8
Oil (including refinery gas)	243	37	99	25	0	0	-86	-118	-10	-77.7	-100.0	-99.9
Gas (including derived gases)	936	1002	845	1240	1114	1034	-200	-614	-841	-13.9	-35.5	-44.9
Biomass & Waste	0	0	40	248	1434	2378	76	1106	1550	44.3	336.9	187.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	10075	10132	10116	-147	-426	-596	-1.4	-4.0	-5.6
Refineries	6314	5410	6374	6669	6734	6969	-285	-480	-414	-4.1	-6.7	-5.6
Biofuels and hydrogen production	0	0	11	123	234	323	17	59	57	16.1	33.5	21.4
District heating	237	584	717	845	698	602	26	-11	-152	3.1	-1.5	-20.1
Derived gases, cokeries etc.	2458	2026	2233	2437	2467	2222	95	7	-86	4.0	0.3	-3.7
Energy Branch Consumption	1154	905	2482	2104	2106	2222	-34	-116	-116	-1.6	-5.2	-5.0
Non-Energy Uses	1203	1109	1239	1332	1499	1772	-6	-9	-11	-0.4	-0.6	-0.6
Final Energy Demand	14893	10822	10560	12508	13208	14358	-76	-304	-492	-0.6	-2.3	-3.3
by sector												
Industry	6706	3953	4413	5252	5435	5550	-15	-148	-311	-0.3	-2.7	-5.3
- energy intensive industries	4081	3145	3590	4284	4378	4418	-11	-130	-239	-0.2	-2.9	-5.1
- other industrial sectors	2626	808	823	968	1057	1132	-5	-18	-73	-0.5	-1.7	-6.0
Residential	2275	2822	2533	2784	3019	3487	-24	-4	10	-0.8	-0.1	0.3
Tertiary	4473	2498	1809	2138	2307	2754	-22	-107	-122	-1.0	-4.4	-4.2
Transport	1440	1549	1805	2333	2448	2567	-15	-45	-69	-0.6	-1.8	-2.6
by fuel												
Solids	4319	1511	1455	1934	1933	1687	14	-42	-235	0.7	-2.1	-12.2
Oil	3294	1870	2195	2576	2592	2618	-20	-84	-118	-0.8	-3.1	-4.3
Gas	4319	4537	3651	3944	4081	4489	171	62	-245	4.5	1.5	-5.2
Electricity	2013	1893	1965	2560	2886	3649	-205	-295	-230	-7.4	-9.3	-5.9
Heat (from CHP and District Heating)	781	1011	951	1134	1286	1268	-101	44	61	-8.1	3.5	5.1
Renewable energy forms	166	1	344	361	428	647	64	11	276	21.5	2.7	74.7
Other	0	0	0	0	1	1	0	0	0	1.7	3.7	-27.7
RES in Gross Final Energy Consumption ^(A)		407	761	1239	2423	3613	401	1355	2169	47.9	126.9	150.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	52.8	51.8	48.6	-4.2	-8.9	-15.4	-7.4	-14.7	-24.0
CO₂ Emissions (energy related)	53.3	35.1	37.1	37.8	35.8	33.0	-4.1	-8.6	-15.0	-9.7	-19.5	-31.2
Power generation/District heating	12.1	10.6	10.5	8.3	5.6	3.6	-4.0	-7.9	-11.8	-32.4	-58.7	-76.6
Energy Branch	2.5	1.5	5.0	4.1	4.4	3.7	-0.5	-0.5	-1.3	-11.5	-9.6	-26.4
Industry	17.8	10.3	10.4	12.5	12.6	11.2	0.2	-0.1	-1.5	1.6	-0.4	-11.8
Residential	4.4	4.1	3.5	3.9	4.3	5.4	0.1	0.0	0.0	3.2	0.9	-0.8
Tertiary	12.6	4.2	2.5	2.5	2.4	2.4	0.2	0.0	0.0	8.4	1.5	0.7
Transport	4.0	4.4	5.2	6.5	6.6	6.7	-0.1	-0.3	-0.4	-1.3	-4.1	-5.1
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.1	5.8	6.5	-0.1	-0.2	-0.3	-1.0	-3.3	-4.7
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.9	10.2	9.2	-0.1	-0.1	-0.1	-0.7	-0.9	-0.9
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	76.5	75.1	70.5	-6.1	-12.9	-22.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	316.7	266.9	219.7	-7.2	-14.6	-10.5	-2.2	-5.2	-4.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	1.90	1.73	1.42	-0.16	-0.31	-0.55	-7.7	-15.0	-27.9
Import Dependency %	76.7	66.5	67.8	67.8	69.0	65.9	-2.9	-1.3	-2.8			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.3	13.3	16.6	0.3	0.6	0.8	3.0	4.6	5.3
as % of GDP		23.3	19.5	17.9	17.1	15.7	0.5	0.8	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.6	0.9						
as % of GDP				0.53	0.77	0.81						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.4	39.3	31.6	-0.1	-1.1	-1.8	-0.3	-2.7	-5.3
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	51.2	45.6	39.2	-0.4	-0.1	0.1	-0.8	-0.1	0.3
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	50.1	43.9	37.3	-0.5	-2.0	-1.7	-1.0	-4.4	-4.2
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	28.3	27.2	24.4	-0.1	-0.4	-0.5	-0.5	-1.6	-2.1
Freight transport (toe/Mtkm)	17.9	21.9	22.7	24.0	23.1	21.8	-0.1	-0.2	-0.3	-0.3	-0.8	-1.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.16	0.09	0.05	-0.06	-0.13	-0.16	-27.6	-57.3	-76.9
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.04	1.95	1.79	0.05	0.02	-0.07	2.3	1.3	-3.6
Industry	2.65	2.61	2.37	2.38	2.31	2.02	0.04	0.05	-0.15	1.9	2.3	-6.8
Residential	1.93	1.46	1.39	1.41	1.41	1.54	0.05	0.01	-0.02	4.0	1.0	-1.1
Tertiary	2.81	1.69	1.37	1.16	1.03	0.89	0.10	0.06	0.04	9.5	6.2	5.2
Transport	2.80	2.82	2.89	2.80	2.70	2.62	-0.02	-0.07	-0.07	-0.7	-2.4	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	9.6	17.7	24.1	3.2	10.1	14.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.6	8.3	11.0	0.7	2.2	2.2			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	16491	17724	16180	16180	20135	20135	937	0	0	6.1	0.0	0.0
Solids	4969	4825	4029	2377	7464	7464	-2115	-5419	-5048	-34.4	-69.5	-40.3
Oil (including refinery gas)	144	455	501	0	123	0	0	-529	-39	0.0	-100.0	-23.9
Gas (including derived gases)	4102	3527	7944	8151	7587	7587	-2062	-3509	-4822	-20.6	-30.1	-38.9
Biomass-waste	0	172	1083	5987	11182	11182	312	4286	6721	40.5	252.0	150.7
Hydro (pumping excluded)	4725	4637	5038	5063	5094	5094	100	44	0	2.0	0.9	0.0
Wind	0	7	230	1300	1524	1524	179	1173	1193	353.6	917.4	360.3
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	6795	7307	8313	8998	10854	10854	-257	1018	1865	-3.0	12.8	20.8
<u>Nuclear energy</u>	2326	2439	2119	2132	2457	2457	108	0	0	5.4	0.0	0.0
<u>Renewable energy</u>	1669	1838	2189	2969	3157	3157	151	850	852	7.4	40.1	37.0
Hydro (pumping excluded)	1668	1832	2018	2026	2029	2029	22	13	0	1.1	0.6	0.0
Wind	1	5	164	928	1088	1088	129	838	852	367.1	929.6	361.2
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	4006	3897	5240	5240	-516	167	1013	-11.4	4.5	24.0
of which cogeneration units	1220	1400	1561	2302	3108	3108	-66	612	1288	-4.1	36.2	70.7
Solids fired	1598	1661	1502	1034	818	818	-194	-367	-857	-11.4	-26.2	-51.2
Gas fired	1184	1221	2211	1639	2037	2037	-436	-444	-60	-16.5	-21.3	-2.9
Oil fired	18	115	115	115	115	115	0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	177	1109	2270	2270	114	978	1929	178.8	746.7	566.0
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	46.0	47.5	52.0	52.0	-2.0	-11.5	-14.6			
Efficiency of gross thermal power generation (%)	29.8	29.4	48.0	46.7	48.6	48.6	2.9	-0.2	-2.4			
% of gross electricity from CHP	26.0	15.8	27.1	34.6	27.1	27.1	3.6	10.0	5.5			
Carbon free gross electricity generation (%)	69.7	71.9	64.4	73.1	71.5	8.6	19.5	16.9				
- nuclear	54.2	56.5	46.2	41.4	37.9	37.9	5.7	3.8	1.4			
- renewable energy forms	15.5	15.4	18.2	31.7	33.6	33.6	2.8	15.7	15.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	41.5	35.8	36.4	42.4	47.5	57.3	-0.1	-0.3	-0.6	-0.3	-0.7	-1.1
Private cars and motorcycles	19.5	8.4	8.1	7.8	7.7	7.7	0.0	0.0	0.1	0.2	0.5	0.8
Rail	15.6	24.1	25.6	31.9	36.9	46.3	-0.1	-0.3	-0.6	-0.4	-0.9	-1.4
Aviation	6.4	3.2	2.5	2.4	2.5	2.7	0.0	0.0	0.0	0.2	0.2	0.6
Inland navigation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-4.7	-6.3	-6.9
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Trucks	35.6	25.6	32.0	47.3	50.0	53.7	-0.1	-0.2	-0.4	-0.2	-0.5	-0.7
Rail	14.2	14.3	22.6	36.2	38.3	41.5	-0.1	-0.3	-0.5	-0.4	-0.8	-1.1
Inland navigation	21.4	11.2	9.5	11.1	11.7	12.2	0.0	0.1	0.1	0.4	0.6	0.8
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	1440	1549	1805	2333	2448	2567	-15	-45	-69	-0.6	-1.8	-2.6
Private cars and motorcycles	96	70	59	51	49	42	0	0	0	0.0	0.2	-0.6
Trucks	671	886	964	1070	1164	1258	-4	-12	-21	-0.4	-1.0	-1.6
Rail	572	510	693	1098	1121	1136	-6	-15	-24	-0.5	-1.3	-2.1
Aviation	100	83	49	51	49	45	0	0	0	0.2	0.1	0.1
Inland navigation	0	0	39	64	65	86	-5	-19	-24	-7.7	-22.2	-21.8
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: EC proposal with RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2902	3020	3085	3492	3589	3081	3420	3778	4882	0.6	1.5	-0.5	3.6	
Solids	1432	1216	1062	1184	1167	429	323	373	1294	-2.9	0.9	-12.0	14.9	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.9			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1530	1532	0.3	1.9	0.0	0.3	
Renewable energy sources	254	542	788	787	934	1168	1613	1875	2056	12.0	1.7	5.6	2.5	
Hydro	254	279	330	298	344	347	352	361	371	2.7	0.4	0.2	0.5	
Biomass & Waste	0	263	458	489	578	712	1082	1291	1419		2.3	6.5	2.7	
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	12	108	177	220	262			30.7	4.0	
Geothermal	0	0	0	0	0	0	0	0	0			5.8	2.8	
Net Imports	2567	3056	3369	3810	4325	4710	4690	4543	4172	2.8	2.5	0.8	-1.2	
Solids	130	187	245	323	298	337	326	318	270	6.5	2.0	0.9	-1.9	
Oil	1798	2231	2418	2589	2880	2931	2913	2918	2875	3.0	1.8	0.1	-0.1	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.1	-0.1	
- Oil products	1202	1644	2267	2589	2878	2930	2912	2917	2874	6.5	2.4	0.1	-0.1	
Natural gas	723	750	820	925	1095	1218	1233	1264	1113	1.3	2.9	1.2	-1.0	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	7914	7791	8109	8321	9053	1.5	2.1	0.2	1.1	
Solids	1645	1402	1306	1539	1465	766	649	691	1564	-2.3	1.2	-7.8	9.2	
Oil	1748	2281	2381	2560	2880	2931	2918	2918	2875	3.1	1.9	0.1	-0.1	
Natural gas	763	746	826	929	1100	1218	1233	1264	1113	0.8	2.9	1.2	-1.0	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1530	1532	0.3	1.9	0.0	0.3	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	934	1168	1613	1875	2056	12.0	1.7	5.6	2.5	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	18.5	9.8	8.0	8.3	17.3					
Oil	31.7	37.4	37.1	35.0	36.4	37.6	35.9	35.1	31.8					
Natural gas	13.8	12.2	12.9	12.7	13.9	15.6	15.2	15.2	12.3					
Nuclear	21.6	20.4	19.1	20.8	18.7	19.0	18.3	18.4	16.9					
Renewable energy forms	4.6	9.3	12.3	10.8	11.8	15.0	19.9	22.5	22.7					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15479	14102	15739	20078	25410	0.9	1.3	0.2	4.9	
Self consumption and grid losses	1516	1427	1625	1908	2030	1777	1937	2601	4381	0.7	2.3	-0.5	8.5	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1413	820	1012	1331	2234	-1.4	0.5	-3.3	8.2	
Solids	1296	1315	1253	1411	1349	639	508	517	1383	-0.3	0.7	-9.3	10.5	
Oil (including refinery gas)	155	119	12	9	1	1	0	0	1	-22.8	-20.1	-11.2	11.6	
Gas (including derived gases)	92	90	62	58	42	94	159	393	282	-3.8	-3.8	14.2	5.9	
Biomass & Waste	0	0	15	30	21	86	344	421	569		3.0	32.5	5.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	195	264	312	318	296	-8.2	-2.6	4.8	-0.5	
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.1	-0.1	
Biofuels and hydrogen production	0	0	0	0	44	118	205	237	268			16.7	2.7	
District heating	53	76	83	89	150	145	105	80	27	4.7	6.0	-3.5	-12.7	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	117	90	94	147	281	-0.9	0.4	-2.1	11.6	
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9	
Final Energy Demand	3368	3940	4431	4880	5474	5784	6046	6186	6323	2.8	2.1	1.0	0.4	
by sector														
Industry	1468	1179	1423	1655	1829	1920	1998	2044	2101	-0.3	2.5	0.9	0.5	
- energy intensive industries	728	587	839	1036	1143	1224	1282	1320	1355	1.4	3.1	1.2	0.6	
- other industrial sectors	740	593	584	619	686	696	715	724	746	-2.3	1.6	0.4	0.4	
Residential	850	1176	1122	1183	1229	1285	1372	1370	1401	2.8	0.9	1.1	0.2	
Tertiary	122	259	578	573	576	547	552	553	547	16.9	0.0	-0.4	-0.1	
Transport	928	1326	1309	1469	1839	2033	2124	2219	2274	3.5	3.5	1.5	0.7	
by fuel														
Solids	243	115	97	80	85	91	102	132	137	-8.8	-1.3	1.9	2.9	
Oil	1507	2098	2231	2392	2678	2704	2669	2662	2601	4.0	1.8	0.0	-0.3	
Gas	603	468	569	665	788	843	816	631	637	-0.6	3.3	0.4	-2.5	
Electricity	837	807	905	1096	1196	1272	1392	1531	1708	0.8	2.8	1.5	2.1	
Heat (from CHP and District Heating)	177	192	195	196	189	187	206	196	184	1.0	-0.3	0.8	-1.1	
Renewable energy forms	0	260	435	452	538	687	860	1032	1055		2.1	4.8	2.1	
Other	0	0	0	0	0	0	1	1	1			19.5	2.7	
RES in Gross Final Energy Consumption ^(A)			780	767	918	1129	1528	1774	1933		1.6	5.2	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.6	17.8	17.0	15.9	14.7	0.3	1.1	-1.9	-1.5	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.2	13.6	13.0	11.8	10.7	0.6	1.5	-2.2	-1.9	
Power generation/District heating	6.2	6.2	5.5	6.2	6.0	3.1	2.6	1.8	0.9	-1.1	0.8	-7.8	-10.7	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9				
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.1	2.1	-0.7	0.5	0.1	-1.6	
Residential	1.7	2.1	1.3	1.4	1.5	1.4	1.4	1.3	1.2	-2.5	1.1	-0.6	-1.0	
Tertiary	0.0	0.0	1.0	1.0	1.0	0.8	0.7	0.6	0.5	46.9	0.3	-3.3	-3.6	
Transport	2.7	3.9	3.8	4.3	5.3	5.7	5.8	5.9	6.0	3.5	3.5	0.8	0.4	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2	-1.2	0.3	1.3	0.8	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.1	2.9	2.9	2.8	-0.6	-0.4	-1.5	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	114.2	98.7	94.5	88.1	81.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	234.9	200.9	186.6	173.0	173.0	-0.3	-1.6	-2.3	-0.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.04	1.74	1.60	1.42	1.18	-0.9	-0.6	-2.4	-3.0
Import Dependency %	46.5	50.1	52.5	52.2	54.7	60.5	57.8	54.6	46.1				
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.4	7.3	8.2	8.7		3.7	3.5	1.8
as % of GDP			15.6	14.5	15.5	16.5	16.9	17.1	16.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.2	74.3	70.1	67.9	-0.9	-1.5	-1.5	-0.9
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	72.7	69.6	63.0	59.4	0.2	-2.3	-1.3	-1.6
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	69.0	56.8	51.1	45.9	41.4	14.2	-3.6	-2.9	-2.1
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	42.9	39.7	37.7	36.7	5.3	-1.5	-1.3	-0.8
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	45.5	45.0	43.5	40.8	2.3	-1.0	0.2	-1.0
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.32	0.18	0.14	0.08	0.03	-2.0	-0.5	-7.9	-14.2
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.81	1.71	1.61	1.56	-0.8	-0.1	-0.9	-0.9
Industry	1.72	1.55	1.65	1.38	1.35	1.34	1.25	1.01	1.01	-0.4	-2.0	-0.8	-2.1
Residential	1.98	1.80	1.17	1.21	1.18	1.06	1.00	0.97	0.88	-5.2	0.1	-1.7	-1.2
Tertiary	0.17	0.13	1.65	1.76	1.70	1.46	1.27	1.17	0.89	25.7	0.3	-2.9	-3.5
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.71	2.68	2.63	0.0	0.0	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.1	18.9	24.5	27.6	28.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.9	8.2	9.1	10.1				
Gross Electricity generation by source (in GWh)													
			13622	15114	15479	14102	15739	20078	25410		1.3	0.2	4.9
Nuclear energy			4760	5883	5751	5751	5751	6931	6937		1.9	0.0	1.9
Solids			4484	5229	5291	2868	2437	3477	8729		1.7	-7.5	13.6
Oil (including refinery gas)			106	36	5	3	2	1	7		-25.9	-7.5	11.7
Gas (including derived gases)			321	324	208	826	1563	2740	2071		-4.3	22.4	2.9
Biomass-waste			117	181	221	607	1873	2703	3315		6.6	23.8	5.9
Hydro (pumping excluded)			3833	3460	4001	4040	4092	4199	4319		0.4	0.2	0.5
Wind			0	0	2	6	19	25	30			27.1	4.4
Solar			0	0	0	1	1	2	3			11.2	8.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2861	3188	3235	3369	3211	3559	4016		1.2	-0.1	2.3
<u>Nuclear energy</u>			656	656	666	666	666	800	801		0.2	0.0	1.9
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2
Wind			0	0	2	7	22	29	34			27.1	4.4
Solar			0	0	0	1	1	1	2			11.2	8.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			1241	1557	1586	1662	1484	1689	2123		2.5	-0.7	3.6
of which cogeneration units			244	363	324	389	575	676	776		2.9	5.9	3.0
Solids fired			996	1013	1029	1071	710	665	901		0.3	-3.6	2.4
Gas fired			81	374	375	372	388	548	657		16.6	0.3	5.4
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.1
Biomass-waste fired			21	71	82	146	349	475	565		14.5	15.6	4.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			51.1	50.7	51.1	45.4	53.3	60.1	64.0				
Efficiency of gross thermal power generation (%)			32.2	32.9	34.8	45.1	49.9	57.6	54.4				
% of gross electricity from CHP			3.5	3.2	4.3	15.5	21.6	18.1	15.9				
Carbon free gross electricity generation (%)			63.9	63.0	64.4	73.8	74.6	69.0	57.5				
- nuclear			34.9	38.9	37.2	40.8	36.5	34.5	27.3				
- renewable energy forms			29.0	24.1	27.3	33.0	38.0	34.5	30.2				
Transport sector													
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.1	23.0	25.0	27.2	29.2	-0.5	2.1	1.7	1.6
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.3	1.3
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.6	22.2	24.0	25.7	3.9	2.6	1.6	1.5
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.5	1.6	-6.8	2.6	3.4	2.5
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	5.0	4.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	19.9	23.0	25.2	27.4	29.4	-1.1	9.3	2.4	1.6
Trucks	4.9	3.3	5.3	11.0	15.4	17.6	19.4	21.1	22.4	0.8	11.2	2.4	1.4
Rail	4.2	3.1	2.9	3.2	4.5	5.4	5.8	6.3	7.0	-3.8	4.8	2.4	2.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	928	1326	1309	1469	1839	2033	2124	2219	2274	3.5	3.5	1.5	0.7
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	-0.1	-0.5
Private cars and motorcycles	498	727	867	828	923	948	947	974	1016	5.7	0.6	0.3	0.7
Trucks	330	492	368	582	845	1004	1092	1155	1171	1.1	8.7	2.6	0.7
Rail	29	29	34	29	39	45	43	42	32	1.4	1.3	1.1	-2.8
Aviation	27	20	25	23	24	29	35	42	48	-0.8	-0.1	3.6	3.2
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovenia: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3081	3420	4882	-398	-278	833	-11.4	-7.5	20.6
Solids	1432	1062	1184	429	323	1294	-597	-782	0	-58.2	-70.8	0.0
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1532	0	0	170	0.0	0.0	12.5
Renewable energy sources	254	788	787	1168	1613	2056	199	504	663	20.5	45.5	47.6
Hydro	254	330	298	347	352	371	35	28	0	11.1	8.8	0.0
Biomass & Waste	0	458	489	712	1082	1419	90	362	496	14.4	50.2	53.7
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	108	177	262	74	114	168	222.1	180.1	176.5
Geothermal	0	0	0	0	0	0	0	0	0	58.5	87.1	130.0
Net Imports	2567	3369	3810	4710	4690	4172	-497	-838	-1558	-9.5	-15.2	-27.2
Solids	130	245	323	337	326	270	-47	-134	-238	-12.3	-29.1	-46.8
Oil	1798	2418	2589	2931	2913	2875	-385	-570	-844	-11.6	-16.4	-22.7
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-11.1	-15.4	-20.9
- Oil products	1202	2267	2589	2930	2912	2874	-385	-569	-844	-11.6	-16.4	-22.7
Natural gas	723	820	925	1218	1233	1113	-65	-134	-476	-5.0	-9.8	-29.9
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	7791	8109	9053	-895	-1116	-725	-10.3	-12.1	-7.4
Solids	1645	1306	1539	766	649	1564	-644	-916	-238	-45.7	-58.5	-13.2
Oil	1748	2381	2560	2931	2913	2875	-385	-570	-844	-11.6	-16.4	-22.7
Natural gas	763	826	929	1218	1233	1113	-65	-134	-476	-5.0	-9.8	-29.9
Nuclear	1192	1228	1518	1483	1483	1532	0	0	170	0.0	0.0	12.5
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1168	1613	2056	199	504	663	20.5	45.5	47.6
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	9.8	8.0	17.3	-6.4	-9.0	-1.2			
Oil	31.7	37.1	35.0	37.6	35.9	31.8	-0.6	-1.8	-6.3			
Natural gas	13.8	12.9	12.7	15.6	15.2	12.3	0.9	0.4	-4.0			
Nuclear	21.6	19.1	20.8	19.0	18.3	16.9	2.0	2.2	3.0			
Renewable energy forms	4.6	12.3	10.8	15.0	19.9	22.7	3.8	7.9	8.5			
Gross Electricity Generation in GWh_e	12440	13622	15114	14102	15739	25410	-1972	-2252	1145	-12.3	-12.5	4.7
Self consumption and grid losses	1516	1625	1908	1777	1937	4381	-432	-536	1203	-19.6	-21.7	37.9
Fuel Inputs to Thermal Power Generation	1543	1342	1507	820	1012	2234	-616	-607	61	-42.9	-37.5	2.8
Solids	1296	1253	1411	639	508	1383	-653	-919	-277	-50.5	-64.4	-16.7
Oil (including refinery gas)	155	12	9	1	0	1	-1	-1	0	-53.2	-66.8	-1.1
Gas (including derived gases)	92	62	58	94	159	282	-17	40	-34	-15.2	33.6	-10.7
Biomass & Waste	0	15	30	86	344	569	54	273	371	170.1	385.3	188.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	264	312	296	3	0	-42	1.2	-0.1	-12.4
Refineries	540	169	1	1	1	1	0	0	0	-11.1	-15.4	-20.9
Biofuels and hydrogen production	0	0	0	118	205	268	13	36	12	12.0	21.0	4.6
District heating	53	83	89	145	105	27	-9	-36	-54	-6.1	-25.3	-66.4
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	90	94	281	-24	-32	106	-21.1	-25.1	61.0
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5784	6046	6323	-463	-679	-934	-7.4	-10.1	-12.9
by sector												
Industry	1468	1423	1655	1920	1998	2101	-49	-74	-93	-2.5	-3.6	-4.2
- energy intensive industries	728	839	1036	1224	1282	1355	-17	-31	-39	-1.4	-2.4	-2.8
- other industrial sectors	740	584	619	696	715	746	-32	-43	-54	-4.4	-5.7	-6.8
Residential	850	1122	1183	1285	1372	1401	-83	-94	-161	-6.1	-6.4	-10.3
Tertiary	122	578	573	547	552	547	-140	-186	-252	-20.4	-25.2	-31.5
Transport	928	1309	1469	2033	2124	2274	-191	-324	-428	-8.6	-13.2	-15.8
by fuel												
Solids	243	97	80	91	102	137	9	4	39	10.7	3.6	39.6
Oil	1507	2231	2392	2704	2669	2601	-383	-568	-844	-12.4	-17.6	-24.5
Gas	603	569	665	843	816	637	-39	-125	-381	-4.4	-13.3	-37.4
Electricity	837	905	1096	1272	1392	1708	-132	-147	-5	-9.4	-9.6	-0.3
Heat (from CHP and District Heating)	177	195	196	187	206	184	-24	-24	-26	-11.5	-10.3	-12.4
Renewable energy forms	0	435	452	687	860	1055	107	182	283	18.5	26.9	36.7
Other	0	0	0	0	1	1	0	0	0	4.7	-0.6	-11.2
RES in Gross Final Energy Consumption ^(A)		780	767	1129	1528	1933	189	459	615	20.1	43.0	46.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	17.8	17.0	14.7	-4.3	-6.2	-10.6	-19.4	-26.8	-41.9
CO₂ Emissions (energy related)	13.2	14.0	15.2	13.6	13.0	10.7	-4.0	-5.8	-10.2	-22.7	-30.9	-48.8
Power generation/District heating	6.2	5.5	6.2	3.1	2.6	0.9	-2.8	-3.8	-6.9	-47.0	-59.0	-88.9
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.2	-13.6	-33.3
Industry	2.5	2.3	2.3	2.6	2.5	2.1	-0.1	-0.2	-0.6	-2.2	-6.2	-21.7
Residential	1.7	1.3	1.4	1.4	1.4	1.2	-0.3	-0.4	-0.7	-17.2	-21.7	-36.4
Tertiary	0.0	1.0	1.0	0.8	0.7	0.5	-0.3	-0.4	-0.6	-25.6	-34.7	-56.1
Transport	2.7	3.8	4.3	5.7	5.8	6.0	-0.6	-1.1	-1.4	-9.6	-15.8	-18.7
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.0	1.1	1.2	0.0	0.0	-0.1	-1.6	-3.0	-4.7
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.1	2.9	2.8	-0.3	-0.4	-0.4	-8.0	-11.3	-11.8
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	98.7	94.5	81.7	-23.8	-34.6	-58.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	200.9	186.6	173.0	-23.1	-25.7	-13.9	-10.3	-12.1	-7.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.74	1.60	1.18	-0.28	-0.44	-0.95	-13.8	-21.4	-44.6
Import Dependency %	46.5	52.5	52.2	60.5	57.8	46.1	0.5	-2.1	-12.5			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.4	7.3	8.7	0.3	0.5	0.8	5.0	6.7	9.9
as % of GDP		15.6	14.5	16.5	16.9	16.7	0.8	1.1	1.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.5	0.8						
as % of GDP				0.79	1.08	1.53						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.2	74.3	67.9	-2.0	-2.8	-3.0	-2.5	-3.6	-4.2
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	72.7	69.6	59.4	-4.7	-4.8	-6.8	-6.1	-6.4	-10.3
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	56.8	51.1	41.4	-14.5	-17.2	-19.1	-20.4	-25.2	-31.5
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	42.9	39.7	36.7	-1.1	-1.6	-1.7	-2.4	-3.9	-4.5
Freight transport (toe/Mtkm)	39.1	48.9	42.6	45.5	45.0	40.8	-3.6	-6.2	-7.5	-7.3	-12.2	-15.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.18	0.14	0.03	-0.12	-0.16	-0.25	-39.8	-53.3	-89.2
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.81	1.71	1.56	-0.06	-0.13	-0.25	-3.3	-6.8	-14.0
Industry	1.72	1.65	1.38	1.34	1.25	1.01	0.00	-0.04	-0.23	0.3	-2.7	-18.3
Residential	1.98	1.17	1.21	1.06	1.00	0.88	-0.14	-0.19	-0.36	-11.8	-16.3	-29.1
Tertiary	0.17	1.65	1.76	1.46	1.27	0.89	-0.10	-0.18	-0.50	-6.6	-12.7	-35.8
Transport	2.88	2.89	2.94	2.81	2.71	2.63	-0.03	-0.08	-0.09	-1.2	-3.0	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.9	24.5	28.8		4.4	9.1	11.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.9	8.2	10.1	0.9	2.3	2.1			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14102	15739	25410		-1972	-2252	1145	-12.3	-12.5	4.7
Nuclear energy	4760	5883	5751	5751	6937		0	0	768	0.0	0.0	12.4
Solids	4484	5229	2868	2437	8729		-2662	-4240	-1006	-48.1	-63.5	-10.3
Oil (including refinery gas)	106	36	3	2	7		-4	-3	1	-58.2	-51.1	9.7
Gas (including derived gases)	321	324	826	1563	2071		-23	410	-663	-2.7	35.6	-24.2
Biomass-waste	117	181	607	1873	3315		312	1251	2045	105.6	200.9	161.0
Hydro (pumping excluded)	3833	3460	4040	4092	4319		405	330	0	11.1	8.8	0.0
Wind	0	0	6	19	30		0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3369	3211	4016		-144	-355	-66	-4.1	-10.0	-1.6
<u>Nuclear energy</u>	656	656	666	666	801		0	0	89	0.0	0.0	12.4
<u>Renewable energy</u>	964	975	1041	1061	1092		0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056		0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34		0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1662	1484	2123		-144	-355	-154	-8.0	-19.3	-6.8
of which cogeneration units	244	363	389	575	776		-14	-15	-6	-3.6	-2.5	-0.8
Solids fired	996	1013	1071	710	901		-46	-307	-304	-4.1	-30.2	-25.2
Gas fired	81	374	372	388	657		-153	-244	-226	-29.1	-38.7	-25.6
Oil fired	142	99	73	37	0		0	-23	0	0.0	-37.6	-48.3
Biomass-waste fired	21	71	146	349	565		55	219	376	60.3	168.3	198.9
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	45.4	53.3	64.0		-3.7	-0.8	0.6			
Efficiency of gross thermal power generation (%)	32.2	32.9	45.1	49.9	54.4		5.1	5.0	0.0			
% of gross electricity from CHP	3.5	3.2	15.5	21.6	15.9		2.4	2.3	-0.5			
Carbon free gross electricity generation (%)	63.9	63.0	73.8	74.6	57.5		13.5	18.1	8.9			
- nuclear	34.9	38.9	40.8	36.5	27.3		5.0	4.6	1.9			
- renewable energy forms	29.0	24.1	33.0	38.0	30.2		8.5	13.5	7.0			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.0	25.0	29.2	-0.6	-1.0	-1.3	-2.7	-3.7	-4.3
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.1	2.8	3.9	4.6
Private cars and motorcycles	10.0	14.7	16.8	20.6	22.2	25.7	-0.7	-1.0	-1.4	-3.2	-4.5	-5.2
Rail	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.1	0.1	3.6	4.9	6.4
Aviation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	0.0	-3.7	-5.0	-5.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.0	25.2	29.4	-1.2	-1.7	-2.2	-4.8	-6.3	-6.9
Trucks	4.9	5.3	11.0	17.6	19.4	22.4	-1.4	-2.0	-2.6	-7.2	-9.2	-10.4
Rail	4.2	2.9	3.2	5.4	5.8	7.0	0.2	0.3	0.4	4.1	5.2	6.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2033	2124	2274	-191	-324	-428	-8.6	-13.2	-15.8
Public road transport	43	15	7	8	8	7	0	0	-1	-0.6	-3.1	-12.5
Private cars and motorcycles	498	867	828	948	947	1016	-51	-77	-94	-5.1	-7.5	-8.4
Trucks	330	368	582	1004	1092	1171	-140	-245	-326	-12.2	-18.3	-21.8
Rail	29	34	29	45	43	32	1	1	-1	3.3	1.2	-3.3
Aviation	27	25	23	29	35	48	-1	-3	-6	-4.5	-7.1	-10.9
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	35367	37264	39512	38816	44724	-0.7	1.2	1.1	1.2	
Solids	11679	10170	7740	6265	5856	3300	818	1736	1521	-4.0	-2.8	-17.9	6.4	
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Renewable energy sources	6276	5722	7185	8710	13464	18725	23606	28263	32551	1.4	6.5	5.8	3.3	
Hydro	2184	1987	2534	1681	2474	2427	2449	2498	2552	1.5	-0.2	-0.1	0.4	
Biomass & Waste	4067	3684	4205	5129	7510	9617	12021	15026	16902	0.3	6.0	4.8	3.5	
Wind	1	23	406	1825	3032	5186	6868	8081	9246	79.0	22.3	8.5	3.0	
Solar and others	21	25	33	68	439	1484	2253	2641	3832	4.5	29.7	17.8	5.5	
Geothermal	2	3	8	8	10	13	16	18	19	12.3	2.4	5.0	1.6	
Net Imports	59857	75415	98351	122830	125447	119859	112320	113711	106881	5.1	2.5	-1.1	-0.5	
Solids	7038	9146	12636	14418	15655	11436	2552	5269	5289	6.0	2.2	-16.6	7.6	
Oil	49166	58363	69866	78279	78287	75625	74231	73661	70915	3.6	1.1	-0.5	-0.5	
- Crude oil and Feedstocks	53256	55362	58393	59850	60596	59416	58819	58612	57484	0.9	0.4	-0.3	-0.2	
- Oil products	-4091	3001	11473	18429	17691	16209	15411	15049	13431	4.4	-1.4	-1.4	-1.4	
Natural gas	3690	7521	15467	30248	31241	30077	28909	26254	21059	15.4	7.3	-0.8	-3.1	
Electricity	-36	386	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Gross Inland Consumption	89401	102207	122698	143487	152298	148139	142476	142928	141988	3.2	2.2	-0.7	0.0	
Solids	18942	19515	20643	20698	21511	14736	3369	7005	6811	0.9	0.4	-16.9	7.3	
Oil	45547	54556	63223	69507	69935	66790	64974	64062	61298	3.3	1.0	-0.7	-0.6	
Natural gas	4970	7722	15219	29844	31371	30177	28909	26254	21059	11.8	7.5	-0.8	-3.1	
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Electricity	-36	385	382	-115	264	334	225	-20	3	-3.6	-1.6	-34.6		
Renewable energy forms	6276	5723	7185	8711	13464	21113	30010	36810	42165	1.4	6.5	8.3	3.5	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	14.1	9.9	2.4	4.9	4.8					
Oil	50.9	53.4	51.5	48.4	45.9	45.1	45.6	44.8	43.2					
Natural gas	5.6	7.6	12.4	20.8	20.6	20.4	20.3	18.4	14.8					
Nuclear	15.3	14.0	13.1	10.3	10.3	10.1	10.5	6.2	7.5					
Renewable energy forms	7.0	5.6	5.9	6.1	8.8	14.3	21.1	25.8	29.7					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	307927	302845	312119	342639	367011	4.0	3.3	0.1	1.6	
Self consumption and grid losses	21388	24573	32539	40790	38989	36220	34793	39731	43610	4.3	1.8	-1.1	2.3	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33516	25900	18644	24960	22099	4.7	2.4	-5.7	1.7	
Solids	13881	13585	18249	17641	18899	12061	772	4669	5432	2.8	0.4	-27.4	21.5	
Oil (including refinery gas)	2170	3654	4442	5246	1600	604	694	728	735	7.4	-9.7	-8.0	0.6	
Gas (including derived gases)	486	987	3075	11140	11120	9456	10614	12695	8457	20.3	13.7	-0.5	-2.2	
Biomass & Waste	145	377	694	1389	1898	3779	6564	6868	7475	16.9	10.6	13.2	1.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64756	65586	65734	65305	63993	0.9	0.3	0.2	-0.3	
Refineries	53753	56041	60048	60507	60330	59378	58855	58615	57523	1.1	0.0	-0.2	-0.2	
Biofuels and hydrogen production	0	0	65	259	2184	4104	5273	5397	5412		42.1	9.2	0.3	
District heating	0	0	0	0	0	0	0	0	0			-0.5	-3.3	
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2104	1606	1293	1059	-3.0	-3.0	-3.3	-4.1	
Energy Branch Consumption	4757	5473	6118	6397	5754	5536	5360	5463	5509	2.5	-0.6	-0.7	0.3	
Non-Energy Uses	5847	8006	9094	7823	8080	8581	9074	9407	9585	4.5	-1.2	1.2	0.6	
Final Energy Demand	56647	63536	79422	97170	106262	107430	107321	108129	107578	3.4	3.0	0.1	0.0	
by sector														
Industry	20014	20476	25474	31036	33980	36258	37828	38274	38431	2.4	2.9	1.1	0.2	
- energy intensive industries	13069	13620	17260	20421	22150	23711	24430	24478	24431	2.8	2.5	1.0	0.0	
- other industrial sectors	6945	6856	8213	10615	11830	12547	13398	13796	14000	1.7	3.7	1.3	0.4	
Residential	9266	9986	11871	15150	16464	15873	14742	14297	13923	2.5	3.3	-1.1	-0.6	
Tertiary	5041	7007	9219	11556	11729	10364	9870	9778	9631	6.2	2.4	-1.7	-0.2	
Transport	22326	26069	32858	39428	44089	44934	44881	45779	45592	3.9	3.0	0.2	0.2	
by fuel														
Solids	3524	2235	1671	1782	1614	1779	1882	1759	912	-7.2	-0.3	1.5	-7.0	
Oil	33488	38971	45784	52776	56078	53619	51409	50212	48152	3.2	2.0	-0.9	-0.7	
Gas	4873	6841	12141	17978	20128	20455	17869	12991	11932	9.6	5.2	-1.2	-4.0	
Electricity	10817	12116	16205	20827	22833	22712	23537	25546	27316	4.1	3.5	0.3	1.5	
Heat (from CHP and District Heating)	0	39	74	0	18	22	34	31	27		-13.1	6.5	-2.2	
Renewable energy forms	3945	3335	3547	3806	5586	8832	12571	17568	19217	-1.1	4.6	8.4	4.3	
Other	0	0	0	0	3	11	18	21	21			18.8	1.5	
RES in Gross Final Energy Consumption ^(A)			6709	8189	12604	19793	28207	34970	39511	6.5	8.4	3.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	458.3	408.3	349.3	355.1	333.6	3.1	1.7	-2.7	-0.5	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	345.6	304.7	250.0	254.3	231.8	3.4	2.0	-3.2	-0.8	
Power generation/District heating	63.6	68.2	94.1	113.2	106.2	71.8	30.2	50.5	43.0	4.0	1.2	-11.8	3.6	
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.1	12.7	12.6	10.1	1.6	0.0	-0.7	-2.3	
Industry	41.9	43.4	48.9	58.2	63.4	64.8	58.7	44.9	37.1	1.6	2.6	-0.8	-4.5	
Residential	12.9	13.6	16.4	20.4	20.7	17.7	15.4	12.0	9.6	2.5	2.3	-2.9	-4.6	
Tertiary	7.7	10.5	12.9	16.2	15.6	13.4	12.7	11.9	11.1	5.3	1.9	-2.0	-1.4	
Transport	65.6	76.9	97.3	116.7	126.1	123.8	120.4	122.4	120.9	4.0	2.6	-0.5	0.0	
CO ₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.8	40.0	39.5	38.6	37.6	1.6	2.9	0.2	-0.5	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	63.6	59.8	62.2	64.2	2.5	-0.2	-2.1	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	159.6	142.2	121.7	123.7	116.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.0	119.3	101.0	91.8	84.8	0.2	-1.0	-3.4	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.06	1.75	1.78	1.63	0.1	-0.2	-2.5	-0.7
Import Dependency %	64.2	71.6	76.5	81.2	78.0	76.3	74.0	74.6	70.5				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	102.0	124.7	144.8	158.5	169.4		3.6	3.6	1.6
as % of GDP			9.2	9.1	9.6	10.0	10.3	10.2	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	98.2	89.6	82.9	78.6	0.3	0.8	-1.9	-1.3
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	100.2	83.5	68.7	60.8	55.3	-0.4	0.0	-3.7	-2.2
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.2	70.7	59.2	53.4	49.2	3.8	-0.7	-4.4	-1.8
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.2	35.5	34.6	34.1	0.6	-0.4	-1.4	-0.4
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	56.6	51.4	48.1	45.1	-2.3	-1.3	-1.7	-1.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.24	0.10	0.15	0.12	0.0	-2.0	-11.9	1.9
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.13	2.05	1.93	1.77	1.66	-0.2	-0.4	-1.0	-1.5
Industry	2.10	2.12	1.92	1.87	1.87	1.79	1.55	1.17	0.97	-0.9	-0.3	-1.8	-4.6
Residential	1.39	1.36	1.39	1.34	1.26	1.11	1.04	0.84	0.69	0.0	-1.0	-1.9	-4.1
Tertiary	1.53	1.50	1.40	1.40	1.33	1.29	1.29	1.22	1.15	-0.9	-0.5	-0.3	-1.1
Transport	2.94	2.95	2.96	2.96	2.86	2.76	2.68	2.67	2.65	0.1	-0.3	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.5	17.9	25.6	31.4	35.5				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	9.1	11.9	12.3	12.6				
Gross Electricity generation by source (in GWh)													
			222776	290555	307927	302845	312119	342639	367011		3.3	0.1	1.6
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	53670	6155	30555	31245		0.3	-22.7	17.6
Oil (including refinery gas)			19567	23770	8430	3778	4564	4775	4851		-8.1	-6.0	0.6
Gas (including derived gases)			24741	85513	84310	79370	80953	77185	50858		13.0	-0.4	-4.5
Biomass-waste			3374	5457	8278	17867	46988	63308	71638		9.4	19.0	4.3
Hydro (pumping excluded)			29465	19549	28762	28216	28472	29043	29674		-0.2	-0.1	0.4
Wind			4723	21215	35251	60298	79860	93965	107516		22.3	8.5	3.0
Solar			18	78	674	1549	6689	9242	22315		43.7	25.8	12.8
Geothermal and other renewables			0	0	0	0	340	389	424				2.2
Net Generation Capacity in MW_e			60718	80297	92105	101215	114512	119765	141833		4.3	2.2	2.2
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40537	51379	59593	80926		7.4	5.3	4.6
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25718	33089	39624	52404		22.0	7.3	4.7
Solar			14	52	435	998	4291	5945	14480		41.5	25.7	12.9
Other renewables (tidal etc.)			0	0	0	0	176	202	220				2.2
<u>Thermal power</u>			38166	50004	54056	53692	56147	56065	55307		3.5	0.4	-0.2
of which cogeneration units			5017	7578	8148	9253	11667	11344	11245		5.0	3.7	-0.4
Solids fired			11352	11485	11277	10503	10163	9546	8840		-0.1	-1.0	-1.4
Gas fired			19801	32257	35544	34165	32637	30874	30374		6.0	-0.8	-0.7
Oil fired			6518	5375	5589	5203	3912	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1646	3821	9435	12397	13588		12.8	19.1	3.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	36.9	33.1	30.2	31.6	28.5				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.7	51.4	64.0	60.6	61.7				
% of gross electricity from CHP			7.4	13.5	12.6	16.1	23.1	20.5	19.4				
Carbon free gross electricity generation (%)			44.8	35.7	43.5	54.8	70.6	67.2	76.3				
- nuclear			27.9	19.8	19.8	19.2	18.6	10.0	13.2				
- renewable energy forms			16.9	15.9	23.7	35.6	52.0	57.2	63.1				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	276.7	372.3	461.8	535.3	612.7	676.4	738.3	791.1	825.7	5.3	2.9	1.9	1.1
Private cars and motorcycles	33.4	39.6	50.3	54.6	57.8	61.8	65.4	68.1	70.5	4.2	1.4	1.2	0.8
Rail	182.0	258.4	310.7	369.2	423.6	458.3	489.7	514.8	527.4	5.5	3.1	1.5	0.7
Aviation	19.9	20.8	25.4	27.2	29.7	32.6	37.7	43.0	49.0	2.5	1.6	2.4	2.7
Inland navigation	39.5	51.4	73.6	82.2	99.3	121.4	143.2	162.8	176.4	6.4	3.0	3.7	2.1
Freight transport activity (Gtkm)	2.1	2.0	1.9	2.1	2.3	2.3	2.3	2.4	2.3	-0.7	1.8	0.2	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	337.4	363.2	382.3	387.2	4.1	5.1	1.4	0.6
Trucks	83.8	101.6	148.7	233.2	267.4	282.4	302.0	318.7	322.6	5.9	6.0	1.2	0.7
Rail	11.2	11.0	11.6	11.1	12.8	15.0	16.9	18.0	18.5	0.4	1.0	2.8	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	40.0	44.2	45.6	46.2	-0.6	1.3	2.3	0.4
Energy demand in transport (ktoe)													
Public road transport	22326	26069	32858	39428	44089	44934	44881	45779	45592	3.9	3.0	0.2	0.2
Private cars and motorcycles	224	221	275	284	283	279	262	248	255	2.1	0.3	-0.8	-0.3
Trucks	7830	10598	14286	16266	17626	17566	17357	17660	17769	6.2	2.1	-0.2	0.2
Rail	9634	9647	11587	14854	16950	16628	16110	15894	15333	1.9	3.9	-0.5	-0.5
Aviation	528	626	847	1166	1233	1327	1270	1220	874	4.8	3.8	0.3	-3.7
Inland navigation	2456	3105	4486	5323	6324	7332	7977	8846	9468	6.2	3.5	2.3	1.7
Inland navigation	1655	1871	1378	1534	1673	1803	1905	1911	1892	-1.8	2.0	1.3	-0.1

Source: PRIMES

Spain: EC proposal with RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	37264	39512	44724	858	-1037	5476	2.4	-2.6	14.0
Solids	11679	7740	6265	3300	818	1521	-1364	-3434	-1056	-29.3	-80.8	-41.0
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	-335.3
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Renewable energy sources	6276	7185	8710	18725	23606	32551	2222	2396	6532	13.5	11.3	25.1
Hydro	2184	2534	1681	2427	2449	2552	182	150	0	8.1	6.5	0.0
Biomass & Waste	4067	4205	5129	9617	12021	16902	1039	620	1973	12.1	5.4	13.2
Wind	1	406	1825	5186	6868	9246	1	145	1954	0.0	2.2	26.8
Solar and others	21	33	68	1484	2253	3832	994	1474	2595	203.2	189.2	209.8
Geothermal	2	8	8	13	16	19	5	8	10	55.9	92.7	127.3
Net Imports	59857	98351	122830	119859	112320	106881	-20227	-28412	-35791	-14.4	-20.2	-25.1
Solids	7038	12636	14418	11436	2552	5289	-5367	-14842	-18416	-31.9	-85.3	-77.7
Oil	49166	69866	78279	75625	74231	70915	-6512	-10192	-14330	-7.9	-12.1	-16.8
- Crude oil and Feedstocks	53256	58393	59850	59416	58819	57484	-3780	-6026	-8100	-6.0	-9.3	-12.4
- Oil products	-4091	11473	18429	16209	15411	13431	-2732	-4165	-6230	-14.4	-21.3	-31.7
Natural gas	3690	15467	30248	30077	28909	21059	-10487	-9451	-12226	-25.9	-24.6	-36.7
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	148139	142476	141988	-19360	-29430	-30290	-11.6	-17.1	-17.6
Solids	18942	20643	20698	14736	3369	6811	-6731	-18275	-19472	-31.4	-84.4	-74.1
Oil	45547	63223	69507	66790	64974	61298	-6503	-10173	-14305	-8.9	-13.5	-18.9
Natural gas	4970	15219	29844	30177	28909	21059	-10487	-9451	-12226	-25.8	-24.6	-36.7
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	21113	30010	42165	4361	8469	15713	26.0	39.3	59.4
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	9.9	2.4	4.8	-2.9	-10.2	-10.5			
Oil	50.9	51.5	48.4	45.1	45.6	43.2	1.3	1.9	-0.7			
Natural gas	5.6	12.4	20.8	20.4	20.3	14.8	-3.9	-2.0	-4.5			
Nuclear	15.3	13.1	10.3	10.1	10.5	7.5	1.2	1.8	1.3			
Renewable energy forms	7.0	5.9	6.1	14.3	21.1	29.7	4.3	8.5	14.3			
Gross Electricity Generation in GWh_e	150944	222776	290555	302845	312119	367011	-60916	-74700	-49784	-16.7	-19.3	-11.9
Self consumption and grid losses	21388	32539	40790	36220	34793	43610	-8661	-13096	-11724	-19.3	-27.3	-21.2
Fuel Inputs to Thermal Power Generation	16682	26461	35416	25900	18644	22099	-13541	-19615	-17732	-34.3	-51.3	-44.5
Solids	13881	18249	17641	12061	772	5432	-7005	-18559	-18761	-36.7	-96.0	-77.5
Oil (including refinery gas)	2170	4442	5246	604	694	735	47	91	9	8.4	15.0	1.2
Gas (including derived gases)	486	3075	11140	9456	10614	8457	-8561	-2838	-60	-47.5	-21.1	-0.7
Biomass & Waste	145	694	1389	3779	6564	7475	1978	1692	1081	109.7	34.7	16.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	65586	65734	63993	-3091	-5198	-8005	-4.5	-7.3	-11.1
Refineries	53753	60048	60507	59378	58855	57523	-3779	-6026	-8100	-6.0	-9.3	-12.3
Biofuels and hydrogen production	0	65	259	4104	5273	5412	453	868	241	12.4	19.7	4.7
District heating	0	0	0	0	0	0	0	0	0	-13.9	-12.3	-40.6
Derived gases, cokeries etc.	4131	3031	3077	2104	1606	1059	235	-40	-146	12.5	-2.4	-12.1
Energy Branch Consumption	4757	6118	6397	5536	5360	5509	-439	-791	-1040	-7.4	-12.9	-15.9
Non-Energy Uses	5847	9094	7823	8581	9074	9585	-19	-7	-28	-0.2	-0.1	-0.3
Final Energy Demand	56647	79422	97170	107430	107321	107578	-10225	-15337	-18571	-8.7	-12.5	-14.7
by sector												
Industry	20014	25474	31036	36258	37828	38431	-1119	-1562	-2101	-3.0	-4.0	-5.2
- energy intensive industries	13069	17260	20421	23711	24430	24431	-440	-710	-1150	-1.8	-2.8	-4.5
- other industrial sectors	6945	8213	10615	12547	13398	14000	-679	-852	-950	-5.1	-6.0	-6.4
Residential	9266	11871	15150	15873	14742	13923	-1793	-3026	-3740	-10.2	-17.0	-21.2
Tertiary	5041	9219	11556	10364	9870	9631	-3090	-3881	-4341	-23.0	-28.2	-31.1
Transport	22326	32858	39428	44934	44881	45592	-4222	-6868	-8388	-8.6	-13.3	-15.5
by fuel												
Solids	3524	1671	1782	1779	1882	912	188	281	-686	11.8	17.5	-42.9
Oil	33488	45784	52776	53619	51409	48152	-6325	-9915	-13275	-10.6	-16.2	-21.6
Gas	4873	12141	17978	20455	17869	11932	-1709	-6408	-12097	-7.7	-26.4	-50.3
Electricity	10817	16205	20827	22712	23537	27316	-4476	-5262	-3221	-16.5	-18.3	-10.5
Heat (from CHP and District Heating)	0	74	0	22	34	27	2	7	3	7.4	24.4	12.5
Renewable energy forms	3945	3547	3806	8832	12571	19217	2090	5955	10701	31.0	90.0	125.7
Other	0	0	0	11	18	21	5	5	5	70.8	42.4	27.4
RES in Gross Final Energy Consumption ^(A)		6709	8189	19793	28207	39511	4319	8502	15351	27.9	43.1	63.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	408.3	349.3	333.6	-82.8	-142.6	-169.0	-16.9	-29.0	-33.6
CO₂ Emissions (energy related)	203.3	283.2	339.4	304.7	250.0	231.8	-71.1	-125.2	-149.6	-18.9	-33.4	-39.2
Power generation/District heating	63.6	94.1	113.2	71.8	30.2	43.0	-47.8	-79.9	-75.0	-39.9	-72.6	-63.6
Energy Branch	11.5	13.6	14.7	13.1	12.7	10.1	-0.9	-1.4	-3.0	-6.2	-9.8	-23.0
Industry	41.9	48.9	58.2	64.8	58.7	37.1	-1.4	-11.4	-30.1	-2.1	-16.2	-44.8
Residential	12.9	16.4	20.4	17.7	15.4	9.6	-3.9	-5.6	-10.3	-18.0	-26.7	-51.9
Tertiary	7.7	12.9	16.2	13.4	12.7	11.1	-3.2	-3.6	-4.2	-19.2	-22.0	-27.6
Transport	65.6	97.3	116.7	123.8	120.4	120.9	-14.0	-23.4	-26.9	-10.1	-16.3	-18.2
CO₂ Emissions (non energy related)	24.9	29.2	36.5	40.0	39.5	37.6	-0.6	-1.4	-2.0	-1.6	-3.4	-5.1
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	63.6	59.8	64.2	-11.1	-16.0	-17.4	-14.8	-21.2	-21.3
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	142.2	121.7	116.2	-28.8	-49.7	-58.8			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Spain: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	119.3	101.0	84.8	-15.6	-20.9	-18.1	-11.6	-17.1	-17.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.06	1.75	1.63	-0.19	-0.43	-0.58	-8.3	-19.6	-26.3
Import Dependency %	64.2	76.5	81.2	76.3	74.0	70.5	-3.1	-3.7	-7.9			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	124.7	144.8	169.4	11.2	16.3	23.6	9.9	12.7	16.2
as % of GDP		9.2	9.1	10.0	10.3	10.1	0.9	1.2	1.4			
Total Compliance Costs ^(D) (in 000 M€05)				11.5	16.9	24.2						
as % of GDP				0.93	1.20	1.45						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	98.2	89.6	78.6	-3.0	-3.7	-4.3	-3.0	-4.0	-5.2
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	83.5	68.7	55.3	-9.4	-14.1	-14.9	-10.2	-17.0	-21.2
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	70.7	59.2	49.2	-21.1	-23.3	-22.2	-23.0	-28.2	-31.1
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.2	35.5	34.1	-1.1	-1.8	-1.9	-2.8	-4.8	-5.2
Freight transport (toe/Mtkm)	87.8	69.3	61.1	56.6	51.4	45.1	-3.9	-7.2	-9.0	-6.4	-12.3	-16.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.24	0.10	0.12	-0.09	-0.19	-0.17	-27.9	-66.0	-58.6
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.05	1.93	1.66	-0.01	-0.12	-0.32	-0.6	-5.7	-16.3
Industry	2.10	1.92	1.87	1.79	1.55	0.97	0.02	-0.23	-0.69	0.9	-12.8	-41.8
Residential	1.39	1.39	1.34	1.11	1.04	0.69	-0.11	-0.14	-0.44	-8.7	-11.6	-38.9
Tertiary	1.53	1.40	1.40	1.29	1.29	1.15	0.06	0.10	0.05	4.9	8.7	5.0
Transport	2.94	2.96	2.96	2.76	2.68	2.65	-0.05	-0.10	-0.09	-1.7	-3.5	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	17.9	25.6	35.5	5.2	10.0	17.0			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	9.1	11.9	12.6	1.8	3.5	2.6			
Gross Electricity generation by source (in GWh_e)												
Total	222776	290555	302845	312119	367011	367011	-60916	-74700	-49784	-16.7	-19.3	-11.9
Nuclear energy	62195	57529	58096	58096	48490	48490	0	0	0	0.0	0.0	0.0
Solids	78694	77443	53670	6155	31245	31245	-28222	-81315	-101683	-34.5	-93.0	-76.5
Oil (including refinery gas)	19567	23770	3778	4564	4851	4851	30	698	881	0.8	18.0	22.2
Gas (including derived gases)	24741	85513	79370	80953	50858	50858	-44579	-25751	-27742	-36.0	-24.1	-35.3
Biomass-waste	3374	5457	17867	46988	71638	71638	9505	24053	39304	113.7	104.9	121.6
Hydro (pumping excluded)	29465	19549	28216	28472	29674	29674	2121	1748	0	8.1	6.5	0.0
Wind	4723	21215	60298	79860	107516	107516	17	1683	22719	0.0	2.2	26.8
Solar	18	78	1549	6689	22315	22315	212	3845	16314	15.8	135.2	271.9
Geothermal and other renewables	0	0	0	340	424	424	0	340	424			
Net Generation Capacity in MW_e												
Total	60718	80297	101215	114512	141833	141833	2482	5378	24375	2.5	4.9	20.8
<u>Nuclear energy</u>	7579	7579	6986	6986	5600	5600	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	14974	22714	40537	51379	80926	80926	141	2034	24737	0.3	4.1	44.0
Hydro (pumping excluded)	12725	12725	13820	13822	13822	13822	0	0	0	0.0	0.0	0.0
Wind	2235	9937	25718	33089	52404	52404	7	-603	13895	0.0	-1.8	36.1
Solar	14	52	998	4291	14480	14480	134	2461	10622	15.5	134.5	275.3
Other renewables (tidal etc.)	0	0	0	176	220	220	0	176	220			
<u>Thermal power</u>	38166	50004	53692	56147	55307	55307	2341	3343	-362	4.6	6.3	-0.7
of which cogeneration units	5017	7578	9253	11667	11245	11245	1200	1211	-237	14.9	11.6	-2.1
Solids fired	11352	11485	10503	10163	8840	8840	-68	-1179	-7538	-0.6	-10.4	-46.0
Gas fired	19801	32257	34165	32637	30374	30374	-302	-1246	-1430	-0.9	-3.7	-4.5
Oil fired	6518	5375	5203	3912	2504	2504	-14	-14	0	-0.3	-0.3	0.0
Biomass-waste fired	495	887	3821	9435	13588	13588	2724	5782	8606	248.4	158.3	172.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	33.1	30.2	28.5	28.5	-7.7	-8.9	-10.2			
Efficiency of gross thermal power generation (%)	41.1	46.7	51.4	64.0	61.7	61.7	3.8	14.3	8.2			
% of gross electricity from CHP	7.4	13.5	16.1	23.1	19.4	19.4	4.8	8.5	4.7			
Carbon free gross electricity generation (%)	44.8	35.7	54.8	70.6	76.3	76.3	12.4	21.8	28.0			
- nuclear	27.9	19.8	19.2	18.6	13.2	13.2	3.2	3.6	1.6			
- renewable energy forms	16.9	15.9	35.6	52.0	63.1	63.1	9.2	18.2	26.4			
Transport sector												
Passenger transport activity (Gpkm)												
Total	276.7	461.8	535.3	676.4	738.3	825.7	-23.7	-34.2	-42.3	-3.4	-4.4	-4.9
Public road transport	33.4	50.3	54.6	61.8	65.4	70.5	2.4	3.4	4.1	4.1	5.4	6.1
Private cars and motorcycles	182.0	310.7	369.2	458.3	489.7	527.4	-23.1	-33.5	-40.6	-4.8	-6.4	-7.1
Rail	19.9	25.4	27.2	32.6	37.7	49.0	0.4	1.7	2.3	1.3	4.9	5.0
Aviation	39.5	73.6	82.2	121.4	143.2	176.4	-3.3	-5.7	-8.0	-2.7	-3.8	-4.4
Inland navigation	2.1	1.9	2.1	2.3	2.3	2.3	-0.1	-0.1	-0.1	-2.6	-2.6	-2.7
Freight transport activity (Gtkm)												
Total	128.0	191.3	276.4	337.4	363.2	387.2	-20.6	-28.4	-33.8	-5.8	-7.2	-8.0
Trucks	83.8	148.7	233.2	282.4	302.0	322.6	-22.6	-31.3	-37.2	-7.4	-9.4	-10.4
Rail	11.2	11.6	11.1	15.0	16.9	18.5	1.1	1.6	1.9	7.9	10.6	11.6
Inland navigation	33.0	31.0	32.0	40.0	44.2	46.2	0.9	1.3	1.6	2.2	3.1	3.5
Energy demand in transport (ktoe)												
Total	22326	32858	39428	44934	44881	45592	-4222	-6868	-8388	-8.6	-13.3	-15.5
Public road transport	224	275	284	279	262	255	1	-19	-31	0.2	-6.7	-10.8
Private cars and motorcycles	7830	14286	16266	17566	17357	17769	-1368	-2026	-1779	-7.2	-10.5	-9.1
Trucks	9634	11587	14854	16628	16110	15333	-2620	-4255	-5294	-13.6	-20.9	-25.7
Rail	528	847	1166	1327	1270	874	40	-37	-64	3.1	-2.9	-6.8
Aviation	2456	4486	5323	7332	7977	9468	-267	-507	-1204	-3.5	-6.0	-11.3
Inland navigation	1655	1378	1534	1803	1905	1892	-7	-25	-15	-0.4	-1.3	-0.8

Source: PRIMES

Sweden: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	29728	31514	30077	34378	35785	35649	34650	32810	31740	0.1	1.8	-0.3	-0.9	
Solids	216	321	231	302	299	70	37	6	5	0.7	2.6	-18.8	-17.9	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19475	19349	16590	12048	9129	-1.8	2.8	-1.6	-5.8	
Renewable energy sources	11745	13149	15065	15406	16010	16231	18022	20756	22605	2.5	0.6	1.2	2.3	
Hydro	6234	5856	6757	6260	6258	6269	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9219	9349	11098	13014	13556	4.1	1.1	1.9	2.0	
Wind	1	9	39	80	497	497	506	1315	2608	54.2	28.9	0.2	17.8	
Solar and others	3	5	5	6	36	115	139	147	161	5.3	21.0	14.5	1.5	
Geothermal	0	0	0	0	0	0	0	0	0			4.4	-0.6	
Net Imports	17923	19281	19172	19867	20514	18277	17386	17125	16466	0.7	0.7	-1.6	-0.5	
Solids	2329	2657	2340	2462	2925	3119	3049	2915	2576	0.0	2.3	0.4	-1.7	
Oil	15169	16014	15654	17198	17515	15212	14133	13809	13689	0.3	1.1	-2.1	-0.3	
- Crude oil and Feedstocks	16989	17815	20372	19825	20257	18800	18065	17813	17695	1.8	-0.1	-1.1	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2742	-3588	-3932	-4004	-4006					
Natural gas	577	755	776	843	1003	1408	1616	1724	1559	3.0	2.6	4.9	-0.4	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54262	51817	49854	47668	45865	0.1	1.3	-0.8	-0.8	
Solids	2677	2893	2442	2626	3224	3189	3086	2920	2581	-0.9	2.8	-0.4	-1.8	
Oil	14555	15754	14382	14646	15478	13103	11950	11543	11348	-0.1	0.7	-2.6	-0.5	
Natural gas	577	755	776	843	1003	1408	1616	1724	1559	3.0	2.6	4.9	-0.4	
Nuclear	17764	18040	14781	18670	19475	19349	16590	12048	9129	-1.8	2.8	-1.6	-5.8	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16010	16231	18022	20756	22605	2.5	0.6	1.2	2.3	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.2	6.2	6.1	5.6					
Oil	30.9	31.2	30.1	28.4	28.5	25.3	24.0	24.2	24.7					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.2	3.6	3.4					
Nuclear	37.7	35.8	30.9	36.2	35.9	37.3	33.3	25.3	19.9					
Renewable energy forms	24.9	26.1	31.5	29.9	29.5	31.3	36.2	43.5	49.3					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166946	169729	170655	177499	184844	0.0	1.4	0.2	0.8	
Self consumption and grid losses	13436	14222	14818	15557	17033	15976	16260	18154	18727	1.0	1.4	-0.5	1.4	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3999	2680	3739	5517	5187	8.1	2.1	-0.7	3.3	
Solids	558	705	467	494	564	0	0	0	0	-1.8	1.9	-59.3		
Oil (including refinery gas)	253	737	276	316	44	13	15	1	1	0.9	-16.8	-10.4	-28.3	
Gas (including derived gases)	253	406	414	490	7	16	17	0	0	5.0	-33.9	10.0	-39.4	
Biomass & Waste	427	1398	2083	3166	3385	2651	3707	5516	5186	17.2	5.0	0.9	3.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24203	22531	21849	21398	20981	2.1	-0.4	-1.0	-0.4	
Refineries	18041	19475	21618	20537	20235	18789	18060	17811	17694	1.8	-0.7	-1.1	-0.2	
Biofuels and hydrogen production	0	0	0	210	436	726	909	939	1040			7.6	1.4	
District heating	1123	2373	1973	1722	1585	1094	998	786	549	5.8	-2.2	-4.5	-5.8	
Derived gases, cokeries etc.	1415	1615	1704	1835	1947	1921	1882	1862	1697	1.9	1.3	-0.3	-1.0	
Energy Branch Consumption	1758	1629	1532	1424	1544	1502	1491	1521	1471	-1.4	0.1	-0.3	-0.1	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2602	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34383	33173	32972	32964	33856	0.9	0.3	-0.4	0.3	
by sector														
Industry	11857	11527	12047	12042	13171	14449	15012	15270	16018	0.2	0.9	1.3	0.7	
- energy intensive industries	8574	8572	9161	9204	9953	11013	11455	11620	12218	0.7	0.8	1.4	0.6	
- other industrial sectors	3283	2955	2886	2838	3218	3436	3558	3650	3800	-1.3	1.1	1.0	0.7	
Residential	6840	8032	7546	7882	7826	6209	6126	5838	5694	1.0	0.4	-2.4	-0.7	
Tertiary	4555	5378	5581	4577	4492	4057	3762	3740	3726	2.1	-2.1	-1.8	-0.1	
Transport	7263	7666	8128	8643	8893	8458	8071	8115	8418	1.1	0.9	-1.0	0.4	
by fuel														
Solids	1231	1192	1141	1345	1620	2136	2068	1943	1696	-0.8	3.6	2.5	-2.0	
Oil	12004	12567	12341	11087	11337	9404	8692	8499	8518	0.3	-0.8	-2.6	-0.2	
Gas	587	611	673	746	1524	1910	1873	1916	1582	1.4	8.5	2.1	-1.7	
Electricity	10348	10711	11068	11382	11693	11492	11628	12188	12766	0.7	0.6	-0.1	0.9	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3730	2601	2388	1806	1584	7.6	0.5	-4.4	-4.0	
Renewable energy forms	4639	3981	4528	4410	4477	5627	6319	6608	7706	-0.2	-0.1	3.5	2.0	
Other	0	0	0	0	1	2	4	4	5			16.2	2.8	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14591	15129	16609	18788	21075	-0.1	1.3	2.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.4	63.4	59.6	57.8	55.5	-0.1	-0.1	-1.8	-0.7	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.8	44.8	41.8	40.5	38.6	0.0	0.1	-1.9	-0.8	
Power generation/District heating	6.3	7.9	5.1	5.5	3.5	0.5	0.2	0.0	0.0	-2.0	-3.8	-23.8		
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.3	1.9	1.9	1.7	2.3	1.3	-1.2	-1.2	
Industry	11.6	12.5	11.0	12.2	16.3	16.2	15.5	14.9	12.8	-0.5	4.0	-0.5	-1.9	
Residential	4.8	4.6	3.7	1.4	1.5	1.1	1.0	0.7	0.5	-2.6	-8.4	-4.3	-6.3	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.5	2.4	2.3	2.3	0.0	-6.2	-2.1	-0.5	
Transport	20.7	21.8	23.2	24.0	24.3	22.3	20.7	20.7	21.3	1.1	0.5	-1.6	0.3	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.5	6.3	6.3	6.2	-0.3	0.7	-0.8	-0.2	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.0	11.5	11.0	10.7	-0.4	-1.1	-1.8	-0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.8	86.8	81.6	79.1	76.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Sweden: EC proposal with RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Int. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.5	136.9	118.4	102.7	91.3	-1.9	-1.4	-3.1	-2.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.94	0.87	0.84	0.85	0.84	-0.1	-1.2	-1.1	0.0
Import Dependency %	37.5	37.5	39.0	37.2	36.4	33.9	33.4	34.3	34.2				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.2	39.5	43.6	48.1	51.8		3.8	2.2	1.7
as % of GDP			9.5	10.7	10.5	10.4	10.3	10.4	10.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.8	71.6	66.1	60.9	59.1	-5.6	-2.9	-1.2	-1.1
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	83.9	60.1	54.0	47.1	42.7	-0.7	-1.7	-4.3	-2.3
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.4	50.8	42.3	37.9	34.7	0.5	-4.5	-4.0	-2.0
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	34.4	31.3	29.5	29.4	-0.6	-0.9	-1.6	-0.6
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	36.6	32.0	30.4	29.2	1.3	-0.3	-2.9	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.00	0.00	0.00	0.00	-3.1	-4.9		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.31	1.27	1.20	1.17	1.09	-0.7	0.1	-0.9	-1.0
Industry	0.97	1.08	0.91	1.01	1.24	1.12	1.04	0.98	0.80	-0.6	3.1	-1.8	-2.6
Residential	0.70	0.57	0.49	0.18	0.20	0.18	0.16	0.13	0.09	-3.5	-8.7	-2.0	-5.6
Tertiary	1.23	1.00	1.00	0.68	0.65	0.61	0.63	0.62	0.61	-2.0	-4.1	-0.4	-0.4
Transport	2.85	2.85	2.85	2.77	2.74	2.63	2.56	2.55	2.53	0.0	-0.4	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.6	43.7	48.3	54.4	59.4				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.9	10.7	11.3	12.2				
Gross Electricity generation by source (in GWh)													
			145524	158341	166946	169729	170655	177499	184844		1.4	0.2	0.8
Nuclear energy			57306	72364	75517	75099	64376	46719	35400		2.8	-1.6	-5.8
Solids			1141	1241	806	0	0	0	0		-3.4	-53.7	
Oil (including refinery gas)			1828	1004	261	150	101	3	3		-17.7	-9.1	-30.3
Gas (including derived gases)			1714	1394	165	84	100	1	1		-20.9	-4.9	-40.3
Biomass-waste			4508	8607	11643	15713	27166	42454	46080		10.0	8.8	5.4
Hydro (pumping excluded)			78570	72795	72773	72898	73024	73024	73024		-0.8	0.0	0.0
Wind			457	936	5779	5779	5881	15287	30322		28.9	0.2	17.8
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	35777	34827	34165	39665	47262		1.0	-0.5	3.3
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	17978	17989	18034	21230	26834		1.3	0.0	4.1
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	2317	2317	2351	5609	11197		25.9	0.1	16.9
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8754	7391	6683	8987	10979		2.2	-2.7	5.1
of which cogeneration units			3791	4762	3413	2692	3398	3623	3958		-1.0	0.0	1.5
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	504	465	907	2711		1.3	-2.2	19.3
Oil fired			4271	4366	4135	3022	1586	1504	1417		-0.3	-9.1	-1.1
Biomass-waste fired			1389	1842	3362	3575	4400	6361	6718		9.2	2.7	4.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	51.8	54.1	55.2	49.2	43.1				
Efficiency of gross thermal power generation (%)			24.4	23.6	27.7	51.2	62.9	66.2	76.4				
% of gross electricity from CHP			5.9	7.5	6.0	7.8	11.8	12.2	13.4				
Carbon free gross electricity generation (%)			96.8	97.7	99.3	99.9	99.9	100.0	100.0				
- nuclear			39.4	45.7	45.2	44.2	37.7	26.3	19.2				
- renewable energy forms			57.4	52.0	54.0	55.6	62.2	73.7	80.8				
Transport sector													
Passenger transport activity (Gpkm)													
	120.6	123.8	134.0	142.2	154.4	161.9	171.6	182.1	191.7	1.1	1.4	1.1	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.5	10.0	10.4	10.8	1.7	-0.3	0.8	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	109.0	113.6	120.0	125.1	0.6	1.4	0.6	1.0
Rail	8.6	8.8	10.2	11.0	12.2	14.4	16.0	16.7	17.9	1.7	1.8	2.7	1.1
Aviation	8.1	10.8	13.8	15.6	18.8	21.7	24.6	27.5	30.2	5.4	3.1	2.8	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.2	7.4	7.6	7.7	-1.3	0.0	0.3	0.4
Freight transport activity (Gtkm)													
	53.9	58.9	62.0	67.3	74.6	78.9	84.5	90.3	95.4	1.4	1.9	1.3	1.2
Trucks	26.5	31.6	35.6	38.6	42.3	41.3	43.2	46.4	49.1	3.0	1.7	0.2	1.3
Rail	19.1	19.4	19.5	21.7	25.1	29.8	33.1	35.1	37.5	0.2	2.6	2.8	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.7	8.9	-1.8	0.6	1.3	0.7
Energy demand in transport (ktoe)													
	7263	7666	8128	8643	8893	8458	8071	8115	8418	1.1	0.9	-1.0	0.4
Public road transport	230	275	189	156	146	137	128	128	130	-2.0	-2.5	-1.3	0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4207	3905	3774	3915	0.2	0.8	-1.3	0.0
Trucks	1872	2066	2471	2695	2863	2528	2362	2411	2454	2.8	1.5	-1.9	0.4
Rail	252	273	299	332	368	389	369	359	362	1.7	2.1	0.0	-0.2
Aviation	760	849	928	846	936	1054	1162	1297	1413	2.0	0.1	2.2	2.0
Inland navigation	143	103	154	141	143	144	145	145	144	0.8	-0.8	0.1	-0.1

Source: PRIMES

Sweden: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	35649	34650	31740	-1046	-2665	-6727	-2.9	-7.1	-17.5
Solids	216	231	302	70	37	5	-236	-233	-140	-77.2	-86.1	-96.4
Oil	3	0	0	0	0	0	0	0	0	-800.0	140.0	-327.3
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19349	16590	9129	-127	-2887	-10350	-0.7	-14.8	-53.1
Renewable energy sources	11745	15065	15406	16231	18022	22605	-683	454	3762	-4.0	2.6	20.0
Hydro	6234	6757	6260	6269	6280	6280	17	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	9349	11098	13556	-854	278	1554	-8.4	2.6	12.9
Wind	1	39	80	497	506	2608	74	81	2102	17.5	19.0	415.6
Solar and others	3	5	6	115	139	161	80	95	105	226.0	215.8	189.3
Geothermal	0	0	0	0	0	0	0	0	0	37.4	62.7	54.3
Net Imports	17923	19172	19867	18277	17386	16466	-4665	-5860	-6420	-20.3	-25.2	-28.1
Solids	2329	2340	2462	3119	3049	2576	-1946	-2128	-2200	-38.4	-41.1	-46.1
Oil	15169	15654	17198	15212	14133	13689	-1983	-2581	-2926	-11.5	-15.4	-17.6
- Crude oil and Feedstocks	16989	20372	19825	18800	18065	17695	-1312	-1705	-1998	-6.5	-8.6	-10.1
- Oil products	-1820	-4718	-2626	-3588	-3932	-4006	-671	-876	-928	23.0	28.7	30.1
Natural gas	577	776	843	1408	1616	1559	-736	-1151	-1294	-34.3	-41.6	-45.4
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	51817	49854	45865	-5710	-8523	-13145	-9.9	-14.6	-22.3
Solids	2677	2442	2626	3189	3086	2581	-2182	-2361	-2340	-40.6	-43.3	-47.5
Oil	14555	14382	14646	13103	11950	11348	-1982	-2579	-2923	-13.1	-17.8	-20.5
Natural gas	577	776	843	1408	1616	1559	-736	-1151	-1294	-34.3	-41.6	-45.4
Nuclear	17764	14781	18670	19349	16590	9129	-127	-2887	-10350	-0.7	-14.8	-53.1
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	16231	18022	22605	-683	454	3762	-4.0	2.6	20.0
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.2	6.2	5.6	-3.2	-3.1	-2.7			
Oil	30.9	30.1	28.4	25.3	24.0	24.7	-0.9	-0.9	0.6			
Natural gas	1.2	1.6	1.6	2.7	3.2	3.4	-1.0	-1.5	-1.4			
Nuclear	37.7	30.9	36.2	37.3	33.3	19.9	3.5	-0.1	-13.1			
Renewable energy forms	24.9	31.5	29.9	31.3	36.2	49.3	1.9	6.1	17.4			
Gross Electricity Generation in GWh_e	145958	145524	158341	169729	170655	184844	-16192	-18091	-6741	-8.7	-9.6	-3.5
Self consumption and grid losses	13436	14818	15557	15976	16260	18727	-2760	-2705	-1085	-14.7	-14.3	-5.5
Fuel Inputs to Thermal Power Generation	1491	3239	4465	2680	3739	5187	-3611	-2456	-325	-57.4	-39.6	-5.9
Solids	558	467	494	0	0	0	-1000	-646	-166	-100.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	13	15	1	-39	1	0	-74.7	6.0	-27.0
Gas (including derived gases)	253	414	490	16	17	0	-385	-460	-596	-96.1	-96.4	-100.0
Biomass & Waste	427	2083	3166	2651	3707	5186	-2186	-1350	437	-45.2	-26.7	9.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	22531	21849	20981	-1888	-2473	-3243	-7.7	-10.2	-13.4
Refineries	18041	21618	20537	18789	18060	17694	-1312	-1705	-1998	-6.5	-8.6	-10.1
Biofuels and hydrogen production	0	0	210	726	909	1040	95	115	-13	15.0	14.5	-1.2
District heating	1123	1973	1722	1094	998	549	-655	-765	-1115	-37.5	-43.4	-67.0
Derived gases, cokeries etc.	1415	1704	1835	1921	1882	1697	-16	-119	-117	-0.8	-5.9	-6.5
Energy Branch Consumption	1758	1532	1424	1502	1491	1471	-159	-190	-264	-9.6	-11.3	-15.2
Non-Energy Uses	1769	1771	2344	2550	2570	2602	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	33173	32972	33856	-3859	-5289	-6082	-10.4	-13.8	-15.2
by sector												
Industry	11857	12047	12042	14449	15012	16018	189	81	163	1.3	0.5	1.0
- energy intensive industries	8574	9161	9204	11013	11455	12218	325	312	422	3.0	2.8	3.6
- other industrial sectors	3283	2886	2838	3436	3558	3800	-136	-231	-259	-3.8	-6.1	-6.4
Residential	6840	7546	7882	6209	6126	5694	-2062	-2182	-2680	-24.9	-26.3	-32.0
Tertiary	4555	5581	4577	4057	3762	3726	-918	-1328	-1523	-18.4	-26.1	-29.0
Transport	7263	8128	8643	8458	8071	8418	-1069	-1860	-2042	-11.2	-18.7	-19.5
by fuel												
Solids	1231	1141	1345	2136	2068	1696	-710	-1109	-1472	-24.9	-34.9	-46.5
Oil	12004	12341	11087	9404	8692	8518	-1564	-2442	-2862	-14.3	-21.9	-25.2
Gas	587	673	746	1910	1873	1582	-338	-534	-520	-15.0	-22.2	-24.7
Electricity	10348	11068	11382	11492	11628	12766	-1148	-1285	-370	-9.1	-9.9	-2.8
Heat (from CHP and District Heating)	1706	3550	4174	2601	2388	1584	-1380	-1625	-2393	-34.7	-40.5	-60.2
Renewable energy forms	4639	4528	4410	5627	6319	7706	1280	1704	1536	29.4	36.9	24.9
Other	0	0	0	2	4	5	1	1	-1	65.5	23.5	-10.6
RES in Gross Final Energy Consumption ^(A)		14717	14682	15129	16609	21075	-79	674	3569	-0.5	4.2	20.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	63.4	59.6	55.5	-18.4	-23.0	-24.8	-22.5	-27.9	-30.9
CO₂ Emissions (energy related)	50.5	50.5	48.5	44.8	41.8	38.6	-16.3	-19.7	-21.1	-26.7	-32.0	-35.3
Power generation/District heating	6.3	5.1	5.5	0.5	0.2	0.0	-7.8	-6.4	-5.4	-94.2	-96.5	-100.0
Energy Branch	1.5	1.9	2.3	2.3	1.9	1.7	-0.3	-0.3	-0.3	-11.2	-13.1	-14.0
Industry	11.6	11.0	12.2	16.2	15.5	12.8	-3.5	-5.4	-6.4	-17.6	-26.0	-33.4
Residential	4.8	3.7	1.4	1.1	1.0	0.5	-0.6	-0.8	-1.6	-34.9	-43.6	-75.6
Tertiary	5.6	5.6	3.1	2.5	2.4	2.3	-0.7	-0.9	-1.1	-23.1	-27.9	-32.8
Transport	20.7	23.2	24.0	22.3	20.7	21.3	-3.4	-5.8	-6.2	-13.3	-22.0	-22.6
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.5	6.3	6.2	-0.4	-0.8	-1.0	-6.0	-10.9	-14.0
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.0	11.5	10.7	-1.7	-2.6	-2.8	-12.5	-18.3	-20.5
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	86.8	81.6	76.0	-25.3	-31.5	-34.0			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Sweden: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	136.9	118.4	91.3	-15.1	-20.2	-26.2	-9.9	-14.6	-22.3
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.87	0.84	0.84	-0.20	-0.21	-0.17	-18.6	-20.4	-16.8
Import Dependency %	37.5	39.0	37.2	33.9	33.4	34.2	-4.6	-5.0	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.5	43.6	51.8	1.6	2.9	7.1	4.3	7.0	16.0
as % of GDP		9.5	10.7	10.4	10.3	10.3	0.4	0.7	1.4			
Total Compliance Costs ^(D) (in 000 M€05)				1.7	2.9	7.3						
as % of GDP				0.45	0.70	1.44						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	71.6	66.1	59.1	0.9	0.4	0.6	1.3	0.5	1.0
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	60.1	54.0	42.7	-19.9	-19.2	-20.1	-24.9	-26.3	-32.0
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	50.8	42.3	34.7	-11.5	-14.9	-14.2	-18.4	-26.1	-29.0
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	34.4	31.3	29.4	-1.4	-3.5	-2.8	-4.0	-10.0	-8.7
Freight transport (toe/Mtkm)	38.8	44.2	44.6	36.6	32.0	29.2	-5.5	-8.7	-9.0	-13.1	-21.3	-23.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.00	0.00	0.00	-0.03	-0.03	-0.02	-93.2	-95.9	-100.0
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.27	1.20	1.09	-0.09	-0.17	-0.22	-6.7	-12.6	-16.7
Industry	0.97	0.91	1.01	1.12	1.04	0.80	-0.26	-0.37	-0.41	-18.7	-26.4	-34.1
Residential	0.70	0.49	0.18	0.18	0.16	0.09	-0.03	-0.05	-0.16	-13.2	-23.6	-64.1
Tertiary	1.23	1.00	0.68	0.61	0.63	0.61	-0.04	-0.02	-0.03	-5.7	-2.4	-5.3
Transport	2.85	2.85	2.77	2.63	2.56	2.53	-0.06	-0.11	-0.10	-2.4	-4.0	-3.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	43.7	48.3	59.4	4.5	8.4	17.4			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.9	10.7	12.2	1.9	3.3	2.7			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	169729	170655	184844	184844	-16192	-18091	-6741	-8.7	-9.6	-3.5
Nuclear energy	57306	72364	75099	64376	35400		-782	-11510	-40493	-1.0	-15.2	-53.4
Solids	1141	1241	0	0	0		-3605	-2381	-1157	-100.0	-100.0	-100.0
Oil (including refinery gas)	1828	1004	150	101	3		-346	-97	-1	-69.8	-49.1	-25.3
Gas (including derived gases)	1714	1394	84	100	1		-3660	-3934	-3866	-97.7	-97.5	-100.0
Biomass-waste	4508	8607	15713	27166	46800		-8855	-1118	14324	-36.0	-4.0	45.1
Hydro (pumping excluded)	78570	72795	72898	73024	73024		194	11	11	0.3	0.0	0.0
Wind	457	936	5779	5881	30322		862	938	24440	17.5	19.0	415.6
Solar	0	0	5	7	14		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	32460	33376	34827	34165	47262	47262	-1418	-2850	7110	-3.9	-7.7	17.7
<u>Nuclear energy</u>	9584	9630	9446	9449	9449		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	17989	18034	26834		445	470	9014	2.5	2.7	50.6
Hydro (pumping excluded)	15625	15651	15651	15651	15576		0	0	0	0.0	0.0	0.0
Wind	231	493	2317	2351	11197		445	470	9014	23.8	25.0	412.8
Solar	0	4	22	32	61		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	7391	6683	10979		-1863	-3321	-1904	-20.1	-33.2	-14.8
of which cogeneration units	3791	4762	2692	3398	3958		-2377	-2036	-1940	-46.9	-37.5	-32.9
Solids fired	847	868	290	232	133		-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	504	465	2711		-793	-2531	-2551	-61.1	-84.5	-48.5
Oil fired	4271	4366	3022	1586	1417		0	0	-501	0.0	0.0	-26.1
Biomass-waste fired	1389	1842	3575	4400	6718		-635	-356	1278	-15.1	-7.5	23.5
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.1	55.2	43.1		-2.7	-1.1	-9.4			
Efficiency of gross thermal power generation (%)	24.4	23.6	51.2	62.9	76.4		6.9	14.5	19.0			
% of gross electricity from CHP	5.9	7.5	7.8	11.8	13.4		-5.6	-3.2	-3.6			
Carbon free gross electricity generation (%)	96.8	97.7	99.9	99.9	100.0		4.1	3.4	2.6			
- nuclear	39.4	45.7	44.2	37.7	19.2		3.4	-2.5	-20.5			
- renewable energy forms	57.4	52.0	55.6	62.2	80.8		0.6	5.9	23.1			
Transport sector												
Passenger transport activity (Gpkm)												
	120.6	134.0	142.2	161.9	171.6	191.7	-6.8	-9.4	-12.2	-4.1	-5.2	-6.0
Public road transport	8.0	9.5	9.0	9.5	10.0	10.8	0.2	0.3	0.4	1.8	2.8	3.5
Private cars and motorcycles	87.6	93.3	99.4	109.0	113.6	125.1	-7.0	-9.7	-12.2	-6.0	-7.9	-8.9
Rail	8.6	10.2	11.0	14.4	16.0	17.9	0.9	1.3	1.3	6.3	8.8	8.1
Aviation	8.1	13.8	15.6	21.7	24.6	30.2	-0.7	-1.1	-1.6	-3.2	-4.4	-4.9
Inland navigation	8.3	7.2	7.2	7.2	7.4	7.7	-0.2	-0.2	-0.2	-2.2	-2.3	-2.2
Freight transport activity (Gtkm)												
	53.9	62.0	67.3	78.9	84.5	95.4	-3.8	-5.0	-6.6	-4.6	-5.6	-6.5
Trucks	26.5	35.6	38.6	41.3	43.2	49.1	-5.9	-7.9	-10.0	-12.5	-15.5	-16.9
Rail	19.1	19.5	21.7	29.8	33.1	37.5	2.2	3.0	3.5	7.9	10.1	10.2
Inland navigation	8.3	6.9	7.0	7.8	8.3	8.9	-0.1	-0.1	-0.1	-1.0	-1.1	-1.0
Energy demand in transport (ktoe)												
	7263	8128	8643	8458	8071	8418	-1069	-1860	-2042	-11.2	-18.7	-19.5
Public road transport	230	189	156	137	128	130	-8	-21	-22	-5.8	-14.0	-14.2
Private cars and motorcycles	4004	4086	4472	4207	3905	3915	-426	-831	-784	-9.2	-17.5	-16.7
Trucks	1872	2471	2695	2528	2362	2454	-592	-910	-1081	-19.0	-27.8	-30.6
Rail	252	299	332	389	369	362	1	-21	-27	0.1	-5.4	-7.0
Aviation	760	928	846	1054	1162	1413	-38	-69	-116	-3.5	-5.6	-7.6
Inland navigation	143	154	141	144	145	144	-5	-8	-13	-3.2	-5.2	-8.1

Source: PRIMES

United Kingdom: EC proposal with RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	205508	249865	268722	202300	170567	110515	78315	76829	76124	2.7	-4.4	-7.5	-0.3	
Solids	54125	30516	18577	12172	10500	6187	5075	3376	3838	-10.1	-5.5	-7.0	-2.8	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Renewable energy sources	1070	1996	2635	4048	8325	13409	16724	19766	21974	9.4	12.2	7.2	2.8	
Hydro	436	416	437	427	479	487	494	507	523	0.0	0.9	0.3	0.6	
Biomass & Waste	627	1539	2104	3340	4904	6263	7829	9318	10529	12.9	8.8	4.8	3.0	
Wind	1	34	81	250	2621	5020	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	319	1637	2259	2654	2946	8.1	39.7	21.6	2.7	
Geothermal	1	1	1	1	2	2	4	6	7	0.0	7.3	10.2	4.5	
Net Imports	5932	-36021	-39030	32641	49794	102111	129506	128857	132003			10.0	0.2	
Solids	9122	10493	14577	27467	23906	13309	10208	6403	6690	4.8	5.1	-8.2	-4.1	
Oil	-10396	-48554	-45515	-2171	15786	41222	59360	59599	61823			14.2	0.4	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	21028	46477	65253	67543	69783			12.0	0.7	
- Oil products	-5858	-12196	-6490	-7027	-5242	-5255	-5893	-7944	-7960					
Natural gas	6178	637	-9311	5973	8289	44694	53949	56015	56137			20.6	0.4	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	218321	210549	205715	203558	205996	0.9	-0.6	-0.6	0.0	
Solids	64305	45866	36816	38186	34406	19496	15282	9778	10528	-5.4	-0.7	-7.8	-3.7	
Oil	80903	82378	81357	82701	83745	84145	82254	77472	77692	0.1	0.3	-0.2	-0.6	
Natural gas	47203	65119	87399	84898	71289	74694	77949	74015	71137	6.4	-2.0	0.9	-0.9	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	9289	15371	21880	25904	28910	9.4	13.4	8.9	2.8	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	15.8	9.3	7.4	4.8	5.1					
Oil	38.3	37.8	35.2	35.6	38.4	40.0	40.0	38.1	37.7					
Natural gas	22.4	29.9	37.8	36.6	32.7	35.5	37.9	36.4	34.5					
Nuclear	7.9	9.7	9.5	9.1	8.6	7.6	3.7	7.7	8.4					
Renewable energy forms	0.5	0.9	1.1	2.0	4.3	7.3	10.6	12.7	14.0					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	381962	380994	405489	461592	516255	1.7	0.2	0.6	2.4	
Self consumption and grid losses	44516	46573	48246	50822	46231	43766	46650	54084	60860	0.8	-0.4	0.1	2.7	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	50723	42836	47457	44147	48434	-0.1	-0.9	-0.7	0.2	
Solids	47267	33844	27232	30920	27322	12902	9258	4974	6267	-5.4	0.0	-10.3	-3.8	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	2	69	-19.6				
Gas (including derived gases)	1668	12054	26033	26807	20327	25782	31203	30121	31318	31.6	-2.4	4.4	0.0	
Biomass & Waste	212	620	1410	3455	3074	4152	6996	9050	10779	20.9	8.1	8.6	4.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	96649	98798	99344	96620	97022	0.1	-0.4	0.3	-0.2	
Refineries	89882	94255	89299	87320	89348	90760	90028	87583	87961	-0.1	0.0	0.1	-0.2	
Biofuels and hydrogen production	0	0	0	80	1475	2866	4740	5209	5643			12.4	1.8	
District heating	0	0	3354	1976	1024	645	525	365	274			-11.2	-6.5	
Derived gases, cokeries etc.	9263	8079	7682	5436	4801	4527	4051	3463	3145	-1.9	-4.6	-1.7	-2.5	
Energy Branch Consumption	12836	14401	15039	15383	13142	12896	12697	12151	11842	1.6	-1.3	-0.3	-0.7	
Non-Energy Uses	11173	12550	11152	11510	11819	12178	12591	13003	13357	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151500	149311	149759	149109	145908	145992	1.0	-0.2	0.0	-0.2	
by sector														
Industry	34962	35132	35909	33889	33773	34270	34477	34747	35173	0.3	-0.6	0.2	0.2	
- energy intensive industries	19483	19965	19215	16289	16358	16469	16253	16044	15962	-0.1	-1.6	-0.1	-0.2	
- other industrial sectors	15479	15167	16694	17600	17415	17801	18224	18703	19211	0.8	0.4	0.5	0.5	
Residential	37939	39567	43072	43284	40396	39487	38191	37271	36008	1.3	-0.6	-0.6	-0.6	
Tertiary	18596	20863	20359	19170	17863	17160	17094	17060	16978	0.9	-1.3	-0.4	-0.1	
Transport	45451	46867	52324	55236	57279	58842	59346	56831	57833	1.4	0.9	0.4	-0.3	
by fuel														
Solids	12266	8891	5683	4422	4824	4584	4231	3295	2905	-7.4	-1.6	-1.3	-3.7	
Oil	58770	60197	62437	65731	67974	68077	65937	61042	61043	0.6	0.9	-0.3	-0.8	
Gas	41893	47140	52180	49853	44164	42214	39996	37612	33698	2.2	-1.7	-1.0	-1.7	
Electricity	23597	25274	28325	29686	28891	29117	30962	34957	38773	1.8	0.2	0.7	2.3	
Heat (from CHP and District Heating)	0	0	2439	1317	1092	1203	1471	1850	1964			-7.7	3.0	
Renewable energy forms	421	926	600	572	2361	4557	6497	7132	7587	3.6	14.7	10.7	1.6	
Other	0	0	0	0	4	7	15	21	23			14.6	4.8	
RES in Gross Final Energy Consumption (A)			1537	2483	7401	13349	19363	23483	26208		17.0	10.1	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	639.2	581.8	563.6	495.9	477.9	-1.1	-0.8	-1.2	-1.6	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	513.9	463.4	447.5	401.1	397.0	-0.4	-0.6	-1.4	-1.2	
Power generation/District heating	214.2	173.6	181.2	193.8	158.4	113.2	111.1	91.2	99.2	-1.7	-1.3	-3.5	-1.1	
Energy Branch	27.9	31.9	33.1	34.6	28.7	28.7	28.2	26.1	25.0	1.7	-1.4	-0.2	-1.2	
Industry	81.8	78.8	70.5	65.5	66.7	67.5	65.2	60.1	59.1	-1.5	-0.6	-0.2	-1.0	
Residential	77.8	77.3	81.9	79.7	73.8	68.0	60.7	51.6	41.7	0.5	-1.0	-1.9	-3.7	
Tertiary	32.9	35.2	26.7	24.3	21.6	19.9	19.2	18.0	16.7	-2.1	-2.1	-1.2	-1.4	
Transport	132.4	136.5	152.7	161.8	164.8	166.2	163.1	154.0	155.3	1.4	0.8	-0.1	-0.5	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.1	26.9	26.8	26.5	26.9	-1.5	1.3	-0.1	0.0	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	91.5	89.3	68.3	54.0	-3.9	-2.2	-0.9	-4.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	82.4	75.0	72.7	63.9	61.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: EC proposal with RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	107.3	92.0	80.4	72.0	67.2	-1.5	-3.0	-2.9	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.35	2.20	2.18	1.97	1.93	-1.3	0.0	-0.8	-1.2
Import Dependency %	2.8	-16.3	-16.7	13.9	22.6	48.0	62.3	62.6	63.4				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	150.8	170.5	190.1	205.8	216.8		0.8	2.3	1.3
as % of GDP			8.7	7.4	7.4	7.5	7.4	7.3	7.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.5	87.3	81.2	75.9	72.6	-0.6	-0.7	-1.4	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	72.3	63.1	54.8	48.6	43.5	-1.4	-3.2	-2.7	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	63.2	53.2	46.7	41.7	38.0	-2.2	-4.5	-3.0	-2.0
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.5	42.1	40.4	36.3	35.9	0.3	-0.8	-0.7	-1.2
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.0	57.4	55.2	53.3	51.7	-0.5	1.2	-0.5	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.40	0.28	0.26	0.19	0.18	-4.0	-1.2	-4.1	-3.5
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.19	2.15	2.07	1.94	1.87	-0.8	0.0	-0.6	-1.0
Industry	2.34	2.24	1.96	1.93	1.97	1.97	1.89	1.73	1.68	-1.7	0.1	-0.4	-1.2
Residential	2.05	1.95	1.90	1.84	1.83	1.72	1.59	1.39	1.16	-0.7	-0.4	-1.4	-3.1
Tertiary	1.77	1.69	1.31	1.27	1.21	1.16	1.12	1.06	0.99	-3.0	-0.8	-0.7	-1.3
Transport	2.91	2.91	2.92	2.93	2.88	2.83	2.75	2.71	2.69	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	4.8	8.7	12.6	15.6	17.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.2	8.8	9.9	10.7				
Gross Electricity generation by source (in GWh)													
			374308	397522	381962	380994	405489	461592	516255		0.2	0.6	2.4
Nuclear energy			85048	81603	72657	61709	29140	66798	77209		-1.6	-8.7	10.2
Solids			118129	134618	120215	56804	40869	29369	37129		0.2	-10.2	-1.0
Oil (including refinery gas)			7147	7622	104	104	76	340	1011		-34.5	-3.1	29.5
Gas (including derived gases)			153298	152495	139884	177138	221693	229733	248435		-0.9	4.7	1.1
Biomass-waste			4653	13308	13027	19877	32829	39831	47312		10.8	9.7	3.7
Hydro (pumping excluded)			5085	4960	5575	5666	5743	5900	6076		0.9	0.3	0.6
Wind			947	2907	30477	58370	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	1276	3688	4812	6178				5.3
Net Generation Capacity in MW_e			84356	90824	102211	112655	104641	121015	134428		1.9	0.2	2.5
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	8621	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	12019	22892	30095	35758	39879		21.2	9.6	2.9
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10529	20689	26588	31575	34845		38.5	9.7	2.7
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	662	1914	2497	3206				5.3
<u>Thermal power</u>			69560	75978	79469	80498	70134	76636	85348		1.3	-1.2	2.0
of which cogeneration units			6116	8041	7114	8906	11780	15036	16007		1.5	5.2	3.1
Solids fired			30684	30627	28669	23771	7478	4721	4706		-0.7	-12.6	-4.5
Gas fired			27319	33944	38256	41663	43632	51386	60408		3.4	1.3	3.3
Oil fired			10540	9879	9357	9164	7715	3412	1763		-1.2	-1.9	-13.7
Biomass-waste fired			1017	1528	3187	5900	11310	17118	18471		12.1	13.5	5.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	41.0	37.3	42.9	42.1	42.5				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.3	51.0	53.5	58.3	59.3				
% of gross electricity from CHP			9.0	8.5	11.2	15.2	20.0	22.0	21.1				
Carbon free gross electricity generation (%)			25.6	25.9	31.9	38.6	35.2	43.8	44.5				
- nuclear			22.7	20.5	19.0	16.2	7.2	14.5	15.0				
- renewable energy forms			2.9	5.3	12.9	22.4	28.0	29.3	29.5				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	970.3	1030.1	1087.1	1145.2	1194.3	1.3	1.5	1.1	0.9
Public road transport	46.2	44.3	47.0	48.8	50.8	52.3	54.2	55.5	56.5	0.2	0.8	0.7	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	726.1	763.1	797.1	834.3	865.5	0.9	1.2	0.9	0.8
Rail	39.9	37.1	46.7	51.8	57.1	62.1	67.7	73.4	79.3	1.6	2.0	1.7	1.6
Aviation	49.3	66.8	94.0	110.0	129.8	145.9	161.5	175.2	186.3	6.7	3.3	2.2	1.4
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.7	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	259.4	269.9	278.7	286.2	290.1	1.1	0.6	0.7	0.4
Trucks	145.7	161.5	165.6	167.5	172.6	181.3	188.4	194.6	197.8	1.3	0.4	0.9	0.5
Rail	16.0	13.3	18.1	22.1	24.6	26.1	27.5	28.5	29.1	1.2	3.1	1.1	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.5	62.8	63.1	63.2	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57279	58842	59346	56831	57833	1.4	0.9	0.4	-0.3
Public road transport	514	493	518	490	480	483	486	487	484	0.1	-0.8	0.1	0.0
Private cars and motorcycles	25438	25836	27031	25783	25827	26164	26149	25924	26369	0.6	-0.5	0.1	0.1
Trucks	10387	10366	11277	13316	13337	13690	13677	13756	13798	0.8	1.7	0.3	0.1
Rail	1063	1233	1464	1532	1611	1456	1284	1104	836	3.2	1.0	-2.2	-4.2
Aviation	6779	7822	11115	12847	14744	15776	16498	14334	15138	5.1	2.9	1.1	-0.9
Inland navigation	1269	1117	920	1269	1280	1274	1253	1228	1208	-3.2	3.4	-0.2	-0.4

Source: PRIMES

United Kingdom: EC proposal with RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	110515	78315	76124	2448	2876	5368	2.3	3.8	7.6
Solids	54125	18577	12172	6187	5075	3838	-2813	-2925	-2162	-31.3	-36.6	-36.0
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Renewable energy sources	1070	2635	4048	13409	16724	21974	5261	5802	6473	64.6	53.1	41.8
Hydro	436	437	427	487	494	523	51	42	0	11.8	9.2	0.0
Biomass & Waste	627	2104	3340	6263	7829	10529	289	477	844	4.8	6.5	8.7
Wind	1	81	250	5020	6138	7970	3660	3657	3611	269.2	147.4	82.8
Solar and others	5	11	30	1637	2259	2946	1260	1623	2014	333.8	255.4	215.9
Geothermal	1	1	1	2	4	7	1	2	4	73.9	132.4	161.9
Net Imports	5932	-39030	32641	102111	129506	132003	-23716	-23242	-27513	-18.8	-15.2	-17.2
Solids	9122	14577	27467	13309	10208	6690	-20537	-21129	-20843	-60.7	-67.4	-75.7
Oil	-10396	-45515	-2171	41222	59360	61823	-2532	-5877	-13019	-5.8	-9.0	-17.4
- Crude oil and Feedstocks	-4537	-39025	4856	46477	65253	69783	-2552	-5272	-10363	-5.2	-7.5	-12.9
- Oil products	-5858	-6490	-7027	-5255	-5893	-7960	20	-605	-2656	-0.4	11.4	50.1
Natural gas	6178	-9311	5973	44694	53949	56137	-1435	52	1317	-3.1	0.1	2.4
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	210549	205715	205996	-21265	-20357	-22135	-9.2	-9.0	-9.7
Solids	64305	36816	38186	19496	15282	10528	-23350	-24054	-23005	-54.5	-61.1	-68.6
Oil	80903	81357	82701	84145	82254	77692	-2529	-5869	-13008	-2.9	-6.7	-14.3
Natural gas	47203	87399	84898	74694	77949	71137	-1435	52	1317	-1.9	0.1	1.9
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	15371	21880	28910	6048	9513	11505	64.9	76.9	66.1
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	9.3	7.4	5.1	-9.2	-10.0	-9.6			
Oil	38.3	35.2	35.6	40.0	40.0	37.7	2.6	1.0	-2.0			
Natural gas	22.4	37.8	36.6	35.5	37.9	34.5	2.6	3.4	3.9			
Nuclear	7.9	9.5	9.1	7.6	3.7	8.4	0.7	0.3	1.3			
Renewable energy forms	0.5	1.1	2.0	7.3	10.6	14.0	3.3	5.2	6.4			
Gross Electricity Generation in GWh_e	316937	374308	397522	380994	405489	516255	-50522	-46007	37031	-11.7	-10.2	7.7
Self consumption and grid losses	44516	48246	50822	43766	46650	60860	-7073	-9551	307	-13.9	-17.0	0.5
Fuel Inputs to Thermal Power Generation	56319	55481	61996	42836	47457	48434	-22402	-17469	-6363	-34.3	-26.9	-11.6
Solids	47267	27232	30920	12902	9258	6267	-23220	-23619	-22066	-64.3	-71.8	-77.9
Oil (including refinery gas)	7172	806	815	0	0	69	0	-1	69		-100.0	27889.9
Gas (including derived gases)	1668	26033	26807	25782	31203	31318	-74	3109	10462	-0.3	11.1	50.2
Biomass & Waste	212	1410	3455	4152	6996	10779	891	3042	5172	27.3	76.9	92.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	98798	99344	97022	-2395	-4684	-10288	-2.4	-4.5	-9.6
Refineries	89882	89299	87320	90760	90028	87961	-2551	-5272	-10363	-2.7	-5.5	-10.5
Biofuels and hydrogen production	0	0	80	2866	4740	5643	283	899	559	10.9	23.4	11.0
District heating	0	3354	1976	645	525	274	-251	-266	-362	-28.0	-33.6	-56.9
Derived gases, cokeries etc.	9263	7682	5436	4527	4051	3145	125	-45	-121	2.8	-1.1	-3.7
Energy Branch Consumption	12836	15039	15383	12896	12697	11842	-535	-903	-1130	-4.0	-6.6	-8.7
Non-Energy Uses	11173	11152	11510	12178	12591	13357	-10	-8	-5	-0.1	-0.1	0.0
Final Energy Demand	136947	151665	151580	149759	149109	145992	-5875	-9326	-16166	-3.8	-5.9	-10.0
by sector												
Industry	34962	35909	33889	34270	34477	35173	-876	-1422	-1504	-2.5	-4.0	-4.1
- energy intensive industries	19483	19215	16289	16469	16253	15962	-370	-745	-710	-2.2	-4.4	-4.3
- other industrial sectors	15479	16694	17600	17801	18224	19211	-506	-677	-794	-2.8	-3.6	-4.0
Residential	37939	43072	43284	39487	38191	36008	-1248	-2130	-3554	-3.1	-5.3	-9.0
Tertiary	18596	20359	19170	17160	17094	16978	-1831	-2138	-2524	-9.6	-11.1	-12.9
Transport	45451	52324	55236	58842	59346	57833	-1920	-3637	-8584	-3.2	-5.8	-12.9
by fuel												
Solids	12266	5683	4422	4584	4231	2905	-37	-449	-547	-0.8	-9.6	-15.8
Oil	58770	62437	65731	68077	65937	61043	-2412	-5624	-12435	-3.4	-7.9	-16.9
Gas	41893	52180	49853	42214	39996	33698	-1015	-2548	-9058	-2.3	-6.0	-21.2
Electricity	23597	28325	29686	29117	30962	38773	-3724	-3106	3210	-11.3	-9.1	9.0
Heat (from CHP and District Heating)	0	2439	1317	1203	1471	1964	48	162	398	4.2	12.4	25.4
Renewable energy forms	421	600	572	4557	6497	7587	1264	2239	2266	38.4	52.6	42.6
Other	0	0	0	7	15	23	0	1	0	3.5	4.0	-0.5
RES in Gross Final Energy Consumption ^(A)		1537	2483	13349	19363	26208	6318	9236	11125	89.9	91.2	73.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	581.8	563.6	477.9	-108.7	-120.7	-134.4	-15.7	-17.6	-22.0
CO₂ Emissions (energy related)	566.9	546.0	559.7	463.4	447.5	397.0	-102.9	-112.4	-126.9	-18.2	-20.1	-24.2
Power generation/District heating	214.2	181.2	193.8	113.2	111.1	99.2	-92.5	-86.8	-64.1	-45.0	-43.8	-39.2
Energy Branch	27.9	33.1	34.6	28.7	28.2	25.0	-0.7	-1.0	-2.0	-2.5	-3.3	-7.5
Industry	81.8	70.5	65.5	67.5	65.2	59.1	0.9	-2.0	-5.7	1.4	-3.0	-8.7
Residential	77.8	81.9	79.7	68.0	60.7	41.7	-2.6	-7.5	-23.1	-3.6	-11.0	-35.7
Tertiary	32.9	26.7	24.3	19.9	19.2	16.7	-1.7	-2.1	-4.1	-8.0	-9.8	-19.9
Transport	132.4	152.7	161.8	166.2	163.1	155.3	-6.3	-13.0	-27.8	-3.6	-7.4	-15.2
CO₂ Emissions (non energy related)	27.5	23.7	26.8	26.9	26.8	26.9	-0.4	-0.9	-1.3	-1.5	-3.4	-4.6
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	91.5	89.3	54.0	-5.4	-7.4	-6.3	-5.5	-7.6	-10.4
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	75.0	72.7	61.6	-14.0	-15.6	-17.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: EC proposal with RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	92.0	80.4	67.2	-9.3	-8.0	-7.2	-9.2	-9.0	-9.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.20	2.18	1.93	-0.24	-0.30	-0.37	-9.9	-12.2	-16.1
Import Dependency %	2.8	-16.7	13.9	48.0	62.3	63.4	-5.8	-4.6	-5.8			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	170.5	190.1	216.8	6.6	9.0	10.6	4.0	5.0	5.1
as % of GDP		8.7	7.4	7.5	7.4	7.1	0.3	0.4	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				6.7	9.1	10.7						
as % of GDP				0.29	0.36	0.35						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	87.3	81.2	72.6	-2.2	-3.3	-3.1	-2.5	-4.0	-4.1
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	63.1	54.8	43.5	-2.0	-3.1	-4.3	-3.1	-5.3	-9.0
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	53.2	46.7	38.0	-5.7	-5.8	-5.6	-9.6	-11.1	-12.9
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.1	40.4	35.9	-0.8	-1.6	-5.3	-2.0	-3.8	-13.0
Freight transport (toe/Mtkm)	54.4	51.5	59.8	57.4	55.2	51.7	-1.0	-2.4	-2.3	-1.8	-4.1	-4.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.28	0.26	0.18	-0.18	-0.16	-0.14	-38.1	-38.0	-43.9
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.15	2.07	1.87	0.02	-0.03	-0.19	0.9	-1.6	-9.2
Industry	2.34	1.96	1.93	1.97	1.89	1.68	0.08	0.02	-0.09	4.0	1.0	-4.8
Residential	2.05	1.90	1.84	1.72	1.59	1.16	-0.01	-0.10	-0.48	-0.6	-6.1	-29.3
Tertiary	1.77	1.31	1.27	1.16	1.12	0.99	0.02	0.02	-0.09	1.8	1.5	-8.0
Transport	2.91	2.92	2.93	2.83	2.75	2.69	-0.01	-0.05	-0.07	-0.5	-1.7	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	8.7	12.6	17.3	4.3	6.4	8.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	5.2	8.8	10.7	0.6	2.0	1.7			
Gross Electricity generation by source (in GWh_e)												
	374308	397522	380994	405489	516255	-50522	-46007	37031		-11.7	-10.2	7.7
Nuclear energy	85048	81603	61709	29140	77209	0	0	4674		0.0	0.0	6.4
Solids	118129	134618	56804	40869	37129	-102216	-132132	-124245		-64.3	-76.4	-77.0
Oil (including refinery gas)	7147	7622	104	76	1011	0	-31	922		0.0	-28.7	1031.7
Gas (including derived gases)	153298	152495	177138	221693	248435	2006	27418	89566		1.1	14.1	56.4
Biomass-waste	4653	13308	19877	32829	47312	5254	13284	21325		35.9	68.0	82.1
Hydro (pumping excluded)	5085	4960	5666	5743	6076	597	485	0		11.8	9.2	0.0
Wind	947	2907	58370	71371	92670	42561	42524	41988		269.2	147.4	82.8
Solar	1	8	50	79	236	0	0	0		0.0	0.0	0.0
Geothermal and other renewables	0	0	1276	3688	6178	1276	2445	2802			196.8	83.0
Net Generation Capacity in MW_e	84356	90824	112655	104641	134428	17856	8467	25632		18.8	8.8	23.6
<u>Nuclear energy</u>	13038	11837	9265	4412	9202	0	0	540		0.0	0.0	6.2
<u>Renewable energy</u>	1758	3009	22892	30095	39879	15763	17600	18235		221.1	140.9	84.3
Hydro (pumping excluded)	1350	1437	1475	1489	1514	0	0	0		0.0	0.0	0.0
Wind	406	1562	20689	26588	34845	15178	16332	16782		275.4	159.2	92.9
Solar	2	11	66	105	313	0	0	0		0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	662	1914	3206	585	1269	1454		759.7	196.8	83.0
<u>Thermal power</u>	69560	75978	80498	70134	85348	2093	-9134	6857		2.7	-11.5	8.7
of which cogeneration units	6116	8041	8906	11780	16007	502	2107	3070		6.0	21.8	23.7
Solids fired	30684	30627	23771	7478	4706	0	-13286	-16098		0.0	-64.0	-77.4
Gas fired	27319	33944	41663	43632	60408	-1018	-2557	11685		-2.4	-5.5	24.0
Oil fired	10540	9879	9164	7715	1763	0	0	-2395		0.0	0.0	-57.6
Biomass-waste fired	1017	1528	5900	11310	18471	3111	6709	13665		111.6	145.8	284.3
Fuel Cells	0	0	0	0	0	0	0	0		0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0		0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	48.4	47.7	37.3	42.9	42.5	-12.8	-8.4	-5.5				
Efficiency of gross thermal power generation (%)	43.9	42.7	51.0	53.5	59.3	5.0	2.3	4.9				
% of gross electricity from CHP	9.0	8.5	15.2	20.0	21.1	2.6	5.9	5.4				
Carbon free gross electricity generation (%)	25.6	25.9	38.6	35.2	44.5	16.0	16.6	11.3				
- nuclear	22.7	20.5	16.2	7.2	15.0	1.9	0.7	-0.2				
- renewable energy forms	2.9	5.3	22.4	28.0	29.5	14.1	15.9	11.5				
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1030.1	1087.1	1194.3	-12.5	-21.0	-27.3	-1.2	-1.9	-2.2
Public road transport	46.2	47.0	48.8	52.3	54.2	56.5	0.7	1.1	1.3	1.3	2.0	2.3
Private cars and motorcycles	591.1	644.9	684.7	763.1	797.1	865.5	-7.0	-12.6	-18.8	-0.9	-1.6	-2.1
Rail	39.9	46.7	51.8	62.1	67.7	79.3	0.1	0.1	2.0	0.2	0.2	2.6
Aviation	49.3	94.0	110.0	145.9	161.5	186.3	-6.3	-9.6	-11.8	-4.2	-5.6	-6.0
Inland navigation	8.1	6.6	6.5	6.6	6.7	6.8	0.0	0.0	0.0	-0.5	-0.3	-0.3
Freight transport activity (Gtkm)	217.5	243.7	250.8	269.9	278.7	290.1	-4.0	-6.0	-7.2	-1.5	-2.1	-2.4
Trucks	145.7	165.6	167.5	181.3	188.4	197.8	-4.4	-6.6	-8.1	-2.3	-3.4	-3.9
Rail	16.0	18.1	22.1	26.1	27.5	29.1	0.4	0.5	0.8	1.5	1.9	2.8
Inland navigation	55.8	60.0	61.2	62.5	62.8	63.2	0.0	0.1	0.1	0.0	0.1	0.1
Energy demand in transport (ktoe)	45451	52324	55236	58842	59346	57833	-1920	-3637	-8584	-3.2	-5.8	-12.9
Public road transport	514	518	490	483	486	484	1	-2	-14	0.1	-0.3	-2.8
Private cars and motorcycles	25438	27031	25783	26164	26149	26369	-465	-787	-1275	-1.7	-2.9	-4.6
Trucks	10387	11277	13316	13690	13677	13798	-570	-1053	-1114	-4.0	-7.1	-7.5
Rail	1063	1464	1532	1456	1284	836	27	16	32	1.9	1.2	4.0
Aviation	6779	11115	12847	15776	16498	15138	-904	-1800	-6194	-5.4	-9.8	-29.0
Inland navigation	1269	920	1269	1274	1253	1208	-8	-11	-19	-0.6	-0.9	-1.6

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

- ▶ **Appendix 5:**
EC Proposal with JI/CDM & with RES trading

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

- ▶ *Primes Model – E3MLab/NTUA*
Results of end January 2008

SUMMARY ENERGY BALANCE AND INDICATORS (B)	EU27: EC proposal with JI/CDM & RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0	
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8	
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	144.6	130.3	117.4	107.6	99.4	-1.8	-1.6	-2.1	-1.6	
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.11	2.03	1.93	1.88	1.80	-0.9	-0.6	-0.9	-0.7	
Import Dependency %	44.4	43.3	46.7	52.4	54.8	58.2	59.7	60.3	60.2					
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1247.9	1403.4	1576.9	1707.6	1811.6		2.5	2.4	1.4	
as % of GDP			9.7	9.9	10.0	10.0	10.1	9.9	9.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.6	80.7	74.0	68.5	65.0	-2.7	-1.3	-1.7	-1.3	
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	87.9	80.1	72.9	66.2	60.8	-1.3	-1.3	-1.9	-1.8	
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	86.7	78.2	70.4	64.1	58.9	-2.3	-1.4	-2.1	-1.8	
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.5	34.0	32.1	30.9	0.1	-0.7	-0.8	-0.9	
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.3	48.7	46.5	45.0	43.6	0.3	-0.1	-0.8	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.31	0.27	0.24	0.22	0.19	-2.0	-2.0	-2.4	-2.2	
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.01	1.95	1.86	1.79	1.73	-0.8	-0.4	-0.8	-0.7	
Industry	2.18	2.10	1.95	1.85	1.84	1.80	1.69	1.61	1.53	-1.1	-0.6	-0.9	-1.0	
Residential	1.92	1.72	1.62	1.57	1.51	1.41	1.32	1.21	1.10	-1.7	-0.7	-1.4	-1.8	
Tertiary	1.91	1.70	1.50	1.47	1.43	1.33	1.26	1.18	1.11	-2.4	-0.5	-1.3	-1.2	
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.69	2.67	2.64	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	11.8	15.2	20.2	23.1	25.2					
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.1	6.8	10.1	10.9	11.7					
Gross Electricity generation by source (in GWh)														
			2992030	3275359	3314685	3497487	3712764	4094544	4441745		1.0	1.1	1.8	
Nuclear energy	944823	997519	950476	945729	945729	847621	824758	852460		0.1	-1.1	0.1		
Solids	900381	918139	916892	900704	826117	888722	938904			0.2	-1.0	1.3		
Oil (including refinery gas)	176516	150480	49300	45301	33295	32086	31588			-12.0	-3.8	-0.5		
Gas (including derived gases)	535039	721024	753088	774238	843525	903027	930060			3.5	1.1	1.0		
Biomass-waste	54964	101813	108598	209724	406111	568293	655959			7.0	14.1	4.9		
Hydro (pumping excluded)	353182	306902	345663	344954	347373	350360	352373			-0.2	0.0	0.1		
Wind	22246	70469	177872	258723	375535	481632	601512			23.1	7.8	4.8		
Solar	117	1489	3731	6432	16473	26935	58345			41.4	16.0	13.5		
Geothermal and other renewables	4762	7525	9065	11681	16712	18731	20543			6.7	6.3	2.1		
Net Generation Capacity in MW_e	680864	739517	833492	866578	915726	997497	1119739			2.0	0.9	2.0		
<u>Nuclear energy</u>	135806	134187	125500	123349	112341	101157	104978			-0.8	-1.1	-0.7		
<u>Renewable energy</u>	120596	151902	199916	235303	294215	348536	427005			5.2	3.9	3.8		
Hydro (pumping excluded)	107638	109284	111512	113195	114476	115092	115631			0.4	0.3	0.1		
Wind	12786	40822	84341	114313	162230	207188	261839			20.8	6.8	4.9		
Solar	172	1797	3782	6276	13474	21254	43512			36.2	13.5	12.4		
Other renewables (tidal etc.)	0	0	280	1519	4035	5002	6023				30.6	4.1		
<u>Thermal power</u>	424462	453429	508076	507926	509170	547805	587756			1.8	0.0	1.4		
of which cogeneration units	123462	133684	113829	127700	150207	168021	176364			-0.8	2.8	1.6		
Solids fired	191258	188695	184271	178825	153274	148132	138535			-0.4	-1.8	-1.0		
Gas fired	149738	181031	232716	234855	235138	254821	292678			4.5	0.1	2.2		
Oil fired	71858	67498	64912	45798	34556	23964	16973			-1.0	-6.1	-6.9		
Biomass-waste fired	10810	15216	25174	47400	85112	119772	138313			8.8	13.0	5.0		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat	798	988	1004	1048	1091	1116	1257			2.3	0.8	1.4		
Avg. Load factor of net power capacity (%)			47.4	47.8	43.3	44.1	44.3	44.7	43.1					
Efficiency of gross thermal power generation (%)			37.6	38.6	43.9	46.6	48.4	50.3	52.3					
% of gross electricity from CHP			12.7	12.8	16.1	18.2	21.3	22.6	22.7					
Carbon free gross electricity generation (%)			46.1	45.4	48.1	50.8	54.1	55.5	57.2					
- nuclear			31.6	30.5	28.7	27.0	22.8	20.1	19.2					
- renewable energy forms			14.5	14.9	19.5	23.8	31.3	35.3	38.0					
Transport sector														
Passenger transport activity (Gpkm)														
Public road transport	4784.5	5221.8	5819.7	6245.4	6739.2	7273.9	7761.6	8250.5	8676.4	2.0	1.5	1.4	1.1	
Private cars and motorcycles	555.6	498.3	514.0	529.0	546.5	564.8	591.7	613.7	632.0	-0.8	0.6	0.8	0.7	
Rail	3459.2	3930.1	4375.8	4714.4	5069.1	5422.7	5716.7	6013.6	6260.2	2.4	1.5	1.2	0.9	
Aviation	464.8	412.0	438.5	446.8	473.8	516.8	567.0	624.3	685.7	-0.6	0.8	1.8	1.9	
Inland navigation	247.9	325.9	442.0	506.3	600.7	719.7	834.9	946.3	1044.9	6.0	3.1	3.3	2.3	
Freight transport activity (Gtkm)	57.0	55.4	49.4	48.9	49.1	49.9	51.2	52.5	53.6	-1.4	-0.1	0.4	0.5	
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2743.7	3021.1	3254.2	3465.6	3625.0	1.5	2.4	1.7	1.1	
Trucks	1096.9	1279.3	1507.5	1790.0	2013.3	2227.3	2401.7	2567.3	2689.2	3.2	2.9	1.8	1.1	
Rail	524.8	385.0	396.1	393.9	434.7	479.3	518.1	550.4	576.5	-2.8	0.9	1.8	1.1	
Inland navigation	257.2	264.7	271.3	280.1	295.6	314.5	334.4	347.9	359.3	0.5	0.9	1.2	0.7	
Energy demand in transport (ktoe)														
Public road transport	279440	299758	339129	361705	385228	405125	414960	420914	425848	2.0	1.3	0.7	0.3	
Private cars and motorcycles	5216	4538	4464	4316	4284	4256	4278	4189	4099	-1.5	-0.4	0.0	-0.4	
Trucks	148125	159084	174735	175721	181228	185010	185697	184878	183832	1.7	0.4	0.2	-0.1	
Rail	80641	85832	99349	116963	126985	135517	139702	144763	148405	2.1	2.5	1.0	0.6	
Aviation	9605	9409	9710	9605	9980	10075	9719	9104	7685	0.1	0.3	-0.3	-2.3	
Inland navigation	28947	34014	45368	49744	57178	64485	69596	71953	75786	4.6	2.3	2.0	0.9	
	6905	6881	5503	5356	5574	5782	5968	6028	6041	-2.2	0.1	0.7	0.1	

Source: PRIMES

EU27: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
						Difference from Baseline		% Change from Baseline				
Primary Production	933011	937567	896393	789280	765288	763246	19057	40529	72554	2.5	5.6	10.5
Solids	365918	213693	196451	138205	121974	108861	-14161	-19790	-16947	-9.3	-14.0	-13.5
Oil	128809	171665	132993	76918	53081	40797	-248	-30	-23	-0.3	-0.1	-0.1
Natural gas	162447	207559	188021	125736	111970	82904	-3263	-2963	-1857	-2.5	-2.6	-2.2
Nuclear	202589	243761	257360	243085	217010	200561	-630	-4462	-5843	-0.3	-2.0	-2.8
Renewable energy sources	73248	100890	121568	205336	261253	330123	37359	67775	97224	22.2	35.0	41.7
Hydro	25101	30374	26394	29666	29874	30304	1332	944	122	4.7	3.3	0.4
Biomass & Waste	44737	64774	82903	132576	170289	211141	20096	41060	53100	17.9	31.8	33.6
Wind	67	1913	6060	22250	32296	51730	4879	8975	22293	21.1	38.5	75.7
Solar and others	153	418	816	13823	21556	29471	9655	15314	20800	231.7	245.3	239.9
Geothermal	3190	3412	5395	7021	7237	7477	1397	1481	910	24.8	25.7	13.9
Net Imports	748677	818875	975298	1098891	1134274	1156438	-114577	-166852	-219343	-9.4	-12.8	-15.9
Solids	79289	98575	126702	142935	135080	135697	-38849	-65008	-74137	-14.4	-32.5	-35.3
Oil	530805	525661	589611	636781	647584	643318	-32906	-59220	-85869	-4.9	-8.4	-11.8
- Crude oil and Feedstocks	503539	507317	574313	639032	657990	666645	-20118	-38283	-54314	-3.1	-5.5	-7.5
- Oil products	27265	18344	15298	-2251	-10406	-23327	-12788	-20937	-31555	-121.4	-198.8	-383.5
Natural gas	135121	192531	256828	307103	318023	329499	-50943	-71940	-101950	-14.2	-18.4	-23.6
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1832150	1841344	1858082	-95488	-126225	-146631	-5.0	-6.4	-7.3
Solids	450105	321390	320065	281140	257054	244559	-53009	-84798	-91083	-15.9	-24.8	-27.1
Oil	625464	650399	665514	657678	642446	622513	-33123	-59152	-85734	-4.8	-8.4	-12.1
Natural gas	294905	393417	444804	432839	429994	412403	-54206	-74904	-103807	-11.1	-14.8	-20.1
Nuclear	202589	243761	257360	243085	217010	200561	-630	-4462	-5843	-0.3	-2.0	-2.8
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	215941	293800	377124	45480	97091	139836	26.7	49.4	58.9
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	15.3	14.0	13.2	-2.0	-3.4	-3.6			
Oil	37.9	38.0	36.7	35.9	34.9	33.5	0.1	-0.8	-1.8			
Natural gas	17.9	23.0	24.6	23.6	23.4	22.2	-1.6	-2.3	-3.6			
Nuclear	12.3	14.2	14.2	13.3	11.8	10.8	0.6	0.5	0.5			
Renewable energy forms	4.5	5.9	6.8	11.8	16.0	20.3	2.9	6.0	8.5			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3497487	3712764	4441745	-341922	-365474	33711	-8.9	-9.0	0.8
Self consumption and grid losses	335093	383382	407678	390349	411943	528156	-47268	-54541	7745	-10.8	-11.7	1.5
Fuel Inputs to Thermal Power Generation	379588	382767	423183	357734	376228	421806	-82269	-89892	-51893	-18.7	-19.3	-11.0
Solids	259913	223114	229144	194022	173197	170415	-54218	-84278	-86290	-21.8	-32.7	-33.6
Oil (including refinery gas)	54361	39172	29499	7799	4910	3962	-7147	-8456	-6560	-47.8	-63.3	-62.3
Gas (including derived gases)	56680	102572	133257	110612	117868	121621	-34129	-35945	-26909	-23.6	-23.4	-18.1
Biomass & Waste	5861	14969	26638	39860	74685	119907	12668	38252	67866	46.6	105.0	130.4
Geothermal heat	2774	2939	4645	5440	5568	5900	556	536	0	11.4	10.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	854317	856949	847622	-14356	-28821	-52907	-1.7	-3.3	-5.9
Refineries	673810	727451	749312	750590	745339	740093	-20431	-38401	-54429	-2.6	-4.9	-6.9
Biofuels and hydrogen production	2	624	3206	27244	41367	48192	3368	9099	5764	14.1	28.2	13.6
District heating	33413	19302	16177	18504	16714	13128	-715	-1736	-5774	-3.7	-9.4	-30.5
Derived gases, cokeries etc.	127920	71473	65511	57980	53528	46209	3421	2216	1532	6.3	4.3	3.4
Energy Branch Consumption	81962	87583	93941	86510	86132	88154	-3963	-5408	-5139	-4.4	-5.9	-5.5
Non-Energy Uses	96068	109135	111706	120778	125236	130891	-217	-284	-323	-0.2	-0.2	-0.2
Final Energy Demand	1070684	1112182	1166880	1257841	1279427	1300205	-44195	-68380	-105476	-3.4	-5.1	-7.5
by sector												
Industry	367505	324835	324493	352627	359950	373979	-2722	-7742	-12400	-0.8	-2.1	-3.2
- energy intensive industries	236724	212264	209326	224892	226932	230962	-25	-3405	-5887	0.0	-1.5	-2.5
- other industrial sectors	130780	112571	115167	127734	133018	143018	-2697	-4337	-6513	-2.1	-3.2	-4.4
Residential	264548	287255	307013	319800	322762	318581	-9912	-13243	-24764	-3.0	-3.9	-7.2
Tertiary	159192	160963	173669	180290	181755	181796	-18381	-23713	-31081	-9.3	-11.5	-14.6
Transport	279440	339129	361705	405125	414960	425848	-13179	-23682	-37231	-3.2	-5.4	-8.0
by fuel												
Solids	130725	61781	53475	55813	54492	48936	511	-948	-2392	0.9	-1.7	-4.7
Oil	442561	477166	492540	506159	493981	477921	-22603	-45798	-71839	-4.3	-8.5	-13.1
Gas	227872	267506	287197	291763	280324	258108	-17073	-33892	-68268	-5.5	-10.8	-20.9
Electricity	184059	217155	237501	259964	276594	329418	-25288	-26535	2612	-8.9	-8.8	0.8
Heat (from CHP and District Heating)	48744	40988	41333	40826	43291	44738	-2569	-2863	-3647	-5.9	-6.2	-7.5
Renewable energy forms	36724	47586	54833	103260	130630	140935	22824	41651	38084	28.4	46.8	37.0
Other	0	0	0	56	114	148	3	5	-26	6.0	4.7	-14.9
RES in Gross Final Energy Consumption ^(A)	91114	104237	196830	266066	339920	45086	89999	126674	29.7	51.1	59.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4898.9	4727.5	4390.1	-490.3	-768.9	-989.5	-9.1	-14.0	-18.4
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3717.4	3560.2	3351.9	-439.4	-692.4	-911.9	-10.6	-16.3	-21.4
Power generation/District heating	1468.7	1319.6	1374.9	1108.2	1029.6	967.4	-322.6	-453.1	-495.2	-22.5	-30.6	-33.9
Energy Branch	154.2	173.1	184.3	160.3	153.1	133.9	-11.9	-18.4	-30.8	-6.0	-10.7	-18.7
Industry	801.7	632.4	599.4	634.2	607.0	573.1	3.8	-30.3	-60.2	0.6	-4.8	-9.5
Residential	507.7	466.1	483.1	451.5	425.1	349.9	-35.5	-59.9	-133.4	-7.3	-12.3	-27.6
Tertiary	304.7	242.0	254.6	240.3	228.8	202.2	-24.8	-34.7	-57.9	-9.4	-13.2	-22.2
Transport	810.0	987.6	1050.6	1122.9	1116.5	1125.3	-48.4	-96.0	-134.5	-4.1	-7.9	-10.7
CO₂ Emissions (non energy related)	332.1	307.3	320.4	347.0	356.0	368.0	3.4	-2.0	-6.8	1.0	-0.5	-1.8
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	834.6	811.3	670.3	-54.3	-74.6	-70.8	-6.1	-8.4	-9.6
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	87.8	84.8	78.7	-8.8	-13.8	-17.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						EU27: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	130.3	117.4	99.4	-6.8	-8.0	-7.8	-5.0	-6.4	-7.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	2.03	1.93	1.80	-0.13	-0.23	-0.32	-5.9	-10.5	-15.2
Import Dependency %	44.4	46.7	52.4	58.2	59.7	60.2	-3.0	-4.5	-6.3			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1403.4	1576.9	1811.6	34.3	61.1	102.1	2.5	4.0	6.0
as % of GDP		9.7	9.9	10.0	10.1	9.7	0.2	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				34.9	62.3	103.5						
as % of GDP				0.25	0.40	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	80.7	74.0	65.0	-0.6	-1.6	-2.2	-0.8	-2.1	-3.2
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	80.1	72.9	60.8	-2.5	-3.0	-4.7	-3.0	-3.9	-7.2
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	78.2	70.4	58.9	-8.0	-9.2	-10.1	-9.3	-11.5	-14.6
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.5	34.0	30.9	-0.6	-0.9	-1.7	-1.5	-2.6	-5.1
Freight transport (toe/Mtkm)	49.2	50.5	51.7	48.7	46.5	43.6	-1.4	-2.7	-3.4	-2.9	-5.4	-7.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.27	0.24	0.19	-0.05	-0.08	-0.10	-15.4	-24.1	-33.8
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.95	1.86	1.73	-0.01	-0.07	-0.14	-0.7	-3.6	-7.7
Industry	2.18	1.95	1.85	1.80	1.69	1.53	0.02	-0.05	-0.11	1.4	-2.7	-6.5
Residential	1.92	1.62	1.57	1.41	1.32	1.10	-0.07	-0.13	-0.31	-4.4	-8.7	-22.0
Tertiary	1.91	1.50	1.47	1.33	1.26	1.11	0.00	-0.02	-0.11	-0.1	-1.8	-9.0
Transport	2.90	2.91	2.90	2.77	2.69	2.64	-0.03	-0.07	-0.08	-1.0	-2.7	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.2	20.2	25.2	3.9	7.5	10.6			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	6.8	10.1	11.7	1.0	2.7	2.3			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3497487	3712764	4441745	4441745	-341922	-365474	33711	-8.9	-9.0	0.8
Nuclear energy	944823	997519	945729	847621	852460	852460	-2980	-17955	-19802	-0.3	-2.1	-2.3
Solids	900381	918139	900704	826117	938904	938904	-236143	-415329	-435291	-20.8	-33.5	-31.7
Oil (including refinery gas)	176516	150480	45301	33295	31588	31588	-42846	-46756	-41098	-48.6	-58.4	-56.5
Gas (including derived gases)	535039	721024	774238	843525	930060	930060	-200153	-223743	-153613	-20.5	-21.0	-14.2
Biomass-waste	54964	101813	209724	406111	655959	655959	64494	209712	374106	44.4	106.8	132.7
Hydro (pumping excluded)	353182	306902	344954	347373	352373	352373	15490	10982	1414	4.7	3.3	0.4
Wind	22246	70469	258723	375535	601512	601512	56728	104365	259217	28.1	38.5	75.7
Solar	117	1489	6432	16473	58345	58345	212	7004	41801	3.4	74.0	252.7
Geothermal and other renewables	4762	7525	11681	16712	20543	20543	3277	6246	6977	39.0	59.7	51.4
Net Generation Capacity in MW_e												
	680864	739517	866578	915726	1119739	1119739	4954	14499	153620	0.6	1.6	15.9
<u>Nuclear energy</u>	135806	134187	123349	112341	104978	104978	-304	-347	2534	-0.2	-0.3	2.5
<u>Renewable energy</u>	120596	151902	235303	294215	427005	427005	23567	49371	147748	11.1	20.2	52.9
Hydro (pumping excluded)	107638	109284	113195	114476	115631	115631	156	174	111	0.1	0.2	0.1
Wind	12786	40822	114313	162230	261839	261839	22075	41856	115898	23.9	34.8	79.4
Solar	172	1797	6276	13474	43512	43512	134	4495	28118	2.2	50.1	182.7
Other renewables (tidal etc.)	0	0	1519	4035	6023	6023	1202	2847	3620	379.1	239.4	150.7
<u>Thermal power</u>	424462	453429	507926	509170	587756	587756	-18309	-34525	3338	-3.5	-6.4	0.6
of which cogeneration units	123462	133684	127700	150207	176364	176364	-10808	-8113	6315	-7.8	-5.1	3.7
Solids fired	191258	188695	178825	153274	138535	138535	-9618	-32999	-49811	-5.1	-17.7	-26.4
Gas fired	149738	181031	234855	235138	292678	292678	-26245	-46697	-20716	-10.1	-16.6	-6.6
Oil fired	71858	67498	45798	34556	16973	16973	-4391	-3768	-13744	-8.7	-9.8	-44.7
Biomass-waste fired	10810	15216	47400	85112	138313	138313	21898	48878	87613	85.9	134.9	172.8
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	798	988	1048	1091	1257	1257	48	61	-4	4.7	5.9	-0.3
Avg. Load factor of net power capacity (%)	47.4	47.8	44.1	44.3	43.1	43.1	-4.5	-5.0	-6.4			
Efficiency of gross thermal power generation (%)	37.6	38.6	46.6	48.4	52.3	52.3	0.6	0.6	1.1			
% of gross electricity from CHP	12.7	12.8	18.2	21.3	22.7	22.7	0.3	0.9	1.6			
Carbon free gross electricity generation (%)	46.1	45.4	50.8	54.1	57.2	57.2	8.1	12.7	14.6			
- nuclear	31.6	30.5	27.0	22.8	19.2	19.2	2.3	1.6	-0.6			
- renewable energy forms	14.5	14.9	23.8	31.3	38.0	38.0	5.8	11.1	15.2			
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7273.9	7761.6	8676.4	-76.1	-135.5	-184.4	-1.0	-1.7	-2.1
Public road transport	555.6	514.0	529.0	564.8	591.7	632.0	7.3	11.6	14.6	1.3	2.0	2.4
Private cars and motorcycles	3459.2	4375.8	4714.4	5422.7	5716.7	6260.2	-76.0	-132.6	-181.2	-1.4	-2.3	-2.8
Rail	464.8	438.5	446.8	516.8	567.0	685.7	7.6	10.8	18.0	1.5	1.9	2.7
Aviation	247.9	442.0	506.3	719.7	834.9	1044.9	-14.8	-25.1	-35.6	-2.0	-2.9	-3.3
Inland navigation	57.0	49.4	48.9	49.9	51.2	53.6	-0.3	-0.2	-0.2	-0.6	-0.4	-0.4
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	3021.1	3254.2	3625.0	-40.2	-67.3	-92.2	-1.3	-2.0	-2.5
Trucks	1096.9	1507.5	1790.0	2227.3	2401.7	2689.2	-51.6	-83.9	-113.8	-2.3	-3.4	-4.1
Rail	524.8	396.1	393.9	479.3	518.1	576.5	9.8	13.6	17.6	2.1	2.7	3.1
Inland navigation	257.2	271.3	280.1	314.5	334.4	359.3	1.6	3.0	4.0	0.5	0.9	1.1
Energy demand in transport (ktoe)												
	279440	339129	361705	405125	414960	425848	-13179	-23682	-37231	-3.2	-5.4	-8.0
Public road transport	5216	4464	4316	4256	4278	4099	-19	-58	-180	-0.4	-1.3	-4.2
Private cars and motorcycles	148125	174735	175721	185010	185697	183832	-4759	-7646	-10016	-2.5	-4.0	-5.2
Trucks	80641	99349	116963	135517	139702	148405	-6523	-12139	-16896	-4.6	-8.0	-10.2
Rail	9605	9710	9605	10075	9719	7685	70	32	-1	0.7	0.3	0.0
Aviation	28947	45368	49744	64485	69596	75786	-1926	-3836	-10118	-2.9	-5.2	-11.8
Inland navigation	6905	5503	5356	5782	5968	6041	-23	-35	-20	-0.4	-0.6	-0.3

Source: PRIMES

Austria: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10803	12312	13368	13846	14204	1.6	1.2	2.2	0.6	
Solids	644	305	293	0	0	0	0	0	0	-7.6				
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1291	1198	400	429	416	3.4	-1.7	-11.1	0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8662	10494	12688	13187	13598	2.6	2.7	3.9	0.7	
Hydro	2709	3187	3598	3085	3282	3195	3297	3297	3297	2.9	-0.9	0.0	0.0	
Biomass & Waste	2440	2775	2973	4097	4854	6258	8204	8647	8988	2.0	5.0	5.4	0.9	
Wind	0	0	6	114	267	398	427	461	490		46.8	4.8	1.4	
Solar and others	15	36	64	92	250	628	742	762	805	15.7	14.6	11.5	0.8	
Geothermal	4	3	14	35	8	14	17	19	17	14.2	-5.4	8.3	0.0	
Net Imports	17086	17769	18853	24392	23279	22602	21388	21211	21271	1.0	2.1	-0.8	-0.1	
Solids	3112	2543	3064	3958	3959	4193	3498	3386	4281	-0.2	2.6	-1.2	2.0	
Oil	9521	10012	10703	13028	12839	12525	12055	11613	10987	1.2	1.8	-0.6	-0.9	
- Crude oil and Feedstocks	7878	8068	7704	7964	8132	8182	8247	8125	7926	-0.2	0.5	0.1	-0.4	
- Oil products	1643	1944	3000	5064	4706	4343	3809	3488	3061	6.2	4.6	-2.1	-2.2	
Natural gas	4443	5404	5253	7288	6311	5856	5929	6362	6162	1.7	1.9	-0.6	0.4	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	34082	34914	34756	35058	35474	1.3	1.8	0.2	0.2	
Solids	4042	3336	3637	4050	3959	4193	3498	3386	4281	-1.1	0.9	-1.2	2.0	
Oil	10596	11196	11882	14125	13689	13145	12335	11843	11177	1.2	1.4	-1.0	-1.0	
Natural gas	5184	6374	6519	8263	7602	7054	6329	6791	6578	2.3	1.5	-1.8	0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8531	10325	12466	12953	13355	2.4	2.6	3.9	0.7	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.6	12.0	10.1	9.7	12.1					
Oil	42.4	41.9	41.7	41.6	40.2	37.6	35.5	33.8	31.5					
Natural gas	20.7	23.9	22.9	24.3	22.3	20.2	18.2	19.4	18.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	25.0	29.6	35.9	36.9	37.6					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62038	66434	72922	82578	91315	2.0	0.3	1.6	2.3	
Self consumption and grid losses	4886	4995	5404	7536	6287	6492	7395	8845	10349	1.0	1.5	1.6	3.4	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3291	4088	4683	6128	7263	-0.2	-1.7	3.6	4.5	
Solids	1510	1055	1236	1510	1327	1657	1075	1020	1971	-2.0	0.7	-2.1	6.3	
Oil (including refinery gas)	488	489	287	270	108	48	0	0	0	-5.2	-9.3			
Gas (including derived gases)	1776	2276	1974	2901	1492	852	410	1277	1223	1.1	-2.8	-12.1	11.5	
Biomass & Waste	237	455	428	786	361	1524	3189	3822	4059	6.1	-1.7	24.3	2.4	
Geothermal heat	0	0	0	2	3	7	9	9	10			12.8	1.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12706	12190	11644	11238	11065	-0.2	1.2	-0.9	-0.5	
Refineries	9123	9170	8765	9080	8984	8803	8527	8355	8116	-0.4	0.2	-0.5	-0.5	
Biofuels and hydrogen production	2	5	9	42	337	563	902	992	1119	17.5	44.1	10.3	2.2	
District heating	347	438	566	612	1265	796	293	35	0	5.0	8.4	-13.6		
Derived gases, cokeries etc.	1971	1790	1910	2009	2119	2028	1921	1856	1830	-0.3	1.0	-1.0	-0.5	
Energy Branch Consumption	1639	1703	1750	2134	1893	1807	1711	1681	1647	0.7	0.8	-1.0	-0.4	
Non-Energy Uses	1401	1145	1386	1381	1408	1463	1512	1552	1584	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	28683	29426	29599	29445	29257	1.9	2.3	0.3	-0.1	
by sector														
Industry	6153	6474	7528	8825	9358	9555	9511	9563	9612	2.0	2.2	0.2	0.1	
- energy intensive industries	4048	4038	4982	5533	5787	5841	5728	5694	5645	2.1	1.5	-0.1	-0.1	
- other industrial sectors	2105	2436	2546	3293	3572	3714	3784	3869	3967	1.9	3.4	0.6	0.5	
Residential	5755	6222	6042	6548	6744	7056	7187	7196	7135	0.5	1.1	0.6	-0.1	
Tertiary	2544	3062	3304	3942	4128	4210	4258	4192	4081	2.6	2.3	0.3	-0.4	
Transport	4603	5161	6038	7994	8453	8605	8642	8493	8429	2.7	3.4	0.2	-0.2	
by fuel														
Solids	1718	1535	1415	1458	1453	1408	1329	1279	1108	-1.9	0.3	-0.9	-1.8	
Oil	7896	8728	9402	11774	11583	11266	10660	10365	9966	1.8	2.1	-0.8	-0.7	
Gas	2968	3607	4254	4936	5315	5623	5328	4961	4734	3.7	2.3	0.0	-1.2	
Electricity	3669	3953	4474	4884	4983	5240	5655	6319	6944	2.0	1.1	1.3	2.1	
Heat (from CHP and District Heating)	614	848	1052	1260	1348	1282	1330	1375	1257	5.5	2.5	-0.1	-0.6	
Renewable energy forms	2192	2248	2316	2996	4001	4606	5294	5143	5244	0.6	5.6	2.8	-0.1	
Other	0	0	0	0	1	1	2	3	3			14.3	1.9	
RES in Gross Final Energy Consumption ^(A)			6285	6788	8216	9822	11826	12220	12563		2.7	3.7	0.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	94.2	90.6	83.3	81.3	81.5	0.5	1.1	-1.2	-0.2	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	70.2	68.1	61.1	60.2	61.0	1.0	1.4	-1.4	0.0	
Power generation/District heating	12.8	12.1	11.6	15.0	11.5	10.1	6.4	7.7	11.2	-1.0	-0.1	-5.7	5.8	
Energy Branch	3.8	4.0	4.2	4.6	4.3	4.1	3.8	3.5	3.3	1.0	0.2	-1.4	-1.4	
Industry	12.7	13.6	15.5	17.5	17.9	18.5	17.6	17.7	17.2	2.0	1.4	-0.2	-0.2	
Residential	9.8	9.7	8.8	9.0	8.3	7.8	7.1	6.5	5.8	-1.1	-0.6	-1.5	-2.1	
Tertiary	3.4	4.0	3.7	4.5	4.5	4.1	3.5	2.7	2.1	0.8	2.0	-2.6	-4.7	
Transport	12.7	14.6	17.2	23.1	23.7	23.6	22.8	22.1	21.5	3.1	3.3	-0.4	-0.6	
CO ₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.8	9.5	9.5	9.4	0.2	1.6	-0.2	-0.1	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.8	12.7	11.6	11.1	-1.1	-0.7	-1.2	-1.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	117.2	112.8	103.6	101.2	101.4					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)									Austria: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	122.9	114.0	103.7	96.5	91.8	-1.2	-0.2	-1.7	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.06	1.95	1.76	1.72	1.72	-0.3	-0.4	-1.6	-0.2
Import Dependency %	68.4	66.5	66.1	71.8	68.3	64.7	61.5	60.5	60.0				
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.6	29.8	33.8	36.0	37.5		3.4	2.4	1.0
as % of GDP			8.4	9.5	9.6	9.7	10.1	9.9	9.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	100.0	91.9	83.3	77.1	72.7	-0.6	0.0	-1.8	-1.3
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.4	88.9	83.0	77.0	71.9	-1.6	-0.7	-1.2	-1.4
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.5	94.4	86.9	78.8	72.0	0.1	0.2	-1.6	-1.9
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	37.5	35.9	33.0	31.1	0.1	2.3	-0.8	-1.4
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	55.1	52.1	49.9	48.3	-0.8	2.4	-1.0	-0.8
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.14	0.12	0.07	0.08	0.11	-3.4	-0.8	-6.8	4.0
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.90	1.83	1.72	1.67	1.59	-0.3	-0.4	-1.0	-0.8
Industry	2.06	2.10	2.06	1.98	1.91	1.94	1.85	1.86	1.79	0.0	-0.7	-0.3	-0.3
Residential	1.71	1.55	1.46	1.37	1.23	1.10	0.99	0.90	0.81	-1.6	-1.7	-2.2	-2.0
Tertiary	1.34	1.32	1.12	1.15	1.09	0.97	0.81	0.65	0.53	-1.8	-0.2	-2.9	-4.3
Transport	2.75	2.82	2.85	2.89	2.81	2.74	2.64	2.60	2.55	0.3	-0.1	-0.6	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	28.0	32.6	39.0	40.4	41.6				
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.1	9.9	11.3	13.1				
Gross Electricity generation by source (in GWh)													
			60150	62969	62038	66434	72922	82578	91315		0.3	1.6	2.3
Nuclear energy			0	0	0	0	0	0	0				
Solids			4642	5863	6114	7640	5070	4942	11904		2.8	-1.9	8.9
Oil (including refinery gas)			1220	1452	1166	1246	673	414	191		-0.4	-5.3	-11.8
Gas (including derived gases)			10541	14513	9888	6793	6278	12908	13005		-0.6	-4.4	7.6
Biomass-waste			1845	3929	3556	8873	17423	20354	21820		6.8	17.2	2.3
Hydro (pumping excluded)			41832	35868	38164	37157	38342	38342	38342		-0.9	0.0	0.0
Wind			67	1328	3109	4632	4969	5363	5701		46.8	4.8	1.4
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1
Geothermal and other renewables			0	3	4	10	11	12	13			10.3	1.5
Net Generation Capacity in MW_e			16771	17685	20073	21906	23616	24478	25766		1.8	1.6	0.9
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			10792	11287	12000	13449	14323	14996	16054		1.1	1.8	1.1
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3
Wind			77	817	1350	2141	2372	2718	3480		33.2	5.8	3.9
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5978	6397	8073	8457	9292	9482	9712		3.0	1.4	0.4
of which cogeneration units			3067	3657	3481	4194	5570	5730	5628		1.3	4.8	0.1
Solids fired			1600	1587	1460	1460	1460	591	1386		-0.9	0.0	-0.5
Gas fired			2916	3267	4707	4509	4295	5072	4443		4.9	-0.9	0.3
Oil fired			1167	1158	1144	897	312	161	51		-0.2	-12.2	-16.6
Biomass-waste fired			295	384	760	1589	3223	3655	3828		9.9	15.5	1.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	1	1	2	3	3	3			7.7	1.2
Avg. Load factor of net power capacity (%)			39.8	38.3	33.7	33.2	33.8	36.9	38.7				
Efficiency of gross thermal power generation (%)			40.0	40.5	54.2	51.7	54.1	54.2	55.6				
% of gross electricity from CHP			12.3	20.6	24.9	26.5	35.2	36.6	32.9				
Carbon free gross electricity generation (%)			72.7	65.3	72.3	76.4	83.5	77.9	72.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			72.7	65.3	72.3	76.4	83.5	77.9	72.5				
Transport sector													
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	137.6	144.1	150.7	155.7	1.9	1.3	1.0	0.8
Public road transport	14.2	14.8	14.8	15.1	16.0	16.6	17.3	17.8	18.1	0.4	0.7	0.8	0.5
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	95.8	98.6	101.5	103.2	2.2	1.2	0.7	0.5
Rail	11.5	12.7	11.8	12.3	13.4	14.5	15.6	16.4	17.2	0.3	1.3	1.5	1.0
Aviation	4.1	5.4	6.6	7.3	8.8	10.6	12.6	14.9	17.1	5.0	2.9	3.7	3.1
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.6	0.7
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	62.6	66.4	70.6	74.2	4.7	0.8	1.3	1.1
Trucks	20.3	26.5	35.1	37.0	38.3	40.5	42.4	44.9	47.0	5.6	0.9	1.0	1.0
Rail	12.2	13.2	16.6	17.1	18.5	20.3	22.0	23.5	25.0	3.2	1.1	1.7	1.3
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.2	3.9	-3.1	1.5	0.8
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8605	8642	8493	8429	2.7	3.4	0.2	-0.2
Public road transport	80	83	80	107	111	109	107	100	94	-0.1	3.4	-0.3	-1.3
Private cars and motorcycles	2499	2643	2865	3890	4126	4091	4025	3720	3514	1.4	3.7	-0.2	-1.3
Trucks	1350	1675	2167	3004	3087	3140	3152	3222	3306	4.8	3.6	0.2	0.5
Rail	357	292	333	310	322	332	327	318	293	-0.7	-0.3	0.2	-1.1
Aviation	310	461	586	675	798	924	1019	1122	1211	6.6	3.1	2.5	1.7
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.1	0.5

Source: PRIMES

Austria: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	12312	13368	14204	2039	3794	3929	19.8	39.6	38.2
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1198	400	416	-72	0	30	-5.7	0.0	7.8
Nuclear	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	5168	6654	7422	10494	12688	13598	2129	3812	3917	25.4	42.9	40.5
Hydro	2709	3598	3085	3195	3297	3297	198	0	0	6.6	0.0	0.0
Biomass & Waste	2440	2973	4097	6258	8204	8988	1441	3291	3327	29.9	67.0	58.8
Wind	0	6	114	398	427	490	74	39	96	22.8	10.0	24.3
Solar and others	15	64	92	628	742	805	411	477	494	189.3	179.9	158.3
Geothermal	4	14	35	14	17	17	5	5	1	55.2	39.9	5.7
Net Imports	17086	18853	24392	22602	21388	21271	-4079	-6914	-7113	-15.3	-24.4	-25.1
Solids	3112	3064	3958	4193	3498	4281	-103	-1283	-1312	-2.4	-26.8	-23.5
Oil	9521	10703	13028	12525	12055	10987	-1394	-1898	-2641	-10.0	-13.6	-19.4
- Crude oil and Feedstocks	7878	7704	7964	8182	8247	7926	-561	-738	-1013	-6.4	-8.2	-11.3
- Oil products	1643	3000	5064	4343	3809	3061	-833	-1160	-1628	-16.1	-23.3	-34.7
Natural gas	4443	5253	7288	5856	5929	6162	-2543	-3644	-3070	-30.3	-38.1	-33.3
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	34914	34756	35474	-2040	-3120	-3184	-5.5	-8.2	-8.2
Solids	4042	3637	4050	4193	3498	4281	-121	-1301	-1330	-2.8	-27.1	-23.7
Oil	10596	11882	14125	13145	12335	11177	-1394	-1898	-2641	-9.6	-13.3	-19.1
Natural gas	5184	6519	8263	7054	6329	6578	-2615	-3644	-3040	-27.0	-36.5	-31.6
Nuclear	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	10325	12466	13355	2090	3723	3828	25.4	42.6	40.2
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.0	10.1	12.1	0.3	-2.6	-2.4			
Oil	42.4	41.7	41.6	37.6	35.5	31.5	-1.7	-2.1	-4.2			
Natural gas	20.7	22.9	24.3	20.2	18.2	18.5	-6.0	-8.1	-6.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	29.6	35.9	37.6	7.3	12.8	13.0			
Gross Electricity Generation in GWh_e	49287	60150	62969	66434	72922	91315	-6058	-5422	5444	-8.4	-6.9	6.3
Self consumption and grid losses	4886	5404	7536	6492	7395	10349	-377	-86	1412	-5.5	-1.1	15.8
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4088	4683	7263	-1553	-1163	753	-27.5	-19.9	11.6
Solids	1510	1236	1510	1657	1075	1971	16	-1097	-962	1.0	-50.5	-32.8
Oil (including refinery gas)	488	287	270	48	0	0	-499	-315	-326	-91.3	-100.0	-100.0
Gas (including derived gases)	1776	1974	2901	852	410	1223	-2214	-2429	-1184	-72.2	-85.6	-49.2
Biomass & Waste	237	428	786	1524	3189	4059	1140	2676	3226	297.1	521.8	387.2
Geothermal heat	0	0	2	7	9	10	3	2	0	88.3	39.2	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	12190	11644	11065	-478	-938	-1329	-3.8	-7.5	-10.7
Refineries	9123	8765	9080	8803	8527	8116	-561	-738	-1013	-6.0	-8.0	-11.1
Biofuels and hydrogen production	2	9	42	563	902	1119	71	198	75	14.4	28.2	7.2
District heating	347	566	612	796	293	0	-29	-420	-432	-3.5	-58.9	-100.0
Derived gases, cokeries etc.	1971	1910	2009	2028	1921	1830	41	22	41	2.1	1.2	2.3
Energy Branch Consumption	1639	1750	2134	1807	1711	1647	-139	-202	-208	-7.1	-10.6	-11.2
Non-Energy Uses	1401	1386	1381	1463	1512	1584	-2	-4	-6	-0.1	-0.2	-0.4
Final Energy Demand	19057	22913	27309	29426	29599	29257	-1279	-2047	-3253	-4.2	-6.5	-10.0
by sector												
Industry	6153	7528	8825	9555	9511	9612	-99	-284	-342	-1.0	-2.9	-3.4
- energy intensive industries	4048	4982	5533	5841	5728	5645	-12	-131	-145	-0.2	-2.2	-2.5
- other industrial sectors	2105	2546	3293	3714	3784	3967	-87	-152	-197	-2.3	-3.9	-4.7
Residential	5755	6042	6548	7056	7187	7135	-206	-332	-626	-2.8	-4.4	-8.1
Tertiary	2544	3304	3942	4210	4258	4081	-557	-716	-1035	-11.7	-14.4	-20.2
Transport	4603	6038	7994	8605	8642	8429	-417	-715	-1251	-4.6	-7.6	-12.9
by fuel												
Solids	1718	1415	1458	1408	1329	1108	-30	-51	-149	-2.1	-3.7	-11.9
Oil	7896	9402	11774	11266	10660	9966	-956	-1563	-2143	-7.8	-12.8	-17.7
Gas	2968	4254	4936	5623	5328	4734	-255	-894	-1584	-4.3	-14.4	-25.1
Electricity	3669	4474	4884	5240	5655	6944	-484	-451	360	-8.5	-7.4	5.5
Heat (from CHP and District Heating)	614	1052	1260	1282	1330	1257	-211	-234	-284	-14.2	-15.0	-18.4
Renewable energy forms	2192	2316	2996	4606	5294	5244	657	1146	547	16.6	27.6	11.6
Other	0	0	0	1	2	3	0	0	0	7.0	5.7	-1.4
RES in Gross Final Energy Consumption ^(A)		6285	6788	9822	11826	12563	2069	3384	3390	26.7	40.1	37.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	90.6	83.3	81.5	-11.8	-21.1	-22.1	-11.6	-20.2	-21.3
CO₂ Emissions (energy related)	55.2	61.0	73.7	68.1	61.1	61.0	-10.9	-19.4	-20.3	-13.8	-24.1	-25.0
Power generation/District heating	12.8	11.6	15.0	10.1	6.4	11.2	-7.0	-11.9	-8.9	-40.9	-65.1	-44.3
Energy Branch	3.8	4.2	4.6	4.1	3.8	3.3	-0.3	-0.5	-0.7	-6.9	-12.3	-18.3
Industry	12.7	15.5	17.5	18.5	17.6	17.2	0.2	-0.8	-0.6	1.1	-4.5	-3.6
Residential	9.8	8.8	9.0	7.8	7.1	5.8	-1.2	-1.9	-3.3	-13.7	-21.3	-36.7
Tertiary	3.4	3.7	4.5	4.1	3.5	2.1	-1.1	-1.6	-2.6	-21.3	-31.0	-54.6
Transport	12.7	17.2	23.1	23.6	22.8	21.5	-1.5	-2.7	-4.2	-5.8	-10.6	-16.2
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.8	9.5	9.4	0.1	-0.1	-0.3	1.0	-1.3	-3.2
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.8	12.7	11.1	-1.1	-1.5	-1.5	-7.8	-10.7	-11.6
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	112.8	103.6	101.4	-14.7	-26.2	-27.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	114.0	103.7	91.8	-6.7	-9.3	-8.2	-5.5	-8.2	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	1.95	1.76	1.72	-0.19	-0.37	-0.38	-8.7	-17.3	-18.3
Import Dependency %	68.4	66.1	71.8	64.7	61.5	60.0	-7.5	-13.2	-13.5			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	29.8	33.8	37.5	0.6	1.8	2.2	1.9	5.5	6.2
as % of GDP		8.4	9.5	9.7	10.1	9.7	0.2	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	1.8	2.2						
as % of GDP				0.19	0.53	0.58						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	91.9	83.3	72.7	-0.9	-2.5	-2.6	-1.0	-2.9	-3.4
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	88.9	83.0	71.9	-2.6	-3.8	-6.3	-2.8	-4.4	-8.1
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	94.4	86.9	72.0	-12.5	-14.6	-18.3	-11.7	-14.4	-20.2
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	37.5	35.9	31.1	-0.8	-1.1	-2.9	-2.0	-3.1	-8.7
Freight transport (toe/Mtkm)	49.4	45.7	59.0	55.1	52.1	48.3	-2.9	-5.0	-6.7	-5.1	-8.8	-12.2
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.12	0.07	0.11	-0.06	-0.12	-0.09	-34.7	-61.8	-45.4
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.83	1.72	1.59	-0.04	-0.11	-0.17	-2.2	-6.0	-9.7
Industry	2.06	2.06	1.98	1.94	1.85	1.79	0.04	-0.03	0.00	2.1	-1.7	-0.2
Residential	1.71	1.46	1.37	1.10	0.99	0.81	-0.14	-0.21	-0.37	-11.1	-17.6	-31.2
Tertiary	1.34	1.12	1.15	0.97	0.81	0.53	-0.12	-0.20	-0.40	-10.9	-19.4	-43.0
Transport	2.75	2.85	2.89	2.74	2.64	2.55	-0.03	-0.09	-0.10	-1.2	-3.2	-3.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	26.8	24.2	32.6	39.0	41.6	41.6	8.0	12.9	14.1			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.1	9.9	13.1	1.0	2.8	2.7			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	60150	62969	66434	72922	91315	91315	-6058	-5422	5444	-8.4	-6.9	6.3
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7640	5070	11904	11904	0	-5205	-3847	0.0	-50.7	-24.4
Oil (including refinery gas)	1220	1452	1246	673	191	191	-2919	-2258	-2667	-70.1	-77.0	-93.3
Gas (including derived gases)	10541	14513	6793	6278	13005	13005	-11249	-10953	-4201	-62.3	-63.6	-24.4
Biomass-waste	1845	3929	8873	17423	21820	21820	4945	12539	15045	125.9	256.7	222.1
Hydro (pumping excluded)	41832	35868	37157	38342	38342	38342	2301	0	0	6.6	0.0	0.0
Wind	67	1328	4632	4969	5701	5701	860	452	1114	22.8	10.0	24.3
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	10	11	13	13	4	3	0	70.0	33.6	0.0
Net Generation Capacity in MW_e	16771	17685	21906	23616	25766	25766	-501	62	611	-2.2	0.3	2.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13449	14323	16054	16054	464	200	772	3.6	1.4	5.1
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2141	2372	3480	3480	464	200	772	27.6	9.2	28.5
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8457	9292	9712	9712	-964	-139	-161	-10.2	-1.5	-1.6
of which cogeneration units	3067	3657	4194	5570	5628	5628	-468	402	15	-10.0	7.8	0.3
Solids fired	1600	1587	1460	1460	1386	1386	0	-88	-488	0.0	-5.7	-26.0
Gas fired	2916	3267	4509	4295	4443	4443	-1581	-1688	-1723	-26.0	-28.2	-27.9
Oil fired	1167	1158	897	312	51	51	-530	-603	-534	-37.1	-65.9	-91.3
Biomass-waste fired	295	384	1589	3223	3828	3828	1146	2239	2583	259.0	227.5	207.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	3	3	3	1	1	0	51.3	26.8	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	33.2	33.8	38.7	38.7	-2.4	-2.9	1.2			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.7	54.1	55.6	55.6	0.2	2.1	-0.7			
% of gross electricity from CHP	12.3	20.6	26.5	35.2	32.9	32.9	-5.4	2.6	-3.3			
Carbon free gross electricity generation (%)	72.7	65.3	76.4	83.5	72.5	72.5	17.6	22.4	14.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	76.4	83.5	72.5	72.5	17.6	22.4	14.2			
Transport sector												
Passenger transport activity (Gpkm)	95.0	114.6	120.6	137.6	144.1	155.7	-1.8	-3.1	-4.4	-1.3	-2.1	-2.7
Public road transport	14.2	14.8	15.1	16.6	17.3	18.1	0.2	0.3	0.4	1.2	1.8	2.3
Private cars and motorcycles	65.2	81.3	85.8	95.8	98.6	103.2	-2.0	-3.3	-4.5	-2.0	-3.3	-4.2
Rail	11.5	11.8	12.3	14.5	15.6	17.2	0.3	0.3	0.4	1.9	2.1	2.2
Aviation	4.1	6.6	7.3	10.6	12.6	17.1	-0.2	-0.4	-0.6	-2.3	-3.1	-3.4
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	-0.4	-0.1
Freight transport activity (Gtkm)	34.1	54.2	55.9	62.6	66.4	74.2	-1.0	-1.8	-2.6	-1.6	-2.7	-3.4
Trucks	20.3	35.1	37.0	40.5	42.4	47.0	-1.7	-2.6	-3.5	-3.9	-5.7	-7.0
Rail	12.2	16.6	17.1	20.3	22.0	25.0	0.6	0.7	0.9	3.1	3.5	3.6
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.2	0.0	0.0	0.0	0.1	0.7	1.1
Energy demand in transport (ktoe)	4603	6038	7994	8605	8642	8429	-417	-715	-1251	-4.6	-7.6	-12.9
Public road transport	80	80	107	109	107	94	-2	-4	-6	-1.4	-3.3	-6.4
Private cars and motorcycles	2499	2865	3890	4091	4025	3514	-144	-225	-524	-3.4	-5.3	-13.0
Trucks	1350	2167	3004	3140	3152	3306	-245	-433	-631	-7.2	-12.1	-16.0
Rail	357	333	310	332	327	293	-1	-4	-13	-0.3	-1.3	-4.3
Aviation	310	586	675	924	1019	1211	-26	-48	-76	-2.8	-4.5	-5.9
Inland navigation	7	6	9	10	10	11	0	0	0	-0.6	-0.7	-1.2

Source: PRIMES

Belgium: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	12529	11336	13366	14064	14895	14984	13811	7864	5591	0.6	1.1	-0.8	-8.6	
Solids	1085	269	191	57	15	9	9	15	13	-16.0	-22.4	-5.0	3.6	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	1956	3272	4733	5209	5578	0.3	10.0	9.2	1.7	
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.1	-0.2	
Biomass & Waste	702	694	706	1675	1686	2563	3480	3827	4101	0.0	9.1	7.5	1.7	
Wind	1	1	1	20	197	359	706	812	823	7.9	65.3	13.6	1.6	
Solar and others	1	1	1	3	41	316	513	536	620	2.1	44.4	28.9	1.9	
Geothermal	1	1	4	1	2	3	4	4	4	14.0	-6.7	6.4	0.7	
Net Imports	38857	43775	48651	48968	48528	48032	48806	52880	54622	2.3	0.0	0.1	1.1	
Solids	9492	9343	7566	5511	4954	4950	5150	9148	10704	-2.2	-4.1	0.4	7.6	
Oil	21468	23579	27331	28425	28769	27941	27269	26903	26707	2.4	0.5	-0.5	-0.2	
- Crude oil and Feedstocks	26116	25674	32658	30565	31880	31580	31303	31216	31142	2.3	-0.2	-0.2	-0.1	
- Oil products	-4648	-2096	-5328	-2141	-3112	-3639	-4035	-4313	-4434					
Natural gas	8217	10418	13278	14191	13894	14082	15254	15665	16040	4.9	0.5	0.9	0.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	55643	54941	54131	51845	50940	1.9	-0.3	-0.3	-0.6	
Solids	10244	8551	8200	5450	4970	4959	5159	9163	10717	-2.2	-4.9	0.4	7.6	
Oil	17730	19794	21949	20547	20988	19866	18783	18004	17434	2.2	-0.4	-1.1	-0.7	
Natural gas	8169	10611	13369	14113	13894	14082	15254	15665	16040	5.0	0.4	0.9	0.5	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2257	3730	5355	5893	6311	1.6	10.2	9.0	1.7	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	9.0	9.5	17.7	21.0					
Oil	37.5	39.2	38.4	37.4	37.7	36.2	34.7	34.7	34.2					
Natural gas	17.3	21.0	23.4	25.7	25.0	25.6	28.2	30.2	31.5					
Nuclear	22.7	20.5	21.7	22.3	23.2	21.3	16.8	5.1	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.1	6.8	9.9	11.4	12.4					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88190	94498	104452	120139	131266	1.6	0.7	1.7	2.3	
Self consumption and grid losses	7382	7778	7813	8244	7516	8026	8912	12123	13559	0.6	-0.4	1.7	4.3	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6162	7170	9659	15480	18644	1.3	-1.9	4.6	6.8	
Solids	3875	3764	3025	1889	1809	1891	2313	6410	8072	-2.4	-5.0	2.5	13.3	
Oil (including refinery gas)	318	232	172	411	0	0	23	4	162	-6.0			21.8	
Gas (including derived gases)	1983	2721	3790	4612	3342	3648	5100	6495	7480	6.7	-1.3	4.3	3.9	
Biomass & Waste	368	465	466	1388	1011	1631	2224	2571	2931	2.4	8.1	8.2	2.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38296	37834	37487	37107	36910	1.5	-0.6	-0.2	-0.2	
Refineries	29036	28632	37085	35792	34902	34227	33697	33311	33133	2.5	-0.6	-0.4	-0.2	
Biofuels and hydrogen production	0	0	0	0	236	580	1018	1110	1181			15.7	1.5	
District heating	10	5	41	27	69	51	40	39	33	15.2	5.4	-5.3	-2.0	
Derived gases, cokeries etc.	6109	4320	3612	3173	3089	2977	2731	2647	2563	-5.1	-1.6	-1.2	-0.6	
Energy Branch Consumption	2310	2273	2370	2127	1908	1856	1817	1918	1927	0.3	-2.1	-0.5	0.6	
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3988	3950	7.8	-3.1	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	37157	37322	37142	36551	36047	1.7	0.1	0.0	-0.3	
by sector														
Industry	11886	12110	13636	11605	11799	11772	11621	11483	11488	1.4	-1.4	-0.2	-0.1	
- energy intensive industries	9285	9192	10043	8751	8874	8869	8681	8546	8453	0.8	-1.2	-0.2	-0.3	
- other industrial sectors	2600	2918	3593	2854	2925	2903	2940	2937	3035	3.3	-2.0	0.1	0.3	
Residential	8337	9295	9465	9914	9787	9799	9688	9253	8864	1.3	0.3	-0.1	-0.9	
Tertiary	3370	4604	4158	5005	5081	5048	5044	5028	4961	2.1	2.0	-0.1	-0.2	
Transport	7704	8480	9672	9880	10491	10703	10788	10786	10734	2.3	0.8	0.3	-0.1	
by fuel														
Solids	3787	3306	3378	2080	1847	1828	1709	1687	1600	-1.1	-5.9	-0.8	-0.7	
Oil	14734	16248	16047	16443	16330	15406	14406	13847	13220	0.9	0.2	-1.2	-0.9	
Gas	7249	8517	10010	10009	10446	10352	9965	8809	8156	3.3	0.4	-0.5	-2.0	
Electricity	4986	5885	6667	6894	7253	7748	8446	9504	10304	2.9	0.8	1.5	2.0	
Heat (from CHP and District Heating)	213	220	490	427	343	424	449	471	500	8.7	-3.5	2.7	1.1	
Renewable energy forms	326	312	338	549	937	1562	2164	2229	2263	0.3	10.7	8.7	0.5	
Other	0	0	0	0	1	1	3	4	4			14.9	2.2	
RES in Gross Final Energy Consumption ^(A)			495	909	1922	3432	4918	5400	5761	14.5	9.9	1.6		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	139.6	134.0	132.7	147.5	153.0	0.4	-0.6	-0.5	1.4	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	102.4	100.1	100.5	115.1	120.5	0.8	-1.2	-0.2	1.8	
Power generation/District heating	21.8	23.1	22.5	20.6	16.0	17.0	22.1	41.4	50.8	0.3	-3.3	3.3	8.7	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.7	3.6	3.4	3.3	0.3	-3.8	-0.4	-0.9	
Industry	30.2	28.7	30.5	22.8	22.6	21.7	20.5	20.2	19.8	0.1	-3.0	-1.0	-0.3	
Residential	18.7	20.1	20.0	20.3	19.2	17.6	15.4	11.8	9.0	0.7	-0.4	-2.2	-5.3	
Tertiary	7.5	10.4	8.2	10.5	10.3	9.7	9.4	9.1	9.0	0.8	2.3	-0.9	-0.5	
Transport	22.6	24.9	28.6	29.4	30.6	30.3	29.5	29.1	28.7	2.4	0.7	-0.4	-0.3	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.3	10.3	10.2	10.0	0.9	-0.2	0.2	-0.3	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	23.6	21.9	22.2	22.5	-1.4	1.6	-2.1	0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.2	94.2	93.3	103.7	107.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: EC proposal with JI/CDM & RES trading						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.7	147.1	132.3	116.6	106.6	-0.4	-2.2	-2.2	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.84	1.82	1.86	2.22	2.37	-1.1	-0.9	0.1	2.5
Import Dependency %	75.7	80.5	77.8	78.3	76.5	76.2	77.9	87.1	90.7				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.5	40.6	45.2	47.7	49.7		1.9	2.2	1.0
as % of GDP			10.9	10.6	10.9	10.9	11.0	10.7	10.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	71.4	65.5	60.3	56.3	-0.2	-2.4	-1.7	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	80.1	73.0	64.7	58.0	-0.9	-1.3	-1.8	-2.3
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.4	87.5	79.3	72.5	66.6	0.2	-0.2	-2.1	-1.7
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.7	41.8	39.0	36.5	0.1	-0.4	-0.8	-1.3
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.9	44.4	44.3	43.9	-0.7	0.0	-0.7	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.17	0.17	0.20	0.33	0.37	-1.7	-3.8	1.5	6.3
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.13	2.01	1.92	1.84	-0.7	-0.6	-1.0	-0.9
Industry	2.54	2.37	2.24	1.97	1.92	1.84	1.77	1.76	1.73	-1.3	-1.5	-0.8	-0.2
Residential	2.24	2.16	2.11	2.05	1.96	1.80	1.59	1.28	1.01	-0.6	-0.7	-2.1	-4.4
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.87	1.82	1.80	-1.3	0.3	-0.8	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.70	2.67	0.1	-0.2	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.1	9.0	13.0	14.3	15.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.6	10.6	11.4				
Gross Electricity generation by source (in GWh)													
			82639	85694	88190	94498	104452	120139	131266		0.7	1.7	2.3
Nuclear energy			48148	47586	50094	45361	35148	10232	0		0.4	-3.5	
Solids			12953	8552	7959	8532	10748	37903	47868		-4.8	3.0	16.1
Oil (including refinery gas)			865	1871	17	719	766	156	957		-32.6	46.5	2.2
Gas (including derived gases)			18968	23608	22671	26832	37676	48763	57496		1.8	5.2	4.3
Biomass-waste			1231	3561	4784	8471	11472	13179	14857		14.5	9.1	2.6
Hydro (pumping excluded)			459	288	361	363	367	360	360		-2.4	0.1	-0.2
Wind			15	227	2287	4180	8204	9437	9568		65.3	13.6	1.6
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17899	18921	20962	24269	25644		2.2	1.6	2.0
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0		0.1	-3.5	
<u>Renewable energy</u>			319	467	1230	2006	3628	4366	4461		14.5	11.4	2.1
Hydro (pumping excluded)			306	298	300	303	304	304	304		-0.2	0.1	0.0
Wind			13	167	906	1652	3231	3920	3949		52.9	13.6	2.0
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10796	11642	13238	18711	21184		2.6	2.1	4.8
of which cogeneration units			1863	2324	2998	4218	4892	4706	4844		4.9	5.0	-0.1
Solids fired			1680	1392	1258	1182	1341	4671	5568		-2.8	0.6	15.3
Gas fired			5522	6360	7628	7894	8900	11261	12995		3.3	1.6	3.9
Oil fired			615	641	588	546	523	169	291		-0.5	-1.2	-5.7
Biomass-waste fired			515	551	1322	2020	2474	2611	2330		9.9	6.5	-0.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	54.2	55.1	55.2	54.1	55.9				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.4	53.4	54.0	55.6	55.9				
% of gross electricity from CHP			7.3	7.2	17.3	24.7	24.8	22.8	21.8				
Carbon free gross electricity generation (%)			60.3	60.3	65.2	61.8	52.9	27.7	19.0				
- nuclear			58.3	55.5	56.8	48.0	33.7	8.5	0.0				
- renewable energy forms			2.1	4.8	8.4	13.8	19.3	19.2	19.0				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	165.1	174.0	180.7	187.8	193.9	2.0	1.7	0.9	0.7
Public road transport	10.9	13.1	13.3	17.6	18.8	19.2	19.7	20.1	20.3	2.0	3.5	0.5	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	120.9	125.2	127.5	130.9	133.4	1.8	1.2	0.5	0.4
Rail	7.3	7.6	8.6	10.1	11.8	13.1	14.3	15.2	16.5	1.7	3.2	2.0	1.4
Aviation	4.6	6.4	9.3	10.8	13.3	16.2	18.7	21.2	23.4	7.2	3.6	3.5	2.3
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.4	0.3
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.3	67.7	72.9	78.4	83.4	3.2	-0.4	1.4	1.4
Trucks	34.2	45.6	51.0	43.8	45.4	49.0	53.5	58.5	63.2	4.1	-1.2	1.7	1.7
Rail	8.4	7.3	7.7	8.1	8.8	9.4	9.9	10.1	10.4	-0.9	1.4	1.1	0.5
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10491	10703	10788	10786	10734	2.3	0.8	0.3	-0.1
Public road transport	165	164	170	173	182	176	172	163	153	0.3	0.7	-0.6	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5692	5608	5460	5167	4901	1.6	1.7	-0.4	-1.1
Trucks	2205	2420	2858	2581	2657	2757	2886	3132	3348	2.6	-0.7	0.8	1.5
Rail	177	202	183	185	196	197	194	181	156	0.4	0.7	-0.1	-2.1
Aviation	952	945	1530	1281	1536	1736	1844	1909	1941	4.9	0.0	1.8	0.5
Inland navigation	129	247	136	217	227	230	234	235	234	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	14984	13811	5591	593	1492	1587	4.1	12.1	39.6
Solids	1085	191	57	9	9	13	-11	-9	0	-56.0	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	315.1	719.0	-211.8
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3272	4733	5578	605	1501	1587	22.7	46.4	39.8
Hydro	23	39	25	31	32	31	1	0	1	1.9	0.2	4.0
Biomass & Waste	702	706	1675	2563	3480	4101	334	860	847	15.0	32.8	26.0
Wind	1	1	20	359	706	823	25	247	293	7.5	53.8	55.2
Solar and others	1	1	3	316	513	620	243	392	444	334.6	322.3	252.7
Geothermal	1	4	1	3	4	4	1	2	2	91.6	146.0	169.2
Net Imports	38857	48651	48968	48032	48806	54622	-2999	-4756	-4725	-5.9	-8.9	-8.0
Solids	9492	7566	5511	4950	5150	10704	-399	-1352	-117	-7.5	-20.8	-1.1
Oil	21468	27331	28425	27941	27269	26707	-1209	-1980	-2939	-4.1	-6.8	-9.9
- Crude oil and Feedstocks	26116	32658	30565	31580	31303	31142	-673	-1111	-1683	-2.1	-3.4	-5.1
- Oil products	-4648	-5328	-2141	-3639	-4035	-4434	-536	-868	-1256	17.3	27.4	39.5
Natural gas	8217	13278	14191	14082	15254	16040	-1450	-1579	-1820	-9.3	-9.4	-10.2
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	54941	54131	50940	-2402	-3251	-3114	-4.2	-5.7	-5.8
Solids	10244	8200	5450	4959	5159	10717	-411	-1360	-117	-7.7	-20.9	-1.1
Oil	17730	21949	20547	19866	18783	17434	-1206	-1967	-2916	-5.7	-9.5	-14.3
Natural gas	8169	13369	14113	14082	15254	16040	-1450	-1579	-1820	-9.3	-9.4	-10.2
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3730	5355	6311	664	1654	1738	21.7	44.7	38.0
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	9.0	9.5	21.0	-0.3	-1.8	1.0			
Oil	37.5	38.4	37.4	36.2	34.7	34.2	-0.6	-1.5	-3.4			
Natural gas	17.3	23.4	25.7	25.6	28.2	31.5	-1.5	-1.2	-1.6			
Nuclear	22.7	21.7	22.3	21.3	16.8	0.0	0.9	0.9	0.0			
Renewable energy forms	1.5	1.5	3.7	6.8	9.9	12.4	1.4	3.4	3.9			
Gross Electricity Generation in GWh_e	70202	82639	85694	94498	104452	131266	-6584	-4487	13518	-6.5	-4.1	11.5
Self consumption and grid losses	7382	7813	8244	8026	8912	13559	-607	-530	1882	-7.0	-5.6	16.1
Fuel Inputs to Thermal Power Generation	6544	7453	8299	7170	9659	18644	-1314	-1347	1507	-15.5	-12.2	8.8
Solids	3875	3025	1889	1891	2313	8072	-448	-1309	-91	-19.2	-36.2	-1.1
Oil (including refinery gas)	318	172	411	0	23	162	-89	-58	64	-99.8	-72.0	65.3
Gas (including derived gases)	1983	3790	4612	3648	5100	7480	-1087	-766	579	-23.0	-13.1	8.4
Biomass & Waste	368	466	1388	1631	2224	2931	311	786	955	23.5	54.7	48.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37834	37487	36910	-499	-870	-1491	-1.3	-2.3	-3.9
Refineries	29036	37085	35792	34227	33697	33133	-675	-1115	-1689	-1.9	-3.2	-4.9
Biofuels and hydrogen production	0	0	0	580	1018	1181	77	231	127	15.4	29.3	12.0
District heating	10	41	27	51	40	33	3	-1	-10	5.7	-2.4	-23.3
Derived gases, cokeries etc.	6109	3612	3173	2977	2731	2563	96	15	82	3.3	0.5	3.3
Energy Branch Consumption	2310	2370	2127	1856	1817	1927	-59	-107	-84	-3.1	-5.5	-4.2
Non-Energy Uses	2739	5814	4583	4051	4024	3950	-3	-5	-9	-0.1	-0.1	-0.2
Final Energy Demand	31296	36931	36403	37522	37142	36047	-1617	-2471	-3823	-4.2	-6.2	-9.6
by sector												
Industry	11886	13636	11605	11772	11621	11488	-124	-287	-396	-1.0	-2.4	-3.3
- energy intensive industries	9285	10043	8751	8869	8681	8453	-33	-164	-219	-0.4	-1.9	-2.5
- other industrial sectors	2600	3593	2854	2903	2940	3035	-91	-122	-177	-3.1	-4.0	-5.5
Residential	8337	9465	9914	9799	9688	8864	-549	-775	-1458	-5.3	-7.4	-14.1
Tertiary	3370	4158	5005	5048	5044	4961	-531	-666	-784	-9.5	-11.7	-13.7
Transport	7704	9672	9880	10703	10788	10734	-413	-743	-1185	-3.7	-6.4	-9.9
by fuel												
Solids	3787	3378	2080	1828	1709	1600	2	-75	-80	0.1	-4.2	-4.8
Oil	14734	16047	16443	15406	14406	13220	-1014	-1815	-2815	-6.2	-11.2	-17.6
Gas	7249	10010	10009	10352	9965	8156	-399	-810	-2384	-3.7	-7.5	-22.6
Electricity	4986	6667	6894	7748	8446	10304	-507	-328	1022	-6.1	-3.7	11.0
Heat (from CHP and District Heating)	213	490	427	424	449	500	-13	-22	-33	-3.0	-4.7	-6.2
Renewable energy forms	326	338	549	1562	2164	2263	315	579	469	25.2	36.5	26.1
Other	0	0	0	1	3	4	0	0	-2	5.8	8.3	-29.8
RES in Gross Final Energy Consumption ^(A)		495	909	3432	4918	5761	958	1744	1737	38.8	55.0	43.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	134.0	132.7	153.0	-12.2	-19.8	-19.0	-8.3	-13.0	-11.1
CO₂ Emissions (energy related)	106.2	115.4	107.8	100.1	100.5	120.5	-8.7	-15.1	-13.6	-8.0	-13.0	-10.1
Power generation/District heating	21.8	22.5	20.6	17.0	22.1	50.8	-4.6	-7.1	1.2	-21.2	-24.4	2.4
Energy Branch	5.4	5.5	4.3	3.7	3.6	3.3	-0.2	-0.2	-0.4	-4.0	-5.6	-9.9
Industry	30.2	30.5	22.8	21.7	20.5	19.8	0.3	0.0	0.2	1.6	-0.1	1.0
Residential	18.7	20.0	20.3	17.6	15.4	9.0	-1.8	-3.6	-9.0	-9.5	-18.8	-50.1
Tertiary	7.5	8.2	10.5	9.7	9.4	9.0	-1.0	-1.2	-1.4	-9.3	-11.5	-13.4
Transport	22.6	28.6	29.4	30.3	29.5	28.7	-1.5	-2.9	-4.2	-4.6	-9.0	-12.7
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.3	10.3	10.0	0.0	-0.1	-0.2	0.4	-0.6	-1.5
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	23.6	21.9	22.5	-3.5	-4.7	-5.3	-12.9	-17.6	-19.0
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	94.2	93.3	107.6	-8.6	-13.9	-13.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	147.1	132.3	106.6	-6.4	-7.9	-6.5	-4.2	-5.7	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.82	1.86	2.37	-0.08	-0.16	-0.12	-4.0	-7.8	-4.6
Import Dependency %	75.7	77.8	78.3	76.2	77.9	90.7	-1.8	-3.4	-3.0			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	40.6	45.2	49.7	1.4	2.3	3.2	3.6	5.4	6.8
as % of GDP		10.9	10.6	10.9	11.0	10.4	0.4	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.4	2.4	3.3						
as % of GDP				0.39	0.58	0.68						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	71.4	65.5	56.3	-0.8	-1.6	-1.9	-1.0	-2.4	-3.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	80.1	73.0	58.0	-4.5	-5.8	-9.5	-5.3	-7.4	-14.1
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	87.5	79.3	66.6	-9.2	-10.5	-10.5	-9.5	-11.7	-13.7
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.7	41.8	36.5	-0.9	-1.4	-2.2	-1.9	-3.2	-5.8
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.9	44.4	43.9	-1.9	-3.6	-5.1	-4.1	-7.5	-10.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.17	0.20	0.37	-0.03	-0.05	-0.03	-15.9	-21.1	-7.4
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.13	2.01	1.84	-0.01	-0.07	-0.18	-0.6	-3.3	-9.1
Industry	2.54	2.24	1.97	1.84	1.77	1.73	0.05	0.04	0.07	2.7	2.4	4.4
Residential	2.24	2.11	2.05	1.80	1.59	1.01	-0.08	-0.22	-0.73	-4.4	-12.3	-42.0
Tertiary	2.23	1.96	2.09	1.93	1.87	1.80	0.00	0.00	0.00	0.2	0.2	0.2
Transport	2.94	2.96	2.97	2.84	2.73	2.67	-0.03	-0.08	-0.09	-0.9	-2.7	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.0	13.0	15.5	2.8	5.1	5.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.6	11.4	0.9	2.7	2.3			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	94498	104452	131266	131266	-6584	-4487	13518	-6.5	-4.1	11.5
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	0.0
Solids	12953	8552	8532	10748	47868	47868	-1862	-6752	640	-17.9	-38.6	1.4
Oil (including refinery gas)	865	1871	719	766	957	957	-418	-265	90	-36.7	-25.7	10.4
Gas (including derived gases)	18968	23608	26832	37676	57496	57496	-6290	-4115	5231	-19.0	-9.8	10.0
Biomass-waste	1231	3561	8471	11472	14857	14857	1687	3774	4140	24.9	49.0	38.6
Hydro (pumping excluded)	459	288	363	367	360	360	7	1	14	1.9	0.2	4.0
Wind	15	227	4180	8204	9568	9568	293	2870	3404	7.5	53.8	55.2
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	14452	15254	18921	20962	25644	25644	34	363	3536	0.2	1.8	16.0
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	319	467	2006	3628	4461	4461	80	1003	1378	4.1	38.2	44.7
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1652	3231	3949	3949	80	1003	1378	5.1	45.0	53.6
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11642	13238	21184	21184	-45	-640	2158	-0.4	-4.6	11.3
of which cogeneration units	1863	2324	4218	4892	4844	4844	-317	-316	-509	-7.0	-6.1	-9.5
Solids fired	1680	1392	1182	1341	5568	5568	-292	-827	-88	-19.8	-38.1	-1.5
Gas fired	5522	6360	7894	8900	12995	12995	-482	-758	1326	-5.8	-7.9	11.4
Oil fired	615	641	546	523	291	291	-4	0	40	-0.7	0.0	15.7
Biomass-waste fired	515	551	2020	2474	2330	2330	733	946	880	56.9	61.9	60.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	55.1	55.2	55.9	55.9	-4.0	-3.2	-2.1			
Efficiency of gross thermal power generation (%)	39.3	39.0	53.4	54.0	55.9	55.9	1.3	0.9	0.2			
% of gross electricity from CHP	7.3	7.2	24.7	24.8	21.8	21.8	1.1	-0.2	-5.2			
Carbon free gross electricity generation (%)	60.3	60.3	61.8	52.9	19.0	19.0	6.0	8.3	4.2			
- nuclear	58.3	55.5	48.0	33.7	0.0	0.0	3.1	1.4	0.0			
- renewable energy forms	2.1	4.8	13.8	19.3	19.0	19.0	2.9	6.9	4.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	113.7	139.3	153.2	174.0	180.7	193.9	-1.9	-3.5	-4.8	-1.1	-1.9	-2.4
Private cars and motorcycles	10.9	13.3	17.6	19.2	19.7	20.3	0.3	0.5	0.6	1.6	2.4	2.9
Rail	90.1	107.7	114.4	125.2	127.5	133.4	-2.1	-3.7	-5.0	-1.7	-2.9	-3.6
Aviation	7.3	8.6	10.1	13.1	14.3	16.5	0.2	0.4	0.3	1.9	2.6	1.8
Inland navigation	4.6	9.3	10.8	16.2	18.7	23.4	-0.3	-0.5	-0.7	-1.9	-2.8	-2.9
Inland navigation	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.6	-0.3	-0.2
Freight transport activity (Gtkm)												
Trucks	48.0	65.9	60.5	67.7	72.9	83.4	-1.0	-1.8	-2.9	-1.4	-2.4	-3.3
Rail	34.2	51.0	43.8	49.0	53.5	63.2	-1.4	-2.5	-3.6	-2.8	-4.4	-5.4
Inland navigation	8.4	7.7	8.1	9.4	9.9	10.4	0.4	0.5	0.6	4.3	5.7	5.9
Inland navigation	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.1	0.2	1.0	1.6	2.0
Energy demand in transport (ktoe)												
Public road transport	7704	9672	9880	10703	10788	10734	-413	-743	-1185	-3.7	-6.4	-9.9
Private cars and motorcycles	165	170	173	176	172	153	-2	-5	-9	-1.0	-2.6	-5.7
Trucks	4075	4794	5442	5608	5460	4901	-180	-286	-363	-3.1	-5.0	-6.9
Rail	2205	2858	2581	2757	2886	3348	-181	-352	-569	-6.2	-10.9	-14.5
Aviation	177	183	185	197	194	156	1	1	-5	0.6	0.6	-2.9
Inland navigation	952	1530	1281	1736	1844	1941	-52	-102	-244	-2.9	-5.3	-11.2
Inland navigation	129	136	217	230	234	234	0	0	5	0.1	0.0	2.3

Source: PRIMES

Bulgaria: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9136	10192	9845	10611	9119	8527	10060	11451	12081	0.8	-0.8	1.0	1.8	
Solids	5121	5287	4310	4178	3585	2519	1630	634	738	-1.7	-1.8	-7.6	-7.6	
Oil	60	43	42	30	34	37	39	41	41	-3.5	-2.2	1.3	0.6	
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Renewable energy sources	161	370	792	1207	1742	2233	2749	3282	3830	17.2	8.2	4.7	3.4	
Hydro	161	151	230	373	310	322	326	333	341	3.6	3.0	0.5	0.5	
Biomass & Waste	0	219	562	801	1202	1502	1878	2347	2768		7.9	4.6	4.0	
Wind	0	0	0	0	33	83	160	183	257			17.0	4.9	
Solar and others	0	0	0	0	13	52	102	138	183			23.0	6.1	
Geothermal	0	0	0	33	184	273	284	281	279			4.4	-0.2	
Net Imports	17823	13475	8681	9416	9889	10455	10992	11668	12445	-6.9	1.3	1.1	1.2	
Solids	3527	2424	2258	2550	2737	2728	2362	2158	2245	-4.4	1.9	-1.5	-0.5	
Oil	8540	6511	4081	5086	5393	5854	6183	6620	6861	-7.1	2.8	1.4	1.0	
- Crude oil and Feedstocks	8247	8003	5346	6328	7215	7810	8239	8800	9113	-4.2	3.0	1.3	1.0	
- Oil products	292	-1492	-1265	-1242	-1821	-1955	-2055	-2180	-2252					
Natural gas	5430	4563	2742	2458	1994	2064	2270	2408	2700	-6.6	-3.1	1.3	1.8	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Gross Inland Consumption	27964	23305	18610	19885	18873	18829	20884	22940	24342	-4.0	0.1	1.0	1.5	
Solids	8706	7673	6417	6892	6321	5247	3992	2792	2983	-3.0	-0.2	-4.5	-2.9	
Oil	9593	6245	4181	4847	5293	5738	6054	6483	6717	-8.0	2.4	1.4	1.0	
Natural gas	5395	4584	2932	2804	2231	2264	2439	2552	2823	-5.9	-2.7	0.9	1.5	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Renewable energy forms	161	363	788	1181	1715	2295	3579	4474	5236	17.2	8.1	7.6	3.9	
as % in Gross Inland Consumption														
Solids	31.1	32.9	34.5	34.7	33.5	27.9	19.1	12.2	12.3					
Oil	34.3	26.8	22.5	24.4	28.0	30.5	29.0	28.3	27.6					
Natural gas	19.3	19.7	15.8	14.1	11.8	12.0	11.7	11.1	11.6					
Nuclear	13.5	19.1	25.2	24.2	18.7	18.8	26.2	32.0	30.2					
Renewable energy forms	0.6	1.6	4.2	5.9	9.1	12.2	17.1	19.5	21.5					
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	33612	36401	44332	48740	52444	-0.4	-1.9	2.8	1.7	
Self consumption and grid losses	8456	8102	7245	7081	4911	4822	4922	5010	5435	-1.5	-3.8	0.0	1.0	
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	4773	3955	3681	2970	3707	-4.6	-2.7	-2.6	0.1	
Solids	6800	6734	5245	5675	4603	3683	2413	1174	1417	-2.6	-1.3	-6.3	-5.2	
Oil (including refinery gas)	951	613	160	149	0	0	0	14	13	-16.3				
Gas (including derived gases)	2352	1835	884	697	170	127	101	70	70	-9.3	-15.2	-5.1	-3.6	
Biomass & Waste	0	0	3	2	0	144	1167	1712	2208				6.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	13079	11635	7612	8839	9004	9529	9892	10483	10795	-5.3	1.7	0.9	0.9	
Refineries	8341	8023	5406	6586	7444	8038	8466	9014	9305	-4.2	3.3	1.3	0.9	
Biofuels and hydrogen production	0	0	0	0	34	76	125	225	365			13.9	11.3	
District heating	2779	1544	324	370	582	576	589	589	532	-19.3	6.0	0.1	-1.0	
Derived gases, cokeries etc.	1960	2069	1882	1883	944	839	712	654	594	-0.4	-6.7	-2.8	-1.8	
Energy Branch Consumption	1359	1458	1146	1279	1374	1366	1414	1467	1523	-1.7	1.8	0.3	0.7	
Non-Energy Uses	1427	1236	1261	1059	990	1052	1186	1290	1358	-1.2	-2.4	1.8	1.4	
Final Energy Demand	16138	11575	8861	9682	10621	11664	12870	14174	15196	-5.8	1.8	1.9	1.7	
by sector														
Industry	8966	6032	3637	3673	3632	3848	4234	4680	5166	-8.6	0.0	1.5	2.0	
- energy intensive industries	5579	4837	2814	2809	2803	2940	3173	3457	3743	-6.6	0.0	1.2	1.7	
- other industrial sectors	3387	1195	823	864	829	908	1061	1223	1422	-13.2	0.1	2.5	3.0	
Residential	2264	2378	2363	2268	2430	2581	2836	3089	3307	0.4	0.3	1.6	1.5	
Tertiary	2389	1189	1044	1181	1427	1567	1648	1779	1848	-7.9	3.2	1.5	1.2	
Transport	2518	1976	1817	2560	3133	3668	4153	4626	4875	-3.2	5.6	2.9	1.6	
by fuel														
Solids	1477	1280	860	936	1162	1168	1218	1277	1247	-5.3	3.1	0.5	0.2	
Oil	4967	2893	2981	3599	4322	4800	5100	5510	5764	-5.0	3.8	1.7	1.2	
Gas	2066	1787	1231	1025	964	1024	1181	1273	1560	-5.0	-2.4	2.0	2.8	
Electricity	3085	2639	2358	2383	2127	2325	2575	2862	3086	-2.7	-1.0	1.9	1.8	
Heat (from CHP and District Heating)	4543	2798	877	939	768	839	1158	1320	1459	-15.2	-1.3	4.2	2.3	
Renewable energy forms	0	178	555	800	1277	1507	1638	1929	2078		8.7	2.5	2.4	
Other	0	0	0	0	0	1	1	2	2			16.2	3.8	
RES in Gross Final Energy Consumption ^(A)			786	1182	1696	2228	3355	4153	4819	8.0	7.1	3.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	60.8	56.3	51.7	44.6	44.1	-5.4	-0.4	-1.6	-1.6	
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	42.6	39.6	35.6	32.2	34.3	-5.3	0.1	-1.8	-0.4	
Power generation/District heating	44.8	38.2	24.9	26.2	20.8	16.8	11.6	6.4	7.3	-5.7	-1.8	-5.7	-4.5	
Energy Branch	1.6	1.4	1.3	1.6	1.7	1.1	1.0	1.0	1.0	-2.1	3.1	-5.4	-0.2	
Industry	11.2	9.3	8.3	7.6	8.2	8.1	7.9	8.2	9.0	-2.9	-0.2	-0.4	1.3	
Residential	3.0	2.2	1.2	1.2	1.4	1.2	1.3	1.4	1.4	-8.9	1.4	-1.1	1.3	
Tertiary	4.7	1.4	1.2	1.1	1.4	1.8	2.1	2.3	2.4	-13.0	2.0	3.9	1.1	
Transport	7.1	5.6	5.2	7.4	9.0	10.5	11.8	13.0	13.3	-3.0	5.7	2.7	1.2	
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.8	5.3	6.1	6.9	-4.2	0.1	2.1	2.6	
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	55.5	51.4	47.3	40.7	40.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	676.0	511.9	423.7	352.0	286.6	-2.3	-4.8	-4.6	-3.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.26	2.10	1.71	1.40	1.41	-1.3	0.0	-2.8	-1.9
Import Dependency %	63.6	57.2	46.5	47.1	52.0	55.1	52.2	50.5	50.7				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	7.9	9.7	12.1	14.6	17.0		3.0	4.4	3.4
as % of GDP			34.7	28.7	28.3	26.3	24.5	22.3	20.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.5	44.2	34.9	28.3	23.3	-3.0	-5.4	-4.9	-4.0
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	60.7	49.5	41.1	34.2	28.4	1.5	-4.9	-3.8	-3.6
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	84.2	70.2	55.6	46.0	37.1	-4.0	-1.7	-4.1	-4.0
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.6	30.5	29.7	27.8	2.5	1.9	-0.5	-0.9
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.5	61.7	60.0	60.0	59.9	2.1	-1.4	-0.7	0.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.43	0.32	0.18	0.09	0.10	0.2	-0.6	-8.3	-6.1
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.89	1.85	1.79	1.74	1.71	1.1	0.5	-0.5	-0.4
Industry	1.25	1.55	2.29	2.06	2.26	2.11	1.87	1.75	1.74	6.2	-0.1	-1.9	-0.7
Residential	1.33	0.92	0.50	0.53	0.56	0.48	0.43	0.41	0.42	-9.3	1.1	-2.6	-0.2
Tertiary	1.98	1.16	1.13	0.91	1.01	1.12	1.29	1.31	1.28	-5.5	-1.1	2.4	0.0
Transport	2.81	2.84	2.87	2.91	2.89	2.86	2.84	2.80	2.74	0.2	0.1	-0.1	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	15.2	18.2	25.0	28.2	30.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.2	3.2	5.3	8.2				
Gross Electricity generation by source (in GWh)													
			40639	43965	33612	36401	44332	48740	52444		-1.9	2.8	1.7
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	14274	15230	9095	3096	5038		-1.6	-4.4	-5.7
Oil (including refinery gas)			590	825	0	0	0	67	58				
Gas (including derived gases)			2368	1963	1342	1189	1066	606	653		-5.5	-2.3	-4.8
Biomass-waste			10	70	350	1549	6274	8253	8933		43.1	33.5	3.6
Hydro (pumping excluded)			2673	4336	3608	3745	3787	3873	3968		3.0	0.5	0.5
Wind			0	2	387	965	1859	2127	2993			17.0	4.9
Solar			0	0	2	5	9	19	101			17.5	26.9
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9937	11234	11936	13320	13326		-0.9	1.8	1.1
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2456	2981	3753	4005	5022		2.5	4.3	3.0
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	277	774	1529	1735	2522			18.6	5.1
Solar			0	0	2	4	8	15	97			17.5	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5596	6343	5312	5499	4487		0.2	-0.5	-1.7
of which cogeneration units			2163	2183	678	1240	1797	2229	2360		-11.0	10.2	2.8
Solids fired			4536	4527	4398	5091	3622	3607	2378		-0.3	-1.9	-4.1
Gas fired			603	625	783	640	313	238	153		2.6	-8.8	-6.9
Oil fired			355	355	359	334	262	54	18		0.1	-3.1	-23.6
Biomass-waste fired			11	11	56	278	1116	1600	1939		17.9	35.0	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	35.7	34.5	40.1	39.8	42.6				
Efficiency of gross thermal power generation (%)			27.0	27.7	28.8	39.1	38.4	34.8	34.1				
% of gross electricity from CHP			12.0	14.3	7.7	14.9	21.8	23.1	21.2				
Carbon free gross electricity generation (%)			51.3	52.4	53.5	54.9	77.1	92.3	89.0				
- nuclear			44.7	42.4	40.6	37.7	50.2	63.0	58.5				
- renewable energy forms			6.6	10.0	12.9	17.2	26.9	29.3	30.5				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	44.9	52.2	60.2	68.2	74.9		-1.7	2.9	3.0
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8		-6.1	-2.8	-0.7
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	48.8	53.9		11.2	6.6	3.7
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0		-7.8	-3.3	3.4
Aviation	0.8	0.9	0.9	1.6	2.5	3.5	4.5	5.5	6.2		0.6	10.6	6.2
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-23.0	-2.4	-0.7
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.2	32.7	38.6	43.3	46.6		-7.9	7.9	4.0
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.5	33.1	35.6		-6.1	11.9	4.1
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4		-8.9	-0.1	3.5
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7		-15.1	12.0	3.9
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3133	3668	4153	4626	4875		-3.2	5.6	2.9
Public road transport	318	152	158	97	82	72	67	66	62		-6.8	-6.4	-1.9
Private cars and motorcycles	231	175	639	928	1096	1240	1362	1486	1489		10.7	5.5	2.2
Trucks	1459	1223	842	1274	1629	1950	2244	2524	2723		-5.4	6.8	3.3
Rail	216	144	77	60	61	72	75	77	69		-9.8	-2.3	2.1
Aviation	276	276	101	200	263	331	402	471	528		-9.6	10.1	4.3
Inland navigation	18	6	1	2	2	3	3	3	3		-25.5	8.4	3.4

Source: PRIMES

Bulgaria: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8527	10060	12081	-1552	-1911	-942	-15.4	-16.0	-7.2
Solids	5121	4310	4178	2519	1630	738	-2459	-3237	-2829	-49.4	-66.5	-79.3
Oil	60	42	30	37	39	41	1	-1	0	3.0	-2.7	0.0
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	2233	2749	3830	905	1327	1887	68.2	93.4	97.2
Hydro	161	230	373	322	326	341	37	30	0	13.0	10.2	0.0
Biomass & Waste	0	562	801	1502	1878	2768	552	859	1325	58.1	84.3	91.8
Wind	0	0	0	83	160	257	47	118	179	128.5	277.6	228.6
Solar and others	0	0	0	52	102	183	39	76	134	282.2	292.7	270.6
Geothermal	0	0	33	273	284	279	231	245	250	546.7	625.5	850.0
Net Imports	17823	8681	9416	10455	10992	12445	215	-168	-309	2.1	-1.5	-2.4
Solids	3527	2258	2550	2728	2362	2245	14	-422	-597	0.5	-15.2	-21.0
Oil	8540	4081	5086	5854	6183	6861	179	-168	-174	3.2	-2.6	-2.5
- Crude oil and Feedstocks	8247	5346	6328	7810	8239	9113	225	-212	-218	3.0	-2.5	-2.3
- Oil products	292	-1265	-1242	-1955	-2055	-2252	-46	44	45	2.4	-2.1	-1.9
Natural gas	5430	2742	2458	2064	2270	2700	-70	-440	-992	-3.3	-16.3	-26.9
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18829	20884	24342	-1336	-2078	-1250	-6.6	-9.1	-4.9
Solids	8706	6417	6892	5247	3992	2983	-2445	-3659	-3426	-31.8	-47.8	-53.5
Oil	9593	4181	4847	5738	6054	6717	180	-168	-172	3.2	-2.7	-2.5
Natural gas	5395	2932	2804	2264	2439	2823	-69	-440	-992	-3.0	-15.3	-26.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	2295	3579	5236	998	2190	3340	76.9	157.6	176.2
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	27.9	19.1	12.3	-10.3	-14.2	-12.8			
Oil	34.3	22.5	24.4	30.5	29.0	27.6	2.9	1.9	0.7			
Natural gas	19.3	15.8	14.1	12.0	11.7	11.6	0.5	-0.9	-3.3			
Nuclear	13.5	25.2	24.2	18.8	26.2	30.2	1.2	2.4	1.5			
Renewable energy forms	0.6	4.2	5.9	12.2	17.1	21.5	5.8	11.1	14.1			
Gross Electricity Generation in GWh_e	42133	40639	43965	36401	44332	52444	-9721	-12442	-14264	-21.1	-21.9	-21.4
Self consumption and grid losses	8456	7245	7081	4822	4922	5435	-2100	-2660	-2820	-30.3	-35.1	-34.2
Fuel Inputs to Thermal Power Generation	10103	6292	6523	3955	3681	3707	-2303	-2919	-2360	-36.8	-44.2	-38.9
Solids	6800	5245	5675	3683	2413	1417	-2392	-3819	-3622	-39.4	-61.3	-71.9
Oil (including refinery gas)	951	160	149	0	0	13	0	0	1			8.2
Gas (including derived gases)	2352	884	697	127	101	70	-55	-262	-745	-30.1	-72.2	-91.4
Biomass & Waste	0	3	2	144	1167	2208	144	1162	2006		22282.1	995.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	9529	9892	10795	335	-103	-100	3.6	-1.0	-0.9
Refineries	8341	5406	6586	8038	8466	9305	224	-215	-220	2.9	-2.5	-2.3
Biofuels and hydrogen production	0	0	0	76	125	365	12	34	73	18.4	37.2	25.2
District heating	2779	324	370	576	589	532	71	65	23	14.1	12.5	4.4
Derived gases, cokeries etc.	1960	1882	1883	839	712	594	29	13	24	3.5	1.8	4.3
Energy Branch Consumption	1359	1146	1279	1366	1414	1523	-96	-168	-204	-6.5	-10.6	-11.8
Non-Energy Uses	1427	1261	1059	1052	1186	1358	-10	-9	-13	-1.0	-0.8	-1.0
Final Energy Demand	16138	8861	9682	11664	12870	15196	131	18	95	1.1	0.1	0.6
by sector												
Industry	8966	3637	3673	3848	4234	5166	-20	-101	-116	-0.5	-2.3	-2.2
- energy intensive industries	5579	2814	2809	2940	3173	3743	-13	-80	-64	-0.5	-2.5	-1.7
- other industrial sectors	3387	823	864	908	1061	1422	-7	-20	-52	-0.7	-1.9	-3.5
Residential	2264	2363	2268	2581	2836	3307	91	108	206	3.7	4.0	6.6
Tertiary	2389	1044	1181	1567	1648	1848	70	39	64	4.7	2.4	3.6
Transport	2518	1817	2560	3668	4153	4875	-10	-28	-59	-0.3	-0.7	-1.2
by fuel												
Solids	1477	860	936	1168	1218	1247	64	155	189	5.8	14.6	17.9
Oil	4967	2981	3599	4800	5100	5764	177	-160	-168	3.8	-3.1	-2.8
Gas	2066	1231	1025	1024	1181	1560	-7	41	64	-0.7	3.6	4.3
Electricity	3085	2358	2383	2325	2575	3086	-660	-845	-988	-22.1	-24.7	-24.2
Heat (from CHP and District Heating)	4543	877	939	839	1158	1459	-20	179	97	-2.3	18.3	7.2
Renewable energy forms	0	555	800	1507	1638	2078	577	648	900	62.0	65.5	76.3
Other	0	0	0	1	1	2	0	0	0	0.7	1.1	2.3
RES in Gross Final Energy Consumption ^(A)		786	1182	2228	3355	4819	948	1989	3009	74.0	145.6	166.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	56.3	51.7	44.1	-9.7	-16.7	-17.0	-14.8	-24.4	-27.8
CO₂ Emissions (energy related)	72.4	42.1	45.1	39.6	35.6	34.3	-9.8	-16.6	-16.9	-19.8	-31.8	-33.0
Power generation/District heating	44.8	24.9	26.2	16.8	11.6	7.3	-9.9	-16.2	-16.6	-37.1	-58.3	-69.4
Energy Branch	1.6	1.3	1.6	1.1	1.0	1.0	-0.7	-0.6	-0.7	-36.5	-38.6	-42.4
Industry	11.2	8.3	7.6	8.1	7.9	9.0	0.4	-0.5	-0.4	4.5	-5.8	-4.6
Residential	3.0	1.2	1.2	1.2	1.2	1.4	0.1	0.2	0.3	13.5	18.3	30.4
Tertiary	4.7	1.2	1.1	1.8	2.1	2.4	0.3	0.7	0.9	24.8	47.8	56.0
Transport	7.1	5.2	7.4	10.5	11.8	13.3	-0.1	-0.2	-0.4	-0.6	-1.5	-2.6
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.8	5.3	6.9	0.0	-0.1	-0.1	0.5	-1.0	-0.8
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	11.9	10.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	51.4	47.3	40.3	-8.9	-15.3	-15.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	511.9	423.7	286.6	-36.3	-42.2	-14.7	-6.6	-9.1	-4.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.10	1.71	1.41	-0.34	-0.57	-0.59	-14.1	-25.0	-29.6
Import Dependency %	63.6	46.5	47.1	55.1	52.2	50.7	4.7	4.0	1.3			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	9.7	12.1	17.0	0.0	0.5	1.0	0.0	4.6	6.3
as % of GDP		34.7	28.7	26.3	24.5	20.0	0.0	1.1	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.5	1.0						
as % of GDP				0.01	1.10	1.19						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	44.2	34.9	23.3	-0.2	-0.8	-0.5	-0.5	-2.3	-2.2
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	49.5	41.1	28.4	1.7	1.6	1.8	3.7	4.0	6.6
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	70.2	55.6	37.1	3.1	1.3	1.3	4.7	2.4	3.6
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.6	30.5	27.8	-0.1	-0.2	-0.2	-0.3	-0.6	-0.8
Freight transport (toe/Mtkm)	60.4	74.4	65.7	61.7	60.0	59.9	0.0	-0.2	-0.1	0.0	-0.3	-0.2
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.32	0.18	0.10	-0.11	-0.19	-0.17	-24.8	-51.5	-64.1
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.85	1.79	1.71	0.05	0.01	0.01	2.6	0.8	0.9
Industry	1.25	2.29	2.06	2.11	1.87	1.74	0.10	-0.07	-0.04	5.1	-3.6	-2.4
Residential	1.33	0.50	0.53	0.48	0.43	0.42	0.04	0.05	0.08	9.5	13.8	22.3
Tertiary	1.98	1.13	0.91	1.12	1.29	1.28	0.18	0.40	0.43	19.2	44.3	50.6
Transport	2.81	2.87	2.91	2.86	2.84	2.74	-0.01	-0.02	-0.04	-0.3	-0.8	-1.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	18.2	25.0	30.6	7.8	15.0	19.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.2	3.2	8.2	0.4	0.9	1.7			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	40639	43965	36401	44332	52444	52444	-9721	-12442	-14264	-21.1	-21.9	-21.4
Solids	18175	18650	13718	22242	30700	30700	0	0	0	0.0	0.0	0.0
Oil (including refinery gas)	16824	18120	15230	9095	5038	5038	-11156	-17232	-18931	-42.3	-65.5	-79.0
Gas (including derived gases)	590	825	0	0	58	58	0	0	29			100.9
Biomass-waste	2368	1963	1189	1066	653	653	-905	-2956	-5597	-43.2	-73.5	-89.5
Hydro (pumping excluded)	10	70	1549	6274	8933	8933	1364	6029	8085	736.9	2459.1	953.8
Wind	2673	4336	3745	3787	3968	3968	432	351	0	13.0	10.2	0.0
Solar	0	2	965	1859	2993	2993	543	1367	2082	128.5	277.6	228.6
Geothermal and other renewables	0	0	5	9	101	101	0	0	68	0.0	0.0	205.8
Net Generation Capacity in MW _e	10900	10201	11234	11936	13326	13326	159	1430	766	1.4	13.6	6.1
<u>Nuclear energy</u>	3473	2678	1910	2870	3817	3817	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	2981	3753	5022	5022	466	1170	1936	18.5	45.3	62.7
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	774	1529	2522	2522	466	1170	1866	151.3	326.8	284.1
Solar	0	0	4	8	97	97	0	0	70	0.0	0.0	265.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6343	5312	4487	4487	-307	260	-1169	-4.6	5.1	-20.7
of which cogeneration units	2163	2183	1240	1797	2360	2360	-324	160	-170	-20.7	9.8	-6.7
Solids fired	4536	4527	5091	3622	2378	2378	-451	-451	-1487	-8.1	-11.1	-38.5
Gas fired	603	625	640	313	153	153	-104	-365	-1262	-14.0	-53.9	-89.2
Oil fired	355	355	334	262	18	18	0	0	-174	0.0	0.0	-90.7
Biomass-waste fired	11	11	278	1116	1939	1939	248	1076	1753	809.0	2669.3	945.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	34.5	40.1	42.6	42.6	-9.3	-17.4	-14.2			
Efficiency of gross thermal power generation (%)	27.0	27.7	39.1	38.4	34.1	34.1	-0.3	-1.5	-10.0			
% of gross electricity from CHP	12.0	14.3	14.9	21.8	21.2	21.2	-3.4	3.5	-1.0			
Carbon free gross electricity generation (%)	51.3	52.4	54.9	77.1	89.0	89.0	16.6	30.5	34.4			
- nuclear	44.7	42.4	37.7	50.2	58.5	58.5	7.9	11.0	12.5			
- renewable energy forms	6.6	10.0	17.2	26.9	30.5	30.5	8.7	19.5	21.9			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	40.3	33.8	38.7	52.2	60.2	74.9	-0.1	-0.2	-0.6	-0.2	-0.4	-0.7
Private cars and motorcycles	26.0	13.9	11.5	9.9	9.7	9.8	0.0	0.0	0.0	0.0	0.1	0.3
Rail	5.4	15.5	23.1	36.0	42.5	53.9	0.0	-0.1	-0.4	-0.1	-0.2	-0.7
Aviation	7.8	3.5	2.4	2.8	3.5	5.0	0.0	0.0	0.0	0.0	0.0	0.1
Inland navigation	0.8	0.9	1.6	3.5	4.5	6.2	-0.1	-0.2	-0.2	-2.2	-3.3	-3.6
Freight transport activity (Gtkm)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Trucks	27.8	12.3	20.3	32.7	38.6	46.6	0.0	-0.1	-0.3	-0.1	-0.2	-0.7
Rail	12.0	6.4	14.3	24.9	29.5	35.6	0.0	-0.1	-0.4	-0.1	-0.3	-1.0
Inland navigation	14.1	5.5	5.2	6.6	7.7	9.4	0.0	0.0	0.0	0.0	0.0	0.3
Energy demand in transport (ktoe)	1.6	0.3	0.8	1.2	1.4	1.7	0.0	0.0	0.0	0.1	0.2	0.6
Public road transport	2518	1817	2560	3668	4153	4875	-10	-28	-59	-0.3	-0.7	-1.2
Private cars and motorcycles	318	158	97	72	67	62	0	0	0	0.0	0.1	0.4
Trucks	231	639	928	1240	1362	1489	-1	-2	-8	-0.1	-0.1	-0.5
Rail	1459	842	1274	1950	2244	2723	-2	-6	-26	-0.1	-0.3	-1.0
Aviation	216	77	60	72	75	69	0	-5	0	0.2	-6.5	0.0
Inland navigation	276	101	200	331	402	528	-7	-15	-25	-2.2	-3.7	-4.5
Inland navigation	18	1	2	3	3	3	0	0	0	0.1	0.2	0.6

Source: PRIMES

Cyprus: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	109	160	206	228	270	23.0	9.4	6.6	2.7	
Solids	0	0	0	0	1	0	0	0	0			-3.1	0.0	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	108	159	206	228	270	23.0	9.3	6.6	2.7	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.5	
Wind	0	0	0	0	9	11	45	61	88			17.3	7.0	
Solar and others	0	31	35	41	85	130	138	138	146		9.1	5.0	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			6.8	-0.3	
Net Imports	1554	2017	2537	2808	2940	2742	2786	2798	2768	5.0	1.5	-0.5	-0.1	
Solids	68	17	36	44	34	34	33	33	34	-6.3	-0.6	-0.1	0.2	
Oil	1486	2000	2502	2764	2763	2213	2226	2111	2072	5.3	1.0	-2.1	-0.7	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.0	-0.4	
- Oil products	761	1207	1353	2764	2761	2211	2224	2109	2070	5.9	7.4	-2.1	-0.7	
Natural gas	0	0	0	0	142	483	501	588	581			13.4	1.5	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2715	2563	2652	2683	2694	4.7	1.3	-0.2	0.2	
Solids	60	13	35	36	34	34	34	34	34	-5.3	-0.2	-0.1	0.2	
Oil	1434	1914	2302	2374	2429	1875	1886	1768	1727	4.8	0.5	-2.5	-0.9	
Natural gas	0	0	0	0	142	483	501	588	581			13.4	1.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	110	171	231	293	351	23.0	9.5	7.7	4.3	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.3	1.3	1.3	1.3	1.3					
Oil	95.6	97.2	96.7	96.5	89.5	73.2	71.1	65.9	64.1					
Natural gas	0.0	0.0	0.0	0.0	5.2	18.8	18.9	21.9	21.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	4.0	6.7	8.7	10.9	13.0					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4311	4577	5279	6030	6527	5.5	2.5	2.0	2.1	
Self consumption and grid losses	207	236	353	410	423	330	373	410	437	5.5	1.8	-1.3	1.6	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1018	790	846	895	893	5.7	1.4	-1.8	0.5	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	875	305	340	264	253	5.7	-0.1	-9.0	-2.9	
Gas (including derived gases)	0	0	0	0	142	483	501	588	581			13.4	1.5	
Biomass & Waste	0	0	0	0	0	2	5	44	59				27.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	7	16	29	36	44	4.9	-40.4	16.1	4.3	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.0	-0.4	
Biofuels and hydrogen production	0	0	0	0	4	14	27	34	42			20.7	4.6	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	23	13	14	14	14	4.3	-8.2	-4.8	-0.1	
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6	
Final Energy Demand	1013	1306	1527	1691	1834	1935	1973	1991	2003	4.2	1.8	0.7	0.2	
by sector														
Industry	281	201	229	201	201	204	216	224	231	-2.0	-1.3	0.7	0.7	
- energy intensive industries	246	125	117	78	74	73	71	69	69	-7.2	-4.5	-0.4	-0.2	
- other industrial sectors	35	76	113	122	127	130	145	155	163	12.3	1.2	1.4	1.1	
Residential	102	172	215	234	260	274	277	264	265	7.8	1.9	0.6	-0.5	
Tertiary	151	186	233	289	311	353	369	389	396	4.4	2.9	1.7	0.7	
Transport	479	747	850	967	1062	1105	1110	1114	1111	5.9	2.3	0.4	0.0	
by fuel														
Solids	76	13	35	36	34	34	34	34	34	-7.5	-0.2	-0.1	0.2	
Oil	781	1068	1190	1263	1367	1381	1346	1297	1260	4.3	1.4	-0.2	-0.7	
Gas	0	0	0	0	0	0	0	0	0			7.4	6.5	
Electricity	151	191	258	340	334	365	421	483	523	5.5	2.6	2.4	2.2	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	100	155	172	178	185	23.0	8.4	5.6	0.7	
Other	0	0	0	0	0	0	0	0	0			15.4	1.4	
RES in Gross Final Energy Consumption ^(A)			44	51	109	167	222	260	307		9.4	7.4	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.5	7.4	7.4	7.1	6.9	3.1	0.8	-1.3	-0.7	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.3	6.4	6.4	6.2	6.1	4.3	1.0	-1.4	-0.5	
Power generation/District heating	1.6	2.1	2.8	3.5	3.1	2.1	2.3	2.2	2.2	5.7	1.0	-3.2	-0.4	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.2	0.3	0.3	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.7	-5.2	-13.4	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	4.3	1.9	-2.2	-5.3	
Transport	1.4	2.2	2.5	2.9	3.1	3.2	3.2	3.2	3.2	6.0	2.2	0.2	-0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-1.1	-2.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	146.9	127.8	128.6	123.3	119.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	166.0	131.1	113.5	100.0	89.9	0.2	-2.0	-3.7	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.71	2.48	2.42	2.32	2.25	-0.4	-0.3	-1.1	-0.7
Import Dependency %	100.1	99.1	98.8	100.7	96.4	94.5	93.1	92.5	91.1				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.3	2.6	2.7		5.4	2.3	1.6
as % of GDP			9.3	11.4	11.3	10.3	9.9	9.6	9.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.4	59.9	54.3	50.5	-3.1	-2.8	-2.2	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.8	73.6	62.1	51.7	47.0	1.6	-1.7	-3.0	-2.8
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	94.3	88.3	77.2	70.5	64.0	-1.4	-0.6	-2.0	-1.9
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	42.9	40.8	39.1	37.5	2.1	0.2	-0.8	-0.9
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	256.0	244.7	238.4	235.9	3.5	-0.7	-0.6	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.43	0.37	0.33	0.2	-1.4	-5.2	-2.5
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.29	2.20	2.10	2.01	1.95	-0.8	-0.5	-0.9	-0.8
Industry	3.07	2.67	2.72	2.48	2.47	2.43	2.37	2.31	2.28	-1.2	-0.9	-0.4	-0.4
Residential	1.51	1.15	1.05	0.82	0.73	0.57	0.40	0.22	0.10	-3.6	-3.5	-5.8	-13.0
Tertiary	1.37	1.55	1.35	1.18	1.22	1.02	0.82	0.58	0.45	-0.1	-1.0	-3.9	-5.9
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.90	2.88	2.85	0.0	-0.1	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	5.8	8.5	11.1	12.8	15.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.5	1.5	3.0	3.8	4.8				
Gross Electricity generation by source (in GWh)													
			3369	4377	4311	4577	5279	6030	6527		2.5	2.0	2.1
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3650	1430	1564	1267	1224	0.8	-8.1	-2.4	
Gas (including derived gases)			0	0	554	3007	3130	3793	3873			18.9	2.2
Biomass-waste			0	0	0	9	28	213	288				26.1
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	130	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	0	0	48				65.4
Net Generation Capacity in MW_e			930	1155	1402	1391	1522	1727	1951		4.2	0.8	2.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	60	226	299	452		52.3	14.8	7.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	59	203	267	384			13.8	6.6
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	0	0	25				65.4
<u>Thermal power</u>			929	1154	1346	1331	1295	1428	1499		3.8	-0.4	1.5
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	443	639	815				6.3
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	3	6	57	66				27.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	33.0	36.3	38.4	38.8	37.3				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.5	48.4	48.0	50.7	51.8				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.5	3.1	11.1	16.1	21.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.5	3.1	11.1	16.1	21.9				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.7	17.8	18.7	19.3	3.5	3.4	1.5	0.8
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.6	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	4.9	5.0	2.5	3.9	0.9	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.7	11.5	12.1	12.5	4.0	3.3	1.7	0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1062	1105	1110	1114	1111	5.9	2.3	0.4	0.0
Public road transport	8	14	16	16	18	18	19	18	18	6.4	1.2	0.8	-0.8
Private cars and motorcycles	117	145	177	288	322	331	327	321	311	4.2	6.2	0.1	-0.5
Trucks	201	321	368	364	378	388	382	382	387	6.2	0.3	0.1	0.1
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	368	382	392	395	6.6	1.7	1.1	0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	160	206	270	52	53	70	47.8	34.9	34.9
Solids	0	0	0	0	0	0	0	-1	-4	-59.9	-72.6	-89.8
Oil	0	0	0	0	0	0	0	0	0	82.4	-152.6	
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6	44	51	159	206	270	52	55	74	48.3	36.0	37.6
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	6	9	10	18	23	35	0	0	0	0.0	0.0	-0.5
Wind	0	0	0	11	45	88	2	4	24	22.3	10.4	38.2
Solar and others	0	35	41	130	138	146	50	50	49	62.2	57.1	51.1
Geothermal	0	0	0	0	0	0	0	0	0	80.7	150.9	195.2
Net Imports	1554	2537	2808	2742	2786	2768	-327	-368	-445	-10.6	-11.7	-13.9
Solids	68	36	44	34	33	34	0	-1	-1	-1.0	-2.5	-2.3
Oil	1486	2502	2764	2213	2226	2072	-293	-267	-199	-11.7	-10.7	-8.8
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.6	-2.8	-1.8
- Oil products	761	1353	2764	2211	2224	2070	-293	-267	-199	-11.7	-10.7	-8.8
Natural gas	0	0	0	483	501	581	-35	-101	-224	-6.8	-16.7	-27.8
Electricity	0	0	0	0	0	0	0	0	0	0.0		-150.0
Gross Inland Consumption	1500	2381	2461	2563	2652	2694	-275	-314	-375	-9.7	-10.6	-12.2
Solids	60	35	36	34	34	34	-1	-2	-5	-1.8	-5.5	-11.7
Oil	1434	2302	2374	1875	1886	1727	-293	-266	-199	-13.5	-12.4	-10.3
Natural gas	0	0	0	483	501	581	-35	-101	-224	-6.8	-16.7	-27.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	0	0	0	0	0	0	0.0		-150.0
Renewable energy forms	6	44	51	171	231	351	53	54	52	45.5	30.9	17.6
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.3	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	73.2	71.1	64.1	-3.2	-1.4	1.4			
Natural gas	0.0	0.0	0.0	18.8	18.9	21.6	0.6	-1.4	-4.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	6.7	8.7	13.0	2.5	2.8	3.3			
Gross Electricity Generation in GWh_e	1974	3369	4377	4577	5279	6527	-1139	-1233	-1196	-19.9	-18.9	-15.5
Self consumption and grid losses	207	353	410	330	373	437	-106	-96	-90	-24.4	-20.4	-17.0
Fuel Inputs to Thermal Power Generation	509	884	1077	790	846	893	-277	-251	-232	-25.9	-22.9	-20.6
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	305	340	253	-239	-141	19	-43.9	-29.4	8.1
Gas (including derived gases)	0	0	0	483	501	581	-35	-101	-224	-6.8	-16.7	-27.8
Biomass & Waste	0	0	0	2	5	59	-3	-9	-27	-58.3	-62.8	-31.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	16	29	44	2	8	6	18.5	35.4	14.6
Refineries	725	1167	0	2	2	2	0	0	0	-3.6	-2.8	-1.8
Biofuels and hydrogen production	0	0	0	14	27	42	3	8	6	23.1	39.9	15.6
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	14	14	-5	-4	-3	-27.6	-20.5	-16.9
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1935	1973	2003	-90	-170	-273	-4.4	-7.9	-12.0
by sector												
Industry	281	229	201	204	216	231	-4	-8	-12	-2.1	-3.7	-5.0
- energy intensive industries	246	117	78	73	71	69	0	-1	0	-0.6	-1.3	-0.7
- other industrial sectors	35	113	122	130	145	163	-4	-7	-12	-2.9	-4.9	-6.8
Residential	102	215	234	274	277	265	0	-8	-29	0.0	-2.7	-10.0
Tertiary	151	233	289	353	369	396	-50	-89	-134	-12.4	-19.5	-25.3
Transport	479	850	967	1105	1110	1111	-35	-65	-97	-3.1	-5.5	-8.0
by fuel												
Solids	76	35	36	34	34	34	-1	-2	-5	-1.8	-5.5	-11.7
Oil	781	1190	1263	1381	1346	1260	-54	-125	-218	-3.7	-8.5	-14.7
Gas	0	0	0	0	0	0	0	0	0	12.0	8.4	40.7
Electricity	151	258	340	365	421	523	-89	-98	-95	-19.6	-18.8	-15.4
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	28.5	449.8	4299.8
Renewable energy forms	6	44	51	155	172	185	53	55	44	52.4	46.6	31.6
Other	0	0	0	0	0	0	0	0	0	6.5	8.2	-5.6
RES in Gross Final Energy Consumption ^(A)		44	51	167	222	307	54	58	66	48.2	35.4	27.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.4	7.4	6.9	-1.1	-1.2	-1.2	-13.0	-13.9	-15.3
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.4	6.4	6.1	-1.0	-1.1	-1.1	-13.7	-14.3	-15.8
Power generation/District heating	1.6	2.8	3.5	2.1	2.3	2.2	-0.8	-0.7	-0.5	-28.7	-23.4	-17.6
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-3.1	-7.4	-13.4
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	-1.7	-17.8	-69.8
Tertiary	0.2	0.3	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-8.0	-24.5	-53.1
Transport	1.4	2.5	2.9	3.2	3.2	3.2	-0.1	-0.2	-0.3	-3.4	-6.4	-9.5
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-7.5	-10.5	-11.3
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	127.8	128.6	119.4	-19.0	-20.7	-21.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: EC proposal with JI/CDM & RES trading												
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030	
							Difference from Baseline			% Change from Baseline			
Main Energy System Indicators													
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0	
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0	
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	131.1	113.5	89.9	-14.1	-13.5	-12.5	-9.7	-10.6	-12.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.48	2.42	2.25	-0.12	-0.11	-0.10	-4.5	-4.2	-4.0	
Import Dependency %	100.1	98.8	100.7	94.5	93.1	91.1	-2.1	-2.3	-3.0				
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.3	2.7	0.0	0.0	0.0	0.5	0.4	0.3	
as % of GDP		9.3	11.4	10.3	9.9	9.1	0.0	0.0	0.0				
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0							
as % of GDP				0.05	0.04	0.03							
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.4	59.9	50.5	-1.4	-2.3	-2.7	-2.1	-3.7	-5.0	
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	73.6	62.1	47.0	0.0	-1.7	-5.2	0.0	-2.7	-10.0	
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	88.3	77.2	64.0	-12.5	-18.7	-21.7	-12.4	-19.5	-25.3	
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	42.9	40.8	37.5	-0.4	-0.8	-1.4	-1.0	-2.0	-3.7	
Freight transport (toe/Mtkm)	199.1	280.6	261.2	256.0	244.7	235.9	-8.5	-16.8	-24.1	-3.2	-6.4	-9.3	
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.43	0.33	-0.06	-0.02	-0.01	-11.0	-5.5	-2.5	
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.20	2.10	1.95	0.02	-0.01	-0.06	0.7	-0.6	-3.1	
Industry	3.07	2.72	2.48	2.43	2.37	2.28	-0.03	-0.09	-0.22	-1.1	-3.8	-8.8	
Residential	1.51	1.05	0.82	0.57	0.40	0.10	-0.01	-0.07	-0.20	-1.6	-15.5	-66.5	
Tertiary	1.37	1.35	1.18	1.02	0.82	0.45	0.05	-0.06	-0.26	5.1	-6.3	-37.2	
Transport	2.97	2.98	2.97	2.94	2.90	2.85	-0.01	-0.03	-0.05	-0.3	-1.0	-1.6	
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	8.5	11.1	15.0	3.0	3.6	4.7				
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	1.5	3.0	4.8	0.3	1.0	1.1				
Gross Electricity generation by source (in GWh_e)													
Nuclear energy		3369	4377	4577	5279	6527	-1139	-1233	-1196	-19.9	-18.9	-15.5	
Solids		0	0	0	0	0	0	0	0				
Oil (including refinery gas)		3369	4376	1430	1564	1224	-931	-551	92	-39.4	-26.0	8.1	
Gas (including derived gases)		0	0	3007	3130	3873	-218	-719	-1533	-6.8	-18.7	-28.4	
Biomass-waste		0	0	9	28	288	-14	-47	-151	-61.2	-62.7	-34.4	
Hydro (pumping excluded)		0	0	0	0	0	0	0	0				
Wind		0	0	130	522	1029	24	49	284	22.3	10.4	38.2	
Solar		0	1	1	35	65	0	34	64	0.0	3301.2	6192.9	
Geothermal and other renewables		0	0	0	0	48	0	0	48			21384.3	
Net Generation Capacity in MW_e													
Nuclear energy		930	1155	1391	1522	1951	10	-158	-115	0.7	-9.4	-5.5	
Renewable energy		1	1	60	226	452	10	14	137	20.0	6.4	43.6	
Hydro (pumping excluded)		0	0	0	0	0	0	0	0				
Wind		0	0	59	203	384	10	-9	70	20.3	-4.2	22.5	
Solar		1	1	1	23	43	0	22	42	0.0	2641.3	4955.0	
Other renewables (tidal etc.)		0	0	0	0	25	0	0	25			21384.3	
Thermal power		929	1154	1331	1295	1499	0	-172	-252	0.0	-11.7	-14.4	
of which cogeneration units		0	0	0	0	0	0	0	0				
Solids fired		0	0	0	0	0	0	0	0				
Gas fired		0	0	429	443	815	0	-162	-248	0.0	-26.8	-23.3	
Oil fired		929	1154	899	846	618	0	0	0	0.0	0.0	0.0	
Biomass-waste fired		0	0	3	6	66	0	-10	-4	1.4	-62.4	-5.5	
Fuel Cells		0	0	0	0	0	0	0	0				
Geothermal heat		0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)		39.3	40.8	36.3	38.4	37.3	-9.2	-4.5	-4.4				
Efficiency of gross thermal power generation (%)		32.8	35.0	48.4	48.0	51.8	3.2	0.7	-1.5				
% of gross electricity from CHP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)		0.0	0.0	3.1	11.1	21.9	0.8	2.7	6.6				
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms		0.0	0.0	3.1	11.1	21.9	0.8	2.7	6.6				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport		7.9	11.1	13.5	16.7	17.8	19.3	-0.2	-0.3	-0.4	-1.0	-1.6	-1.9
Private cars and motorcycles		0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	2.6	3.5	4.1
Rail		2.3	3.0	3.9	4.6	4.8	5.0	0.0	-0.1	-0.1	-0.9	-1.6	-2.3
Aviation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation		4.7	7.0	8.4	10.7	11.5	12.5	-0.2	-0.3	-0.3	-1.5	-2.2	-2.6
Freight transport activity (Gtkm)													
Trucks		1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-2.0	-2.8	-3.4
Rail		1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-2.0	-2.8	-3.4
Inland navigation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
Public road transport		479	850	967	1105	1110	1111	-35	-65	-97	-3.1	-5.5	-8.0
Private cars and motorcycles		8	16	16	18	19	18	0	0	-1	0.1	-1.3	-5.8
Trucks		117	177	288	331	327	311	-8	-14	-22	-2.3	-4.0	-6.7
Rail		201	368	364	388	382	387	-21	-38	-54	-5.2	-9.1	-12.3
Aviation		0	0	0	0	0	0	0	0				
Inland navigation		152	290	299	368	382	395	-6	-13	-19	-1.7	-3.2	-4.6
		0	0	0	0	0	0	0	0				

Source: PRIMES

Czech Republic: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	38484	31733	29788	32779	28254	26332	25638	27048	23207	-2.5	-0.5	-1.0	-1.0	
Solids	34715	27481	25002	23520	17097	14063	12024	11001	10001	-3.2	-3.7	-3.5	-1.8	
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0	
Natural gas	201	198	169	154	170	174	173	170	164	-1.7	0.0	0.2	-0.6	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3	
Renewable energy sources	100	627	727	2142	3308	4302	5402	6691	7244	22.0	16.4	5.0	3.0	
Hydro	100	172	151	205	224	224	226	227	230	4.2	4.0	0.1	0.2	
Biomass & Waste	0	455	576	1933	2900	3625	4531	5664	6107		17.5	4.6	3.0	
Wind	0	0	0	2	81	130	183	214	250			8.5	3.2	
Solar and others	0	0	0	2	103	323	461	585	656			16.2	3.6	
Geothermal	0	0	0	0	0	0	0	0	0			12.5	5.0	
Net Imports	7630	8417	9297	12271	18478	19548	22052	22971	27083	2.0	7.1	1.8	2.1	
Solids	-5685	-5784	-4751	-3489	559	-92	662	374	4524			1.7	2.2	
Oil	8589	7742	7428	9499	10797	11718	12356	12946	13242	-1.4	3.8	1.4	0.7	
- Crude oil and Feedstocks	7382	6798	5492	7539	8632	9328	9809	10254	10476	-2.9	4.6	1.3	0.7	
- Oil products	1207	944	1936	1960	2165	2390	2547	2692	2767	4.8	1.1	1.6	0.8	
Natural gas	4786	6424	7482	7535	8327	8534	8494	8344	8014	4.6	1.1	0.2	-0.6	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Gross Inland Consumption	47380	40801	40307	44798	46732	45880	47689	50018	50290	-1.6	1.5	0.2	0.5	
Solids	29882	22556	21645	20099	17656	13971	12685	11375	14525	-3.2	-2.0	-3.3	1.4	
Oil	8964	7876	7790	9748	10997	11918	12556	13146	13442	-1.4	3.5	1.3	0.7	
Natural gas	5248	6552	7500	7703	8497	8709	8667	8514	8177	3.6	1.3	0.2	-0.6	
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Renewable energy forms	100	627	727	1955	3517	4960	7047	9478	10249	22.0	17.1	7.2	3.8	
as % in Gross Inland Consumption														
Solids	63.1	55.3	53.7	44.9	37.8	30.5	26.6	22.7	28.9					
Oil	18.9	19.3	19.3	21.8	23.5	26.0	26.3	26.3	26.7					
Natural gas	11.1	16.1	18.6	17.2	18.2	19.0	18.2	17.0	16.3					
Nuclear	6.9	7.7	8.7	14.2	16.0	16.5	16.4	18.0	11.1					
Renewable energy forms	0.2	1.5	1.8	4.4	7.5	10.8	14.8	18.9	20.4					
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	81916	85414	90019	102016	114794	1.6	1.2	0.9	2.5	
Self consumption and grid losses	8541	8837	10601	11632	10359	10140	11026	12396	17715	2.2	-0.2	0.6	4.9	
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13342	10754	10900	11761	15428	3.7	-1.7	-2.0	3.5	
Solids	9947	13571	14031	13955	12290	8566	7514	6366	9084	3.5	-1.3	-4.8	1.9	
Oil (including refinery gas)	741	311	203	126	80	28	22	3	2	-12.2	-8.9	-12.0	-19.8	
Gas (including derived gases)	300	573	1270	1286	828	1110	933	545	738	15.5	-4.2	1.2	-2.3	
Biomass & Waste	0	119	369	224	144	1050	2430	4847	5603		-9.0	32.6	8.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	18634	14422	11312	13108	14036	14339	14754	14890	14824	-4.9	2.2	0.5	0.0	
Refineries	7946	7026	6047	7957	8888	9609	10108	10561	10794	-2.7	3.9	1.3	0.7	
Biofuels and hydrogen production	0	11	0	3	398	638	1037	1160	1257			10.0	1.9	
District heating	2138	1404	999	909	1446	1041	746	382	223	-7.3	3.8	-6.4	-11.4	
Derived gases, cokeries etc.	8549	5982	4266	4239	3304	3051	2862	2787	2550	-6.7	-2.5	-1.4	-1.1	
Energy Branch Consumption	2124	1866	1919	1915	2217	2203	2275	2437	2803	-1.0	1.5	0.3	2.1	
Non-Energy Uses	1680	2132	1962	2419	2803	3173	3558	3865	4082	1.6	3.6	2.4	1.4	
Final Energy Demand	36267	25697	23905	25801	28403	30254	31778	32998	33836	-4.1	1.7	1.1	0.6	
by sector														
Industry	19215	12191	10031	9439	10053	10438	10802	11085	11334	-6.3	0.0	0.7	0.5	
- energy intensive industries	8050	6719	6276	6588	6975	7166	7274	7371	7491	-2.5	1.1	0.4	0.3	
- other industrial sectors	11165	5472	3755	2851	3077	3272	3529	3714	3843	-10.3	-2.0	1.4	0.9	
Residential	8625	5796	5260	6063	6831	7230	7456	7684	7804	-4.8	2.6	0.9	0.5	
Tertiary	5622	4871	3893	3730	3971	4232	4543	4813	5040	-3.6	0.2	1.4	1.0	
Transport	2804	2840	4721	6569	7548	8354	8977	9416	9659	5.3	4.8	1.7	0.7	
by fuel														
Solids	17789	6457	5164	3619	3692	3737	3627	3621	4265	-11.6	-3.3	-0.2	1.6	
Oil	6229	5018	5291	6913	7636	8262	8516	8807	8880	-1.6	3.7	1.1	0.4	
Gas	5146	6119	6419	6581	7191	7463	7756	8167	7610	2.2	1.1	0.8	-0.2	
Electricity	4142	4129	4243	4750	4531	4998	5488	6027	6456	0.2	0.7	1.9	1.6	
Heat (from CHP and District Heating)	2959	3664	2624	2478	2521	2472	2470	2512	2735	-1.2	-0.4	-0.2	1.0	
Renewable energy forms	0	309	165	1460	2831	3320	3919	3859	3884		32.9	3.3	-0.1	
Other	0	0	0	0	1	1	3	5	5			15.2	7.5	
RES in Gross Final Energy Consumption ^(A)			610	1832	3391	4680	6527	8612	9279		18.7	6.8	3.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	142.6	130.4	125.2	117.3	114.5	-3.1	-0.4	-1.3	-0.9	
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	112.7	100.3	95.9	91.1	90.7	-2.8	-0.4	-1.6	-0.6	
Power generation/District heating	48.8	60.4	62.1	61.0	54.4	39.5	34.2	27.5	25.9	2.4	-1.3	-4.5	-2.7	
Energy Branch	2.3	1.5	2.2	2.3	2.8	2.8	2.8	3.0	2.8	-0.5	2.4	0.1	0.0	
Industry	58.1	29.0	25.2	20.9	21.7	22.6	22.9	23.5	24.6	-8.0	-1.5	0.5	0.7	
Residential	24.0	10.6	7.9	7.1	8.0	7.9	7.7	7.8	7.8	-10.5	0.1	-0.4	0.1	
Tertiary	14.1	9.2	5.9	4.5	4.7	4.5	4.4	4.4	4.4	-8.4	-2.2	-0.5	-0.2	
Transport	7.5	7.7	13.4	19.1	21.1	23.0	23.8	24.9	25.3	6.0	4.6	1.2	0.6	
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.8	12.0	12.2	12.3	-3.8	-0.8	0.5	0.2	
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	69.9	63.9	61.3	57.5	56.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Czech Republic: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	375.2	309.0	267.6	245.4	221.5	-1.9	-2.5	-3.3	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.41	2.19	2.01	1.82	1.80	-1.2	-1.8	-1.8	-1.1
Import Dependency %	16.1	20.6	23.1	27.4	39.5	42.6	46.2	45.9	53.9				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	19.9	23.8	28.1	32.0	34.6		2.7	3.5	2.1
as % of GDP			18.3	16.9	16.0	16.0	15.7	15.7	15.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.6	52.4	46.1	41.8	38.5	-7.3	-5.0	-2.5	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	88.6	78.5	67.3	60.8	55.7	-5.8	-1.2	-2.7	-1.9
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	70.2	62.4	55.3	51.1	47.8	-7.4	-3.5	-2.4	-1.4
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.8	32.6	31.4	29.7	27.8	4.0	2.5	-0.5	-1.2
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.7	58.7	57.4	55.6	53.9	7.5	4.2	-0.1	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.44	0.32	0.26	0.19	0.17	1.8	-2.2	-5.0	-4.6
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.95	1.92	1.85	1.84	1.83	-2.6	-1.2	-0.5	-0.1
Industry	3.03	2.38	2.51	2.21	2.15	2.17	2.12	2.12	2.17	-1.8	-1.5	-0.2	0.2
Residential	2.78	1.84	1.50	1.16	1.17	1.09	1.03	1.02	0.99	-6.0	-2.5	-1.2	-0.4
Tertiary	2.51	1.89	1.51	1.21	1.18	1.06	0.98	0.92	0.87	-5.0	-2.4	-1.9	-1.2
Transport	2.68	2.71	2.85	2.90	2.79	2.75	2.66	2.64	2.62	0.6	-0.2	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	11.4	14.9	19.8	25.1	26.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.8	7.0	10.7	11.4	12.1				
Gross Electricity generation by source (in GWh)													
			72898	81916	81916	85414	90019	102016	114794		1.2	0.9	2.5
Nuclear energy			13588	24724	28995	29433	30388	35583	22720		7.9	0.5	-2.9
Solids			50038	47938	41940	38823	36188	33962	54477		-1.7	-1.5	4.2
Oil (including refinery gas)			528	447	67	40	49	14	11		-18.6	-3.1	-13.8
Gas (including derived gases)			6087	5565	6206	7926	7197	5525	6792		0.2	1.5	-0.6
Biomass-waste			899	841	1164	5076	11429	21784	25185		2.6	25.7	8.2
Hydro (pumping excluded)			1758	2380	2602	2605	2627	2638	2677		4.0	0.1	0.2
Wind			0	22	941	1509	2132	2493	2913			8.5	3.2
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14899	17093	18001	19029	18263		2.1	1.9	0.1
<u>Nuclear energy</u>			1661	3504	3519	3534	3541	4141	2640		7.8	0.1	-2.9
<u>Renewable energy</u>			1148	1227	1988	2392	3072	3419	3830		5.6	4.4	2.2
Hydro (pumping excluded)			1142	1196	1257	1260	1263	1264	1270		1.0	0.0	0.0
Wind			7	30	729	1126	1796	2133	2532		59.6	9.4	3.5
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9392	11167	11388	11468	11792		0.2	1.9	0.3
of which cogeneration units			3030	3110	2536	3561	4511	6003	6773		-1.8	5.9	4.1
Solids fired			7747	7661	7674	8766	8009	6472	6030		-0.1	0.4	-2.8
Gas fired			1208	1302	1336	1385	1403	1261	1462		1.0	0.5	0.4
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	256	900	1920	3705	4290		4.5	22.3	8.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	58.5	53.8	53.9	57.6	65.0				
Efficiency of gross thermal power generation (%)			31.2	30.2	31.8	41.5	43.3	44.8	48.2				
% of gross electricity from CHP			21.1	16.7	14.3	23.3	28.2	31.7	36.0				
Carbon free gross electricity generation (%)			22.3	34.1	41.1	45.2	51.7	61.3	46.6				
- nuclear			18.6	30.2	35.4	34.5	33.8	34.9	19.8				
- renewable energy forms			3.6	4.0	5.7	10.8	18.0	26.4	26.8				
Transport sector													
Passenger transport activity (Gpkm)	92.9	95.4	101.3	105.1	116.3	129.7	145.7	160.6	172.9	0.9	1.4	2.3	1.7
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.1	17.1	17.8	-3.7	-0.8	0.8	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	91.1	103.5	114.6	123.9	3.7	1.8	2.5	1.8
Rail	20.6	15.7	15.4	15.6	15.9	16.7	17.6	18.6	19.3	-2.9	0.4	1.0	0.9
Aviation	1.9	2.1	2.5	3.5	4.9	6.5	8.5	10.3	12.0	2.8	6.9	5.7	3.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	64.2	53.9	55.6	59.3	64.7	70.3	76.8	83.5	90.1	-1.4	1.5	1.7	1.6
Trucks	26.3	31.3	37.3	43.4	51.5	58.2	64.5	70.6	76.6	3.6	3.3	2.3	1.7
Rail	38.0	22.6	17.5	14.8	12.9	11.9	12.2	12.9	13.4	-7.5	-3.0	-0.6	1.0
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.0
Energy demand in transport (ktoe)	2804	2840	4721	6569	7548	8354	8977	9416	9659	5.3	4.8	1.7	0.7
Public road transport	132	110	98	111	111	112	111	108	104	-2.9	1.3	0.0	-0.6
Private cars and motorcycles	1271	1373	2257	2850	3192	3486	3735	3873	3856	5.9	3.5	1.6	0.3
Trucks	956	971	1868	2987	3536	3955	4239	4474	4706	6.9	6.6	1.8	1.1
Rail	272	200	295	271	237	215	200	199	182	0.8	-2.2	-1.7	-0.9
Aviation	174	185	197	346	471	584	691	761	810	1.3	9.1	3.9	1.6
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.2	-5.2	

Source: PRIMES

Czech Republic: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	26332	25638	23207	712	1076	1706	2.8	4.4	7.9
Solids	34715	25002	23520	14063	12024	10001	1	-17	-86	0.0	-0.1	-0.9
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	174	173	164	7	5	-16	4.1	2.7	-8.8
Nuclear	3246	3506	6379	7592	7839	5599	0	0	0	0.0	0.0	0.0
Renewable energy sources	100	727	2142	4302	5402	7244	705	1088	1808	19.6	25.2	33.3
Hydro	100	151	205	224	226	230	12	8	0	5.6	3.8	0.0
Biomass & Waste	0	576	1933	3625	4531	6107	396	636	1182	12.3	16.3	24.0
Wind	0	0	2	130	183	250	39	80	113	43.5	78.1	82.8
Solar and others	0	0	2	323	461	656	257	364	512	390.6	373.9	357.6
Geothermal	0	0	0	0	0	0	0	0	0	159.0	364.3	574.2
Net Imports	7630	9297	12271	19548	22052	27083	-1511	-2602	-3214	-7.2	-10.6	-10.6
Solids	-5685	-4751	-3489	-92	662	4524	-2584	-4311	-5057	-103.7	-86.7	-52.8
Oil	8589	7428	9499	11718	12356	13242	-135	-417	-713	-1.1	-3.3	-5.1
- Crude oil and Feedstocks	7382	5492	7539	9328	9809	10476	-103	-316	-538	-1.1	-3.1	-4.9
- Oil products	1207	1936	1960	2390	2547	2767	-33	-101	-175	-1.3	-3.8	-5.9
Natural gas	4786	7482	7535	8534	8494	8014	338	225	-772	4.1	2.7	-8.8
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	45880	47689	50290	-799	-1526	-1507	-1.7	-3.1	-2.9
Solids	29882	21645	20099	13971	12685	14525	-2583	-4328	-5143	-15.6	-25.4	-26.1
Oil	8964	7790	9748	11918	12556	13442	-135	-417	-713	-1.1	-3.2	-5.0
Natural gas	5248	7500	7703	8709	8667	8177	344	230	-788	4.1	2.7	-8.8
Nuclear	3246	3506	6379	7592	7839	5599	0	0	0	0.0	0.0	0.0
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	4960	7047	10249	1574	2989	5136	46.5	73.7	100.4
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	30.5	26.6	28.9	-5.0	-8.0	-9.1			
Oil	18.9	19.3	21.8	26.0	26.3	26.7	0.2	0.0	-0.6			
Natural gas	11.1	18.6	17.2	19.0	18.2	16.3	1.1	1.0	-1.0			
Nuclear	6.9	8.7	14.2	16.5	16.4	11.1	0.3	0.5	0.3			
Renewable energy forms	0.2	1.8	4.4	10.8	14.8	20.4	3.6	6.5	10.5			
Gross Electricity Generation in GWh_e	62260	72898	81916	85414	90019	114794	-13671	-14366	-11677	-13.8	-13.8	-9.2
Self consumption and grid losses	8541	10601	11632	10140	11026	17715	-2369	-2370	1086	-18.9	-17.7	6.5
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10754	10900	15428	-2269	-2909	-2195	-17.4	-21.1	-12.5
Solids	9947	14031	13955	8566	7514	9084	-3115	-4789	-6633	-26.7	-38.9	-42.2
Oil (including refinery gas)	741	203	126	28	22	2	0	-6	2	0.0	-20.9	-4.2
Gas (including derived gases)	300	1270	1286	1110	933	738	-126	-154	-119	-10.2	-14.2	-13.9
Biomass & Waste	0	369	224	1050	2430	5603	972	2041	4555	1248.1	523.9	434.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	14339	14754	14824	486	134	-491	3.5	0.9	-3.2
Refineries	7946	6047	7957	9609	10108	10794	-104	-317	-539	-1.1	-3.0	-4.8
Biofuels and hydrogen production	0	0	3	638	1037	1257	98	281	256	18.3	37.1	25.6
District heating	2138	999	909	1041	746	223	203	-29	-314	24.2	-3.7	-58.4
Derived gases, cokeries etc.	8549	4266	4239	3051	2862	2550	289	199	106	10.4	7.5	4.3
Energy Branch Consumption	2124	1919	1915	2203	2275	2803	-61	-68	252	-2.7	-2.9	9.9
Non-Energy Uses	1680	1962	2419	3173	3558	4082	-31	-33	-27	-1.0	-0.9	-0.7
Final Energy Demand	36267	23905	25801	30254	31778	33836	256	134	-56	0.9	0.4	-0.2
by sector												
Industry	19215	10031	9439	10438	10802	11334	103	-3	-86	1.0	0.0	-0.8
- energy intensive industries	8050	6276	6588	7166	7274	7491	96	-10	-24	1.4	-0.1	-0.3
- other industrial sectors	11165	3755	2851	3272	3529	3843	7	7	-62	0.2	0.2	-1.6
Residential	8625	5260	6063	7230	7456	7804	191	259	332	2.7	3.6	4.4
Tertiary	5622	3893	3730	4232	4543	5040	-1	-15	-132	0.0	-0.3	-2.6
Transport	2804	4721	6569	8354	8977	9659	-36	-107	-170	-0.4	-1.2	-1.7
by fuel												
Solids	17789	5164	3619	3737	3627	4265	286	206	1360	8.3	6.0	46.8
Oil	6229	5291	6913	8262	8516	8880	-95	-360	-679	-1.1	-4.1	-7.1
Gas	5146	6419	6581	7463	7756	7610	415	559	-258	5.9	7.8	-3.3
Electricity	4142	4243	4750	4998	5488	6456	-979	-1035	-1098	-16.4	-15.9	-14.5
Heat (from CHP and District Heating)	2959	2624	2478	2472	2470	2735	59	-96	195	2.5	-3.7	7.7
Renewable energy forms	0	165	1460	3320	3919	3884	569	859	424	20.7	28.1	12.2
Other	0	0	0	1	3	5	0	0	0	2.1	2.9	1.2
RES in Gross Final Energy Consumption ^(A)		610	1832	4680	6527	9279	1434	2691	4506	44.2	70.2	94.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	130.4	125.2	114.5	-9.3	-17.7	-36.8	-6.7	-12.4	-24.3
CO₂ Emissions (energy related)	154.8	116.7	114.8	100.3	95.9	90.7	-9.8	-17.8	-36.7	-8.9	-15.6	-28.8
Power generation/District heating	48.8	62.1	61.0	39.5	34.2	25.9	-11.8	-18.9	-39.4	-22.9	-35.6	-60.3
Energy Branch	2.3	2.2	2.3	2.8	2.8	2.8	0.1	0.1	0.0	3.3	2.5	1.7
Industry	58.1	25.2	20.9	22.6	22.9	24.6	1.5	1.5	3.4	7.2	7.0	16.2
Residential	24.0	7.9	7.1	7.9	7.7	7.8	0.1	0.0	-0.1	1.7	0.4	-0.7
Tertiary	14.1	5.9	4.5	4.5	4.4	4.4	0.6	0.6	0.4	16.6	15.2	11.1
Transport	7.5	13.4	19.1	23.0	23.8	25.3	-0.4	-1.0	-1.1	-1.5	-4.2	-4.3
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.8	12.0	12.3	0.4	0.1	-0.2	3.8	0.8	-1.4
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	18.3	17.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	63.9	61.3	56.1	-4.6	-8.7	-18.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Czech Republic: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	309.0	267.6	221.5	-5.4	-8.6	-6.6	-1.7	-3.1	-2.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.19	2.01	1.80	-0.17	-0.30	-0.66	-7.3	-12.9	-26.6
Import Dependency %	16.1	23.1	27.4	42.6	46.2	53.9	-2.5	-3.9	-4.6			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	23.8	28.1	34.6	0.2	0.9	1.9	0.9	3.2	5.9
as % of GDP		18.3	16.9	16.0	15.7	15.3	0.1	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.9	1.9						
as % of GDP				0.14	0.49	0.85						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	52.4	46.1	38.5	0.5	0.0	-0.3	1.0	0.0	-0.8
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	78.5	67.3	55.7	2.1	2.3	2.4	2.7	3.6	4.4
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	62.4	55.3	47.8	0.0	-0.2	-1.3	0.0	-0.3	-2.6
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	32.6	31.4	27.8	-0.1	-0.2	-0.4	-0.4	-0.8	-1.5
Freight transport (toe/Mtkm)	18.5	38.3	54.3	58.7	57.4	53.9	0.0	-0.2	-0.1	0.0	-0.3	-0.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.32	0.26	0.17	-0.05	-0.10	-0.23	-14.8	-27.7	-57.9
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.92	1.85	1.83	0.05	0.03	0.08	2.6	1.4	4.6
Industry	3.03	2.51	2.21	2.17	2.12	2.17	0.12	0.14	0.32	6.1	7.0	17.0
Residential	2.78	1.50	1.16	1.09	1.03	0.99	-0.01	-0.03	-0.05	-1.0	-3.1	-4.9
Tertiary	2.51	1.51	1.21	1.06	0.98	0.87	0.15	0.13	0.11	16.6	15.6	14.0
Transport	2.68	2.85	2.90	2.75	2.66	2.62	-0.03	-0.08	-0.07	-1.1	-3.0	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	14.9	19.8	26.1	4.5	8.2	12.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.0	10.7	12.1	1.1	3.0	2.6			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	85414	90019	114794	114794	-13671	-14366	-11677	-13.8	-13.8	-9.2
Nuclear energy	13588	24724	29433	30388	22720		0	0	0	0.0	0.0	0.0
Solids	50038	47938	38823	36188	54477		-17458	-23644	-33211	-31.0	-39.5	-37.9
Oil (including refinery gas)	528	447	40	49	11		-27	12	6	-40.0	32.7	134.8
Gas (including derived gases)	6087	5565	7926	7197	6792		-933	-770	-136	-10.5	-9.7	-2.0
Biomass-waste	899	841	5076	11429	25185		4150	9005	20344	448.1	371.5	420.3
Hydro (pumping excluded)	1758	2380	2605	2627	2677		139	96	0	5.6	3.8	0.0
Wind	0	22	1509	2132	2913		457	935	1320	43.5	78.1	82.8
Solar	0	0	4	8	20		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	12048	13981	17093	18001	18263		-452	370	-1186	-2.6	2.1	-6.1
<u>Nuclear energy</u>	1661	3504	3534	3541	2640		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1148	1227	2392	3072	3830		424	989	1436	21.5	47.5	60.0
Hydro (pumping excluded)	1142	1196	1260	1263	1270		14	13	7	1.1	1.0	0.6
Wind	7	30	1126	1796	2532		410	977	1429	57.3	119.1	129.5
Solar	0	1	6	12	29		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	9239	9250	11167	11388	11792		-876	-620	-2621	-7.3	-5.2	-18.2
of which cogeneration units	3030	3110	3561	4511	6773		-456	-60	1180	-11.4	-1.3	21.1
Solids fired	7747	7661	8766	8009	6030		-1511	-1999	-5469	-14.7	-20.0	-47.6
Gas fired	1208	1302	1385	1403	1462		-62	-80	-448	-4.3	-5.4	-23.5
Oil fired	118	122	118	57	11		0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	900	1920	4290		697	1459	3398	344.2	316.8	380.9
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	63.9	61.7	53.8	53.9	65.0		-6.8	-9.6	-4.5			
Efficiency of gross thermal power generation (%)	31.2	30.2	41.5	43.3	48.2		-2.2	-0.5	-0.3			
% of gross electricity from CHP	21.1	16.7	23.3	28.2	36.0		-3.3	0.3	9.6			
Carbon free gross electricity generation (%)	22.3	34.1	45.2	51.7	46.6		11.0	16.7	21.4			
- nuclear	18.6	30.2	34.5	33.8	19.8		4.8	4.6	1.8			
- renewable energy forms	3.6	4.0	10.8	18.0	26.8		6.3	12.1	19.6			
Transport sector												
Passenger transport activity (Gpkm)	92.9	101.3	105.1	129.7	145.7	172.9	-0.4	-1.1	-1.9	-0.3	-0.8	-1.1
Public road transport	23.6	16.2	14.7	15.4	16.1	17.8	0.0	0.1	0.1	0.1	0.4	0.6
Private cars and motorcycles	46.8	67.3	71.3	91.1	103.5	123.9	-0.4	-1.1	-1.8	-0.4	-1.0	-1.4
Rail	20.6	15.4	15.6	16.7	17.6	19.3	0.1	0.1	0.3	0.5	0.8	1.6
Aviation	1.9	2.5	3.5	6.5	8.5	12.0	-0.2	-0.3	-0.5	-2.3	-3.4	-4.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Freight transport activity (Gtkm)	64.2	55.6	59.3	70.3	76.8	90.1	-0.1	-0.4	-0.6	-0.2	-0.5	-0.6
Trucks	26.3	37.3	43.4	58.2	64.5	76.6	-0.1	-0.4	-0.7	-0.3	-0.7	-0.9
Rail	38.0	17.5	14.8	11.9	12.2	13.4	0.0	0.1	0.1	0.4	0.6	1.0
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.4
Energy demand in transport (ktoe)	2804	4721	6569	8354	8977	9659	-36	-107	-170	-0.4	-1.2	-1.7
Public road transport	132	98	111	112	111	104	0	1	0	0.1	0.5	0.0
Private cars and motorcycles	1271	2257	2850	3486	3735	3856	-10	-33	-49	-0.3	-0.9	-1.2
Trucks	956	1868	2987	3955	4239	4706	-9	-28	-44	-0.2	-0.7	-0.9
Rail	272	295	271	215	200	182	2	-7	2	0.8	-3.4	1.2
Aviation	174	197	346	584	691	810	-19	-40	-80	-3.1	-5.4	-8.9
Inland navigation	0	5	5	1	1	0	0	0	0	0.1	0.3	0.4

Source: PRIMES

Denmark: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	27844	22339	19717	19538	19177	10.6	0.1	-3.4	-0.3
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	7912	3976	3206	3258	3333	10.3	0.7	-8.6	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3432	4363	5511	6280	6844	5.6	5.2	4.8	2.2
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.5	0.2	0.1
Biomass & Waste	1140	1423	1687	2313	2673	3354	4341	4919	5207	4.0	4.7	5.0	1.8
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	75	294	397	427	515	12.5	26.2	18.2	2.6
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.0	12.8	0.2
Net Imports	8605	7534	-7076	-10498	-7943	-3221	-646	-416	-227				
Solids	6216	7664	3784	3505	3705	3771	3171	2630	2094	-4.8	-0.2	-1.5	-4.1
Oil	2711	1429	-8094	-9381	-7657	-5459	-2863	-2100	-1327				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8740	-6385	-3578	-2696	-1811				
- Oil products	679	627	1512	1804	1083	926	715	597	485	8.3	-3.3	-4.1	-3.8
Natural gas	-928	-1496	-2882	-5010	-4202	-2112	-1703	-1730	-1770				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19052	18241	18169	18193	17993	1.0	-0.3	-0.5	-0.1
Solids	6088	6498	3987	3715	3705	3771	3171	2630	2094	-4.1	-0.7	-1.5	-4.1
Oil	8144	9105	9043	8133	7993	7664	7235	6971	6717	1.1	-1.2	-1.0	-0.7
Natural gas	1818	3170	4449	4399	3710	1864	1503	1527	1563	9.4	-1.8	-8.6	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3745	4756	6020	6857	7454	5.9	5.8	4.9	2.2
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.4	20.7	17.5	14.5	11.6				
Oil	45.6	45.0	46.0	41.6	42.0	42.0	39.8	38.3	37.3				
Natural gas	10.2	15.7	22.6	22.5	19.5	10.2	8.3	8.4	8.7				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	19.7	26.1	33.1	37.7	41.4				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	36795	31042	31612	36191	39921	3.4	0.2	-1.5	2.4
Self consumption and grid losses	3290	4659	4046	3775	3638	3289	3451	4067	4434	2.1	-1.1	-0.5	2.5
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6207	5024	5006	5270	5270	2.7	-2.3	-2.1	0.5
Solids	5541	6061	3667	3444	3478	3382	2570	1995	1448	-4.0	-0.5	-3.0	-5.6
Oil (including refinery gas)	237	1008	1344	344	272	20	10	9	12	19.0	-14.8	-28.3	2.4
Gas (including derived gases)	174	975	2112	2003	1304	0	0	23	235	28.4	-4.7		
Biomass & Waste	65	378	699	1338	1153	1622	2426	3243	3574	26.9	5.1	7.7	4.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8697	8736	8741	8480	8278	-0.1	-0.3	0.1	-0.5
Refineries	8027	9958	8452	7821	7760	7615	7422	7304	7189	0.5	-0.9	-0.4	-0.3
Biofuels and hydrogen production	0	0	0	0	194	353	596	625	667			11.9	1.1
District heating	1005	761	515	509	744	768	723	551	422	-6.5	3.8	-0.3	-5.2
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1121	819	740	750	735	4.7	-0.3	-4.1	-0.1
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15275	15271	15415	15373	15257	0.8	0.4	0.1	-0.1
by sector													
Industry	2711	3026	2935	2831	2906	2940	2928	2919	2972	0.8	-0.1	0.1	0.2
- energy intensive industries	1076	1121	1243	1152	1174	1189	1164	1145	1149	1.5	-0.6	-0.1	-0.1
- other industrial sectors	1636	1905	1692	1679	1733	1751	1764	1774	1824	0.3	0.2	0.2	0.3
Residential	3946	4468	4154	4398	4320	4159	4289	4327	4318	0.5	0.4	-0.1	0.1
Tertiary	2822	2779	2801	2840	2605	2609	2601	2571	2505	-0.1	-0.7	0.0	-0.4
Transport	4012	4447	4720	5254	5444	5562	5596	5555	5462	1.6	1.4	0.3	-0.2
by fuel													
Solids	396	405	290	236	227	389	601	634	647	-3.1	-2.4	10.2	0.7
Oil	7097	7132	6950	7204	7020	6945	6676	6528	6314	-0.2	0.1	-0.5	-0.6
Gas	1159	1691	1667	1701	1749	1574	1267	1316	1143	3.7	0.5	-3.2	-1.0
Electricity	2517	2655	2791	2882	2718	2541	2630	2939	3186	1.0	-0.3	-0.3	1.9
Heat (from CHP and District Heating)	1758	2242	2255	2408	2372	2251	2381	2176	2009	2.5	0.5	0.0	-1.7
Renewable energy forms	566	595	657	892	1189	1570	1858	1777	1955	1.5	6.1	4.6	0.5
Other	0	0	0	0	0	1	2	2	2			13.7	4.2
RES in Gross Final Energy Consumption ^(A)			1919	2512	3384	4315	5339	6013	6637		5.8	4.7	2.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.7	56.8	52.1	48.4	45.0	0.1	-1.2	-1.8	-1.5
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.2	41.2	36.7	33.9	31.1	0.1	-1.3	-2.3	-1.6
Power generation/District heating	24.5	30.2	24.0	19.7	17.8	13.5	10.2	7.9	6.3	-0.2	-2.9	-5.4	-4.7
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.5	1.0	0.6	0.5	4.9	-0.7	-7.6	-6.1
Industry	5.4	6.0	5.4	5.0	4.9	5.2	5.3	5.4	5.2	-0.1	-0.8	0.7	-0.3
Residential	4.9	4.9	3.9	3.5	3.1	3.0	2.7	2.6	2.6	-2.3	-2.2	-1.4	-0.6
Tertiary	3.6	3.1	2.9	2.7	2.5	2.4	2.4	2.3	2.2	-2.1	-1.4	-0.6	-0.9
Transport	11.9	13.1	13.9	15.5	15.7	15.6	15.1	14.9	14.4	1.6	1.2	-0.3	-0.5
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.9	2.9	2.8	2.8	5.4	-0.2	-0.2	-0.3
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.8	12.6	11.7	11.1	-0.7	-1.2	-0.7	-1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	89.8	81.4	74.7	69.3	64.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Denmark: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.1	70.3	64.6	60.3	56.0	-1.6	-2.2	-2.3	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.43	2.26	2.02	1.86	1.73	-0.8	-0.9	-1.8	-1.5
Import Dependency %	45.7	34.5	-33.7	-51.6	-39.9	-16.8	-3.4	-2.2	-1.2				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.9	19.5	22.0	23.9	25.3		1.6	2.1	1.4
as % of GDP			7.8	8.0	7.6	7.5	7.8	7.9	7.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	85.4	78.9	73.8	70.8	-1.1	-0.8	-1.5	-1.1
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.8	74.0	71.0	67.2	63.2	-1.4	-1.8	-1.7	-1.1
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.8	68.7	63.0	58.0	52.9	-2.7	-2.7	-1.8	-1.7
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	37.2	35.9	33.5	31.1	0.0	0.6	-0.7	-1.4
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	70.4	67.6	65.5	63.1	0.1	0.5	-0.8	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.21	0.16	0.12	0.09	-3.1	-3.3	-4.4	-5.1
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.72	1.66	1.65	1.59	-0.7	-0.4	-0.4	-0.4
Industry	2.00	1.98	1.83	1.76	1.70	1.77	1.81	1.86	1.74	-0.9	-0.7	0.7	-0.4
Residential	1.24	1.09	0.93	0.80	0.72	0.72	0.63	0.63	0.59	-2.8	-2.5	-1.3	-0.6
Tertiary	1.27	1.12	1.04	0.94	0.97	0.92	0.91	0.88	0.86	-2.0	-0.7	-0.6	-0.5
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.70	2.68	2.64	0.0	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	21.0	26.9	33.1	37.6	41.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.5	11.1	11.9	13.0				
Gross Electricity generation by source (in GWh)													
			36043	36269	36795	31042	31612	36191	39921		0.2	-1.5	2.4
Nuclear energy			0	0	0	0	0	0	0				
Solids	14345	13553	15211	15064	12282	10929	8759			0.6	-2.1	-3.3	
Oil (including refinery gas)	5222	1525	1551	210	163	160	182			-11.4	-20.1	1.1	
Gas (including derived gases)	9658	9549	7987	1501	853	1505	2210			-1.9	-20.0	10.0	
Biomass-waste	2548	5006	4080	5943	9300	12709	15253			4.8	8.6	5.1	
Hydro (pumping excluded)	30	23	32	32	32	32	32			0.5	0.2	0.1	
Wind	4240	6613	7928	8279	8957	10822	13019			6.5	1.2	3.8	
Solar	0	0	6	13	24	34	465					15.8	34.4
Geothermal and other renewables	0	0	0	0	0	0	0						
Net Generation Capacity in MW_e			11888	12794	12775	12640	12254	12764	13419		0.7	-0.4	0.9
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>	2311	3014	3660	3780	4023	4630	5669			4.7	0.9	3.5	
Hydro (pumping excluded)	10	11	11	11	11	14	14			1.5	0.0	2.4	
Wind	2300	3000	3634	3732	3944	4520	5096			4.7	0.8	2.6	
Solar	2	3	16	37	68	97	559			24.9	15.8	23.4	
Other renewables (tidal etc.)	0	0	0	0	0	0	0						
<u>Thermal power</u>	9577	9781	9115	8860	8231	8134	7750			-0.5	-1.0	-0.6	
of which cogeneration units	7504	8538	5818	4564	4657	3956	4113			-2.5	-2.2	-1.2	
Solids fired	5528	5566	4819	4425	3541	3032	2213			-1.4	-3.0	-4.6	
Gas fired	2328	2485	2395	2411	2132	1992	2136			0.3	-1.2	0.0	
Oil fired	1271	1236	1182	988	911	894	783			-0.7	-2.6	-1.5	
Biomass-waste fired	450	494	719	1036	1646	2216	2619			4.8	8.6	4.8	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	0	0	0	0	0	0	0						
Avg. Load factor of net power capacity (%)			32.7	30.4	31.0	26.4	27.8	30.5	32.2				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.9	38.9	38.8	41.3	43.1				
% of gross electricity from CHP			63.9	68.3	62.2	62.9	63.1	58.0	52.4				
Carbon free gross electricity generation (%)			18.9	32.1	32.7	46.0	57.9	65.2	72.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	32.7	46.0	57.9	65.2	72.1				
Transport sector													
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	86.4	90.5	93.6	97.1	100.1	1.1	1.0	0.8	0.7
Public road transport	6.4	7.3	7.4	7.4	7.5	7.6	7.8	8.0	8.2	1.4	0.1	0.4	0.5
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.0	58.5	59.4	60.6	61.7	0.8	0.9	0.4	0.4
Rail	5.1	4.9	5.5	6.2	6.7	7.3	7.8	8.1	8.5	0.9	2.0	1.4	1.0
Aviation	5.5	7.0	9.0	9.8	11.4	13.3	14.8	16.2	17.4	5.0	2.4	2.6	1.6
Inland navigation	5.2	4.7	3.9	3.7	3.7	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.1	31.2	33.0	35.1	37.2	2.4	0.5	1.3	1.2
Trucks	18.1	22.4	24.0	23.3	25.0	26.7	28.2	29.9	31.7	2.9	0.4	1.2	1.2
Rail	1.7	2.0	2.0	2.0	2.2	2.4	2.6	2.7	2.9	1.6	0.8	1.6	1.3
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	-2.4	2.5	1.7	1.4
Energy demand in transport (ktoe)	4012	4447	4720	5254	5444	5562	5596	5555	5462	1.6	1.4	0.3	-0.2
Public road transport	57	76	78	83	81	78	77	73	69	3.1	0.4	-0.5	-1.2
Private cars and motorcycles	1628	1709	1788	2034	2046	1995	1921	1766	1643	0.9	1.4	-0.6	-1.6
Trucks	1374	1690	1816	1952	2021	2091	2130	2203	2294	2.8	1.1	0.5	0.7
Rail	113	117	103	106	109	110	107	99	54	-1.0	0.6	-0.2	-6.7
Aviation	690	675	820	944	1049	1147	1215	1265	1250	1.7	2.5	1.5	0.3
Inland navigation	150	181	115	136	138	141	145	150	153	-2.6	1.8	0.6	0.5

Source: PRIMES

Denmark: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22339	19177	19177	-1668	-497	613	-6.9	-2.5	3.3
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	3976	3206	3333	-2570	-2171	-1667	-39.3	-40.4	-33.3
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	4363	5511	6844	902	1673	2280	26.1	43.6	49.9
Hydro	2	3	2	3	3	3	0	0	0	4.9	2.9	0.0
Biomass & Waste	1140	1687	2313	3354	4341	5207	672	1402	1789	25.0	47.7	52.3
Wind	52	365	569	712	770	1120	25	0	151	3.7	0.0	15.6
Solar and others	2	7	10	294	397	515	205	271	339	229.1	214.8	193.3
Geothermal	2	3	3	0	0	0	0	0	0	70.9	279.9	279.9
Net Imports	8605	-7076	-10498	-3221	-646	-227	-228	-1618	-2663	7.6	-166.4	-109.3
Solids	6216	3784	3505	3771	3171	2094	-615	-1582	-1860	-14.0	-33.3	-47.0
Oil	2711	-8094	-9381	-5459	-2863	-1327	-706	-1065	-1414	14.9	59.2	-1622.9
- Crude oil and Feedstocks	2032	-9607	-11186	-6385	-3578	-1811	-439	-602	-806	7.4	20.2	80.1
- Oil products	679	1512	1804	926	715	485	-267	-463	-608	-22.4	-39.3	-55.6
Natural gas	-928	-2882	-5010	-2112	-1703	-1770	1014	865	401	-32.4	-33.7	-18.5
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	18241	18169	17993	-1896	-2113	-2046	-9.4	-10.4	-10.2
Solids	6088	3987	3715	3771	3171	2094	-615	-1582	-1860	-14.0	-33.3	-47.0
Oil	8144	9043	8133	7664	7235	6717	-706	-1062	-1409	-8.4	-12.8	-17.3
Natural gas	1818	4449	4399	1864	1503	1563	-1556	-1306	-1266	-45.5	-46.5	-44.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4756	6020	7454	981	1837	2489	26.0	43.9	50.1
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	20.7	17.5	11.6	-1.1	-6.0	-8.1			
Oil	45.6	46.0	41.6	42.0	39.8	37.3	0.5	-1.1	-3.2			
Natural gas	10.2	22.6	22.5	10.2	8.3	8.7	-6.8	-5.6	-5.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	26.1	33.1	41.4	7.3	12.5	16.7			
Gross Electricity Generation in GWh_e	25733	36043	36269	31042	31612	39921	-7831	-8122	-2648	-20.1	-20.4	-6.2
Self consumption and grid losses	3290	4046	3775	3289	3451	4434	-766	-889	-395	-18.9	-20.5	-8.2
Fuel Inputs to Thermal Power Generation	6016	7822	7129	5024	5006	5270	-1582	-1563	-1076	-24.0	-23.8	-17.0
Solids	5541	3667	3444	3382	2570	1448	-759	-1937	-1994	-18.3	-43.0	-57.9
Oil (including refinery gas)	237	1344	344	20	10	12	-258	-243	-180	-92.9	-96.1	-93.5
Gas (including derived gases)	174	2112	2003	0	0	235	-1018	-405	-412	-100.0	-100.0	-63.7
Biomass & Waste	65	699	1338	1622	2426	3574	452	1022	1510	38.7	72.8	73.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8736	8741	8278	-286	-335	-590	-3.2	-3.7	-6.7
Refineries	8027	8452	7821	7615	7422	7189	-439	-602	-806	-5.5	-7.5	-10.1
Biofuels and hydrogen production	0	0	0	353	596	667	43	125	58	13.7	26.6	9.5
District heating	1005	515	509	768	723	422	111	141	158	16.8	24.3	59.6
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	819	740	735	-255	-234	-207	-23.8	-24.1	-21.9
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	15271	15415	15297	-1097	-1250	-1537	-6.7	-7.5	-9.2
by sector												
Industry	2711	2935	2831	2940	2928	2972	-64	-112	-126	-2.1	-3.7	-4.1
- energy intensive industries	1076	1243	1152	1189	1164	1149	-13	-40	-42	-1.1	-3.3	-3.6
- other industrial sectors	1636	1692	1679	1751	1764	1824	-51	-73	-84	-2.8	-4.0	-4.4
Residential	3946	4154	4398	4159	4289	4318	-431	-326	-299	-9.4	-7.1	-6.5
Tertiary	2822	2801	2840	2609	2601	2505	-384	-429	-530	-12.8	-14.2	-17.5
Transport	4012	4720	5254	5562	5596	5462	-218	-382	-581	-3.8	-6.4	-9.6
by fuel												
Solids	396	290	236	389	601	647	144	355	134	58.6	144.0	26.1
Oil	7097	6950	7204	6945	6676	6314	-367	-689	-1008	-5.0	-9.4	-13.8
Gas	1159	1667	1701	1574	1267	1143	-301	-620	-513	-16.1	-32.9	-31.0
Electricity	2517	2791	2882	2541	2630	3186	-607	-620	-191	-19.3	-19.1	-5.6
Heat (from CHP and District Heating)	1758	2255	2408	2251	2381	2009	-266	-119	-277	-10.6	-4.7	-12.1
Renewable energy forms	566	657	892	1570	1858	1955	300	443	319	23.6	31.3	19.5
Other	0	0	0	1	2	2	0	0	-1	6.6	7.3	-26.1
RES in Gross Final Energy Consumption ^(A)		1919	2512	4315	5339	6637	940	1688	2415	27.8	46.3	57.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	56.8	52.1	45.0	-8.9	-13.4	-15.4	-13.5	-20.4	-25.5
CO₂ Emissions (energy related)	51.7	52.4	48.9	41.2	36.7	31.1	-8.2	-12.5	-14.6	-16.7	-25.4	-31.9
Power generation/District heating	24.5	24.0	19.7	13.5	10.2	6.3	-6.3	-9.6	-9.7	-31.9	-48.4	-60.5
Energy Branch	1.5	2.4	2.5	1.5	1.0	0.5	-0.6	-0.8	-1.2	-30.9	-45.0	-69.0
Industry	5.4	5.4	5.0	5.2	5.3	5.2	0.2	0.3	-0.1	3.5	6.9	-1.3
Residential	4.9	3.9	3.5	3.0	2.7	2.6	-0.4	-0.6	-1.0	-10.7	-18.7	-27.4
Tertiary	3.6	2.9	2.7	2.4	2.4	2.2	-0.3	-0.4	-0.7	-11.1	-13.8	-24.0
Transport	11.9	13.9	15.5	15.6	15.1	14.4	-0.8	-1.5	-2.0	-4.7	-8.9	-12.3
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.9	2.9	2.8	0.0	0.0	0.0	0.3	1.3	1.3
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.8	12.6	11.1	-0.6	-0.9	-0.9	-4.8	-6.7	-7.1
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	81.4	74.7	64.5	-12.7	-19.2	-22.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	70.3	64.6	56.0	-7.3	-7.5	-6.4	-9.4	-10.4	-10.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.26	2.02	1.73	-0.20	-0.41	-0.55	-8.0	-16.8	-24.1
Import Dependency %	45.7	-33.7	-51.6	-16.8	-3.4	-1.2	-2.6	-8.0	-12.8			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	19.5	22.0	25.3	-0.2	0.6	1.5	-0.8	2.7	6.5
as % of GDP		7.8	8.0	7.5	7.8	7.9	-0.1	0.2	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				-0.1	0.6	1.6						
as % of GDP				-0.06	0.21	0.48						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	85.4	78.9	70.8	-1.8	-3.0	-3.0	-2.1	-3.7	-4.1
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	74.0	71.0	63.2	-7.7	-5.4	-4.4	-9.4	-7.1	-6.5
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	68.7	63.0	52.9	-10.1	-10.4	-11.2	-12.8	-14.2	-17.5
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	37.2	35.9	31.1	-0.7	-1.0	-1.6	-1.7	-2.6	-4.9
Freight transport (toe/Mtkm)	68.3	69.2	75.8	70.4	67.6	63.1	-2.5	-4.6	-6.6	-3.4	-6.4	-9.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.21	0.16	0.09	-0.05	-0.11	-0.13	-19.4	-40.5	-57.3
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.72	1.66	1.59	0.04	0.00	-0.08	2.3	-0.3	-4.6
Industry	2.00	1.83	1.76	1.77	1.81	1.74	0.10	0.18	0.05	5.7	11.1	2.9
Residential	1.24	0.93	0.80	0.72	0.63	0.59	-0.01	-0.09	-0.17	-1.5	-12.5	-22.3
Tertiary	1.27	1.04	0.94	0.92	0.91	0.86	0.02	0.00	-0.07	2.0	0.4	-7.9
Transport	2.96	2.95	2.96	2.81	2.70	2.64	-0.03	-0.08	-0.08	-0.9	-2.7	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	12.4	15.5	26.9	33.1	41.9	41.9	7.4	12.2	17.7			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	6.5	11.1	13.0	13.0	1.0	3.0	2.5			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	15064	12282	8759	7599	-2379	-6627	-7006	-13.6	-35.0	-44.4
Oil (including refinery gas)	5222	1525	210	163	182	182	-1355	-1342	-1180	-86.6	-89.1	-86.6
Gas (including derived gases)	9658	9549	1501	853	2210	2210	-6160	-4056	-2762	-80.4	-82.6	-55.6
Biomass-waste	2548	5006	5943	9300	15253	15253	1766	3902	6116	42.3	72.3	66.9
Hydro (pumping excluded)	30	23	32	32	32	32	1	1	0	4.9	2.9	0.0
Wind	4240	6613	8279	8957	13019	13019	296	0	1761	3.7	0.0	15.6
Solar	0	0	13	24	465	465	0	0	423	0.0	0.0	998.9
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	11888	12794	12640	12254	13419	13419	-73	278	456	-0.6	2.3	3.5
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4023	5669	5669	93	0	1012	2.5	0.0	21.7
Hydro (pumping excluded)	10	11	11	11	14	14	0	0	3	0.0	0.0	26.9
Wind	2300	3000	3732	3944	5096	5096	93	0	570	2.6	0.0	12.6
Solar	2	3	37	68	559	559	0	0	439	0.0	0.0	365.9
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8860	8231	7750	7750	-166	278	-556	-1.8	3.5	-6.7
of which cogeneration units	7504	8538	4564	4657	4113	4113	-1577	-66	-18	-25.7	-1.4	-0.4
Solids fired	5528	5566	4425	3541	2213	2213	0	0	-212	0.0	0.0	-8.7
Gas fired	2328	2485	2411	2132	2136	2136	-508	-508	-1230	-17.4	-19.2	-36.5
Oil fired	1271	1236	988	911	783	783	0	0	-116	0.0	0.0	-12.9
Biomass-waste fired	450	494	1036	1646	2619	2619	342	786	1002	49.2	91.4	62.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	26.4	27.8	32.2	32.2	-6.6	-8.0	-3.3			
Efficiency of gross thermal power generation (%)	34.9	35.8	38.9	38.8	43.1	43.1	-1.3	-1.4	0.8			
% of gross electricity from CHP	63.9	68.3	62.9	63.1	52.4	52.4	0.7	4.3	3.4			
Carbon free gross electricity generation (%)	18.9	32.1	46.0	57.9	72.1	72.1	14.6	21.7	24.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	46.0	57.9	72.1	72.1	14.6	21.7	24.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	70.1	77.8	81.6	90.5	93.6	100.1	-1.1	-1.9	-2.5	-1.2	-2.0	-2.4
Private cars and motorcycles	6.4	7.4	7.4	7.6	7.8	8.2	0.1	0.2	0.2	1.7	2.6	3.0
Rail	47.8	51.9	54.4	58.5	59.4	61.7	-1.1	-1.8	-2.4	-1.8	-3.0	-3.8
Aviation	5.1	5.5	6.2	7.3	7.8	8.5	0.2	0.1	0.2	2.2	1.5	3.0
Inland navigation	5.5	9.0	9.8	13.3	14.8	17.4	-0.3	-0.4	-0.6	-2.0	-2.8	-3.2
Freight transport activity (Gtkm)	5.2	3.9	3.7	3.8	4.0	4.3	0.0	0.0	0.0	-0.6	-0.2	-0.1
Trucks	21.7	27.5	27.0	31.2	33.0	37.2	-0.6	-0.9	-1.3	-1.8	-2.8	-3.4
Rail	18.1	24.0	23.3	26.7	28.2	31.7	-0.7	-1.1	-1.6	-2.5	-3.9	-4.7
Inland navigation	1.7	2.0	2.0	2.4	2.6	2.9	0.1	0.1	0.2	4.4	5.6	6.5
Energy demand in transport (ktoe)	1.9	1.5	1.7	2.1	2.3	2.6	0.0	0.1	0.1	1.6	2.5	3.0
Public road transport	4012	4720	5254	5562	5596	5462	-218	-382	-581	-3.8	-6.4	-9.6
Private cars and motorcycles	57	78	83	78	77	69	0	-1	-4	-0.5	-1.3	-5.1
Trucks	1628	1788	2034	1995	1921	1643	-67	-104	-128	-3.2	-5.1	-7.2
Rail	1374	1816	1952	2091	2130	2294	-120	-225	-345	-5.4	-9.6	-13.1
Aviation	113	103	106	110	107	54	1	2	6	1.1	2.3	12.6
Inland navigation	690	820	944	1147	1215	1250	-31	-53	-109	-2.6	-4.2	-8.0
Energy demand in transport (ktoe)	150	115	136	141	145	153	-1	-1	-3	-0.7	-0.8	-1.7

Source: PRIMES

Estonia: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	6249	3618	3332	4304	3451	3584	3274	3367	3518	-6.1	0.3	-0.5	0.7
Solids	5798	3129	2830	3261	2516	2400	1493	1149	1053	-6.9	-1.2	-5.1	-3.4
Oil	0	0	2	331	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	450	489	500	712	935	1184	1781	2218	2465	1.1	6.5	6.7	3.3
Hydro	0	0	0	2	2	2	3	3	3		18.5	0.7	0.1
Biomass & Waste	450	488	500	706	831	1064	1582	1948	2121	1.0	5.2	6.6	3.0
Wind	0	0	0	5	98	107	181	246	314		102.2	6.3	5.6
Solar and others	0	0	0	0	3	10	15	22	27			17.4	6.2
Geothermal	0	0	0	0	0	0	0	0	0			13.6	1.3
Net Imports	4456	1987	1447	1463	2061	2280	2250	2151	2095	-10.6	3.6	0.9	-0.7
Solids	697	292	244	27	120	128	134	142	122	-10.0	-6.8	1.1	-1.0
Oil	3139	1178	626	867	1560	1692	1741	1742	1763	-14.9	9.6	1.1	0.1
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.0	0.1
- Oil products	3139	1178	626	867	1559	1690	1739	1741	1761	-14.9	9.6	1.1	0.1
Natural gas	1222	583	662	800	639	700	700	642	636	-5.9	-0.3	0.9	-1.0
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Gross Inland Consumption	10642	5630	4712	5627	5360	5691	5337	5321	5411	-7.8	1.3	0.0	0.1
Solids	6703	3598	3119	3255	2636	2528	1628	1290	1175	-7.4	-1.7	-4.7	-3.2
Oil	2858	1032	510	1090	1408	1519	1553	1546	1561	-15.8	10.7	1.0	0.1
Natural gas	1222	583	662	800	639	700	700	642	636	-5.9	-0.3	0.9	-1.0
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Renewable energy forms	460	483	501	621	827	1046	1575	1966	2190	0.9	5.1	6.7	3.3
as % in Gross Inland Consumption													
Solids	63.0	63.9	66.2	57.8	49.2	44.4	30.5	24.2	21.7				
Oil	26.9	18.3	10.8	19.4	26.3	26.7	29.1	29.1	28.9				
Natural gas	11.5	10.3	14.1	14.2	11.9	12.3	13.1	12.1	11.7				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	8.6	10.6	11.0	15.4	18.4	29.5	36.9	40.5				
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	11362	11994	13215	14271	15759	-6.8	2.9	1.5	1.8
Self consumption and grid losses	2615	1409	1247	1422	1424	1543	1500	1594	1726	-7.1	1.3	0.5	1.4
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2673	2727	2335	2285	2373	-8.0	0.9	-1.3	0.2
Solids	5085	2499	2213	2297	2473	2352	1453	1108	1013	-8.0	1.1	-5.2	-3.5
Oil (including refinery gas)	210	80	12	10	23	8	40	34	41	-25.2	7.4	5.6	0.2
Gas (including derived gases)	357	100	226	227	132	162	204	186	181	-4.5	-5.2	4.4	-1.2
Biomass & Waste	2	2	2	5	44	205	637	957	1139	-0.3	35.7	30.6	6.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2285	1007	783	769	420	483	388	321	275	-10.2	-6.0	-0.8	-3.4
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.3	1.0	0.1
Biofuels and hydrogen production	0	0	0	0	45	75	113	122	134			9.6	1.8
District heating	1755	527	485	511	359	398	268	193	135	-12.1	-3.0	-2.9	-6.6
Derived gases, cokeries etc.	529	479	297	257	14	9	6	5	4	-5.6	-26.2	-7.7	-4.1
Energy Branch Consumption	295	148	179	209	205	211	195	193	193	-4.9	1.3	-0.5	-0.1
Non-Energy Uses	69	225	219	230	224	217	218	218	217	12.2	0.2	-0.3	0.0
Final Energy Demand	6392	2627	2445	2854	3275	3567	3776	3923	4055	-9.2	3.0	1.4	0.7
by sector													
Industry	2742	794	531	654	773	841	893	943	986	-15.1	3.8	1.4	1.0
- energy intensive industries	738	430	203	215	227	245	261	275	284	-12.1	1.1	1.4	0.9
- other industrial sectors	2004	364	328	440	546	597	632	669	702	-16.6	5.2	1.5	1.0
Residential	1482	1054	984	977	989	1027	1074	1114	1133	-4.0	0.1	0.8	0.5
Tertiary	1330	289	353	498	624	694	752	789	819	-12.4	5.9	1.9	0.9
Transport	839	490	577	725	889	1005	1057	1076	1097	-3.7	4.4	1.8	0.4
by fuel													
Solids	1059	201	122	102	105	106	115	124	126	-19.5	-1.5	1.0	0.9
Oil	1803	855	748	960	1168	1270	1274	1279	1326	-8.4	4.6	0.9	0.4
Gas	439	202	134	207	252	292	293	290	289	-11.2	6.5	1.5	-0.2
Electricity	608	510	506	584	670	762	852	931	1022	-1.8	2.8	2.4	1.8
Heat (from CHP and District Heating)	2086	593	511	547	529	544	550	567	567	-13.1	0.3	0.4	0.3
Renewable energy forms	397	265	424	453	552	593	692	732	704	0.7	2.7	2.3	0.2
Other	0	0	0	0	0	0	0	0	0			16.7	2.5
RES in Gross Final Energy Consumption ^(A)			538	564	789	982	1468	1825	2025		3.9	6.4	3.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	19.7	19.9	16.5	14.4	13.6	-9.1	1.3	-1.8	-1.9
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.1	16.1	12.5	10.9	10.5	-9.7	1.3	-2.5	-1.7
Power generation/District heating	27.9	12.3	10.9	11.2	11.4	11.0	7.4	5.8	5.2	-9.0	0.4	-4.3	-3.4
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.1	-1.6	-1.5
Industry	4.6	1.7	0.8	0.8	1.1	1.1	1.1	1.0	1.2	-16.0	2.7	0.4	0.9
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.8	0.5	0.3
Tertiary	1.9	0.3	0.3	0.5	0.6	0.7	0.7	0.7	0.7	-17.6	8.5	1.0	0.8
Transport	2.4	1.4	1.7	2.1	2.5	2.8	2.8	2.9	2.9	-3.6	4.0	1.3	0.1
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.3	1.4	1.5	-5.3	9.7	3.6	1.4
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.7	2.7	2.1	1.6	-5.7	-0.3	0.0	-5.1
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	43.8	44.2	36.7	32.0	30.2				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	330.6	286.1	226.5	196.0	180.7	-7.1	-6.3	-3.7	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.00	2.84	2.34	2.06	1.94	-2.1	0.0	-2.4	-1.9
Import Dependency %	41.2	34.8	30.0	25.5	37.4	38.9	40.7	39.0	37.3				
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	2.9	3.5	4.0	4.3		3.7	3.8	2.0
as % of GDP			22.2	16.8	14.7	14.6	14.8	14.6	14.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.8	50.4	45.2	41.3	39.0	-12.1	-5.5	-2.3	-1.5
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.4	40.6	36.1	32.8	30.3	-3.6	-7.2	-2.7	-1.7
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	84.1	76.4	70.0	63.6	59.6	-12.4	-1.7	-1.8	-1.6
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.3	29.0	27.8	26.4	25.4	0.2	-0.7	-0.5	-0.9
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.2	21.7	22.0	21.9	22.3	-7.9	1.2	0.9	0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.60	0.56	0.36	0.26	0.22	0.5	-1.3	-5.1	-4.5
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.38	1.38	1.32	1.28	1.28	-3.1	1.0	-0.5	-0.3
Industry	1.67	2.20	1.51	1.28	1.36	1.34	1.22	1.10	1.21	-1.0	-1.1	-1.1	-0.1
Residential	1.33	0.44	0.29	0.36	0.34	0.34	0.33	0.33	0.32	-14.2	1.7	-0.3	-0.3
Tertiary	1.42	0.87	0.77	0.94	0.99	0.95	0.91	0.93	0.90	-5.9	2.5	-0.8	-0.1
Transport	2.89	2.90	2.92	2.94	2.82	2.78	2.69	2.67	2.63	0.1	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	22.6	26.0	36.9	44.3	48.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.4	6.5	9.4	10.0	11.0				
Gross Electricity generation by source (in GWh)													
			8511	10203	11362	11994	13215	14271	15759		2.9	1.5	1.8
Nuclear energy			0	0	0	0	0	0	0				
Solids			7611	8927	9323	9109	6490	5370	5155		2.1	-3.6	-2.3
Oil (including refinery gas)			51	42	95	33	170	149	182		6.4	6.0	0.7
Gas (including derived gases)			787	1000	544	637	1394	1263	1239		-3.6	9.9	-1.2
Biomass-waste			57	158	229	944	3024	4602	5504		14.9	29.5	6.2
Hydro (pumping excluded)			5	22	27	28	29	29	30		18.5	0.7	0.1
Wind			1	54	1143	1242	2108	2857	3649		102.2	6.3	5.6
Solar			0	0	0	0	0	0	0				4.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2999	2998	2916	2938	3001	3600	4232		-0.3	0.3	3.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2	39	443	476	829	1245	1639		71.9	6.5	7.1
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1
Wind			1	32	436	469	821	1237	1631		86.2	6.5	7.1
Solar			0	0	0	0	1	1	1				4.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2997	2959	2473	2462	2172	2356	2593		-1.9	-1.3	1.8
of which cogeneration units			477	513	443	475	654	893	1038		-0.7	4.0	4.7
Solids fired			2738	2672	2159	2063	1048	691	573		-2.3	-7.0	-5.9
Gas fired			175	200	207	214	586	867	1002		1.7	11.0	5.5
Oil fired			65	65	66	14	83	77	110		0.2	2.2	2.9
Biomass-waste fired			19	21	40	171	456	720	909		7.9	27.5	7.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			28.9	34.7	40.4	42.4	46.6	42.1	39.7				
Efficiency of gross thermal power generation (%)			29.8	34.3	32.8	33.8	40.8	42.8	43.8				
% of gross electricity from CHP			17.6	33.1	19.8	21.5	31.1	36.6	38.2				
Carbon free gross electricity generation (%)			0.7	2.3	12.3	18.5	39.1	52.5	58.3				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.7	2.3	12.3	18.5	39.1	52.5	58.3				
Transport sector													
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	16.9	17.7	18.5	18.8	-0.3	3.3	1.1	0.6
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.4	2.4	-5.1	-0.1	-0.6	-0.3
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.1	13.1	13.7	14.2	14.4	4.2	4.6	1.2	0.5
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.5	2.1
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.6	4.7
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.8	23.6	25.6	26.9	27.7	0.5	5.6	2.1	0.8
Trucks	4.5	1.5	3.9	5.8	8.6	10.7	12.4	13.6	14.3	-1.4	8.1	3.7	1.4
Rail	7.0	3.8	8.1	10.6	12.3	12.9	13.2	13.3	13.4	1.5	4.2	0.7	0.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	839	490	577	725	889	1005	1057	1076	1097	-3.7	4.4	1.8	0.4
Public road transport	44	21	25	23	21	20	18	17	16	-5.5	-1.7	-1.2	-1.7
Private cars and motorcycles	273	263	307	338	385	402	397	384	366	1.2	2.3	0.3	-0.8
Trucks	414	139	167	263	369	458	514	545	592	-8.7	8.2	3.4	1.4
Rail	65	44	51	48	54	56	51	45	26	-2.4	0.6	-0.7	-6.4
Aviation	36	18	20	42	49	58	66	75	84	-5.9	9.6	3.0	2.5
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.8	0.3

Source: PRIMES

Estonia: EC proposal with J/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3584	3274	3518	115	-173	-113	3.3	-5.0	-3.1
Solids	5798	2830	3261	2400	1493	1053	-306	-1113	-1421	-11.3	-42.7	-57.4
Oil	0	2	331	0	0	0	0	0	0	-94.9	-96.3	586.5
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	450	500	712	1184	1781	2465	421	940	1308	55.2	111.9	113.0
Hydro	0	0	2	2	3	3	0	0	0	9.9	2.5	0.0
Biomass & Waste	450	500	706	1064	1582	2121	352	794	1048	49.4	100.8	97.7
Wind	0	0	5	107	181	314	61	135	238	133.9	290.7	315.3
Solar and others	0	0	0	10	15	27	8	11	21	356.6	311.0	353.2
Geothermal	0	0	0	0	0	0	0	0	0	95.5	334.2	372.1
Net Imports	4456	1447	1463	2280	2250	2095	-323	-310	-569	-12.4	-12.1	-21.4
Solids	697	244	27	128	134	122	-1	-5	-12	-0.5	-3.9	-9.1
Oil	3139	626	867	1692	1741	1763	-81	-105	-190	-4.6	-5.7	-9.7
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-4.4	-5.4	-9.3
- Oil products	3139	626	867	1690	1739	1761	-81	-105	-190	-4.6	-5.7	-9.7
Natural gas	1222	662	800	700	700	636	-195	-97	-231	-21.8	-12.2	-26.7
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5691	5337	5411	-208	-483	-681	-3.5	-8.3	-11.2
Solids	6703	3119	3255	2528	1628	1175	-307	-1119	-1433	-10.8	-40.7	-54.9
Oil	2858	510	1090	1519	1553	1561	-81	-104	-189	-5.1	-6.3	-10.8
Natural gas	1222	662	800	700	700	636	-195	-97	-231	-21.8	-12.2	-26.7
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	1046	1575	2190	376	837	1172	56.1	113.4	115.1
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	44.4	30.5	21.7	-3.6	-16.7	-21.1			
Oil	26.9	10.8	19.4	26.7	29.1	28.9	-0.4	0.6	0.1			
Natural gas	11.5	14.1	14.2	12.3	13.1	11.7	-2.9	-0.6	-2.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	18.4	29.5	40.5	7.0	16.8	23.8			
Gross Electricity Generation in GWh_e	17178	8511	10203	11994	13215	15759	-948	-1406	-1328	-7.3	-9.6	-7.8
Self consumption and grid losses	2615	1247	1422	1543	1500	1726	-77	-453	-706	-4.7	-23.2	-29.0
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2727	2335	2373	-347	-616	-696	-11.3	-20.9	-22.7
Solids	5085	2213	2297	2352	1453	1013	-296	-1098	-1409	-11.2	-43.0	-58.2
Oil (including refinery gas)	210	12	10	8	40	41	-34	-2	-7	-80.7	-4.6	-15.4
Gas (including derived gases)	357	226	227	162	204	181	-165	-33	-47	-50.4	-13.8	-20.7
Biomass & Waste	2	2	5	205	637	1139	148	516	767	262.9	429.1	206.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2285	783	769	483	388	275	27	-15	-138	5.9	-3.8	-33.5
Refineries	1	1	1	1	1	1	0	0	0	-4.4	-5.4	-9.3
Biofuels and hydrogen production	0	0	0	75	113	134	11	29	23	18.0	35.2	20.9
District heating	1755	485	511	398	268	135	16	-45	-161	4.1	-14.3	-54.4
Derived gases, cokeries etc.	529	297	257	9	6	4	0	0	0	0.9	-0.6	-0.8
Energy Branch Consumption	295	179	209	211	195	193	-9	-45	-73	-4.0	-18.9	-27.5
Non-Energy Uses	69	219	230	217	218	217	0	0	0	-0.2	-0.1	-0.1
Final Energy Demand	6392	2445	2854	3567	3776	4035	-41	-75	-120	-1.1	-1.9	-2.9
by sector												
Industry	2742	531	654	841	893	986	-18	-40	-69	-2.1	-4.3	-6.5
- energy intensive industries	738	203	215	245	261	284	-7	-12	-15	-2.7	-4.5	-4.9
- other industrial sectors	2004	328	440	597	632	702	-11	-27	-54	-1.8	-4.1	-7.1
Residential	1482	984	977	1027	1074	1133	9	13	25	0.9	1.2	2.2
Tertiary	1330	353	498	694	752	819	-21	-21	-28	-2.9	-2.7	-3.3
Transport	839	577	725	1005	1057	1097	-11	-27	-48	-1.1	-2.5	-4.2
by fuel												
Solids	1059	122	102	106	115	126	-1	-1	6	-1.2	-0.6	5.3
Oil	1803	748	960	1270	1274	1326	-45	-99	-161	-3.4	-7.2	-10.8
Gas	439	134	207	292	293	289	0	-27	-90	0.0	-8.5	-23.8
Electricity	608	506	584	762	852	1022	-75	-82	-53	-8.9	-8.7	-4.9
Heat (from CHP and District Heating)	2086	511	547	544	550	567	-33	-42	-17	-5.7	-7.1	-2.9
Renewable energy forms	397	424	453	593	692	704	113	176	195	23.5	34.1	38.2
Other	0	0	0	0	0	0	0	0	0	2.9	2.7	-0.3
RES in Gross Final Energy Consumption ^(A)		538	564	982	1468	2025	349	773	1087	55.1	111.2	115.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	19.9	16.5	13.6	-2.0	-5.3	-7.1	-9.3	-24.2	-34.4
CO₂ Emissions (energy related)	39.2	14.1	15.2	16.1	12.5	10.5	-2.0	-5.2	-7.1	-11.0	-29.4	-40.2
Power generation/District heating	27.9	10.9	11.2	11.0	7.4	5.2	-1.8	-4.8	-6.3	-14.2	-39.4	-55.0
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	-0.1	-9.1	-18.8	-26.9
Industry	4.6	0.8	0.8	1.1	1.1	1.2	-0.1	-0.3	-0.5	-10.3	-19.2	-28.4
Residential	2.0	0.3	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.6	-1.9	-3.1
Tertiary	1.9	0.3	0.5	0.7	0.7	0.7	0.0	0.0	0.0	7.7	7.1	1.7
Transport	2.4	1.7	2.1	2.8	2.8	2.9	-0.1	-0.2	-0.2	-2.2	-5.2	-6.9
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.3	1.5	0.0	0.0	0.0	-1.3	-1.5	-1.0
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.7	2.7	1.6	0.0	-0.1	0.0	-1.5	-2.1	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	44.2	36.7	30.2	-4.5	-11.7	-15.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: EC proposal with JI/CDM & RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	286.1	226.5	180.7	-10.4	-20.5	-22.8	-3.5	-8.3	-11.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.84	2.34	1.94	-0.24	-0.70	-0.94	-7.7	-23.0	-32.7
Import Dependency %	41.2	30.0	25.5	38.9	40.7	37.3	-4.0	-1.9	-5.0			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	2.9	3.5	4.3	0.1	0.2	0.4	2.6	6.8	9.4
as % of GDP		22.2	16.8	14.6	14.8	14.2	0.4	0.9	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.2	0.4						
as % of GDP				0.37	0.94	1.22						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	50.4	45.2	39.0	-1.1	-2.0	-2.7	-2.1	-4.3	-6.5
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	40.6	36.1	30.3	0.3	0.4	0.7	0.9	1.2	2.2
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	76.4	70.0	59.6	-2.3	-2.0	-2.0	-2.9	-2.7	-3.3
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	29.0	27.8	25.4	-0.2	-0.4	-0.7	-0.5	-1.3	-2.8
Freight transport (toe/Mtkm)	41.2	18.0	18.8	21.7	22.0	22.3	-0.2	-0.4	-0.8	-0.8	-1.9	-3.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.56	0.36	0.22	-0.05	-0.18	-0.24	-8.1	-33.6	-51.9
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.38	1.32	1.28	-0.03	-0.07	-0.13	-1.8	-5.2	-9.1
Industry	1.67	1.51	1.28	1.34	1.22	1.21	-0.12	-0.23	-0.37	-8.4	-15.6	-23.4
Residential	1.33	0.29	0.36	0.34	0.33	0.32	-0.01	-0.01	-0.02	-1.5	-3.0	-5.2
Tertiary	1.42	0.77	0.94	0.95	0.91	0.90	0.09	0.08	0.04	10.9	10.1	5.1
Transport	2.89	2.92	2.94	2.78	2.69	2.63	-0.03	-0.08	-0.08	-1.1	-2.8	-2.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	26.0	36.9	48.0	9.4	20.0	26.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.5	9.4	11.0	1.0	2.6	2.3			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11934	13215	15759		-948	-1406	-1328	-7.3	-9.6	-7.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	9109	6490	5155		-862	-5286	-7947	-8.6	-44.9	-60.7
Oil (including refinery gas)	51	42	33	170	182		-139	-3	-6	-80.7	-1.5	-3.3
Gas (including derived gases)	787	1000	637	1394	1239		-1313	-108	-143	-67.3	-7.2	-10.3
Biomass-waste	57	158	944	3024	5504		653	2422	3997	224.4	402.6	265.3
Hydro (pumping excluded)	5	22	28	29	30		3	1	0	9.9	2.5	0.0
Wind	1	54	1242	2108	3649		711	1568	2770	133.9	290.7	315.3
Solar	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2938	3001	4232		8	387	1145	0.3	14.8	37.1
<u>Nuclear energy</u>	0	0	0	0	0		0	0	0			
<u>Renewable energy</u>	2	39	476	829	1639		267	616	1331	127.3	289.3	432.6
Hydro (pumping excluded)	1	7	7	7	7		0	0	0	0.0	0.0	0.0
Wind	1	32	469	821	1631		267	616	1331	131.7	299.9	443.6
Solar	0	0	0	1	1		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2997	2959	2462	2172	2593		-259	-228	-186	-9.5	-9.5	-6.7
of which cogeneration units	477	513	475	654	1038		-58	-42	161	-10.9	-6.0	18.4
Solids fired	2738	2672	2063	1048	573		-94	-592	-932	-4.3	-36.1	-61.9
Gas fired	175	200	214	586	1002		-266	5	180	-55.4	0.9	22.0
Oil fired	65	65	14	83	110		-28	5	1	-67.3	6.2	1.2
Biomass-waste fired	19	21	171	456	909		129	354	564	302.8	345.9	163.9
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	42.4	46.6	39.7		-3.7	-11.3	-17.2			
Efficiency of gross thermal power generation (%)	29.8	34.3	33.8	40.8	43.8		-0.8	-0.2	-1.6			
% of gross electricity from CHP	17.6	33.1	21.5	31.1	38.2		-5.2	3.7	13.4			
Carbon free gross electricity generation (%)	0.7	2.3	18.5	39.1	58.3		11.9	31.1	44.1			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	18.5	39.1	58.3		11.9	31.1	44.1			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.9	17.7	18.8	-0.1	-0.2	-0.3	-0.5	-1.1	-1.5
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.4	0.0	0.0	0.0	0.3	0.8	1.0
Rail	5.1	7.7	10.1	13.1	13.7	14.4	-0.1	-0.2	-0.3	-0.7	-1.4	-1.9
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.3	0.9	1.4
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	0.0	-2.2	-3.3	-3.7
Freight transport activity (Gtkm)	0.6	0.4	0.4	0.5	0.5	0.5	0.0	0.0	0.0	0.1	0.5	0.7
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.6	25.6	27.7	-0.1	-0.2	-0.3	-0.4	-0.7	-0.9
Rail	4.5	3.9	5.8	10.7	12.4	14.3	-0.1	-0.2	-0.3	-1.1	-1.8	-2.4
Inland navigation	7.0	8.1	10.6	12.9	13.2	13.4	0.0	0.1	0.1	0.2	0.4	0.6
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	839	577	725	1005	1057	1097	-11	-27	-48	-1.1	-2.5	-4.2
Private cars and motorcycles	44	25	23	20	18	16	0	0	0	0.1	0.2	-1.7
Trucks	273	307	338	402	397	366	-3	-7	-10	-0.7	-1.6	-2.7
Rail	414	167	263	458	514	592	-6	-15	-27	-1.3	-2.8	-4.3
Aviation	65	51	48	56	51	26	0	0	0	0.2	0.2	-1.0
Inland navigation	36	20	42	58	66	84	-2	-6	-11	-3.8	-7.7	-11.3
Inland navigation	7	7	11	11	12	12	0	0	0	0.0	0.4	0.4

Source: PRIMES

Finland: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16983	20872	23649	25084	25072	2.4	1.2	3.4	0.6	
Solids	1581	2061	1207	2129	1643	1674	1706	1256	1103	-2.7	3.1	0.4	-4.3	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7558	1.5	0.4	4.0	-1.7	
Renewable energy sources	5273	6133	7959	8124	9286	10204	12949	14834	16411	4.2	1.6	3.4	2.4	
Hydro	934	1111	1261	1185	1211	1220	1223	1229	1234	3.0	-0.4	0.1	0.1	
Biomass & Waste	4338	5021	6691	6924	7979	8854	11497	13234	14524	4.4	1.8	3.7	2.4	
Wind	0	1	7	15	84	94	145	247	515		28.7	5.6	13.5	
Solar and others	0	0	1	1	13	36	83	124	137	3.8	36.8	20.7	5.1	
Geothermal	0	0	0	0	0	0	0	0	0			9.7	2.5	
Net Imports	18031	15542	18512	19163	18637	16721	13819	11821	11024	0.3	0.1	-2.9	-2.2	
Solids	4378	3774	3533	3338	3796	3605	2585	1712	1155	-2.1	0.7	-3.8	-7.7	
Oil	10477	8205	10535	10844	9691	9296	8586	8132	7978	0.1	-0.8	-1.2	-0.7	
- Crude oil and Feedstocks	8890	8548	12115	11017	11551	11311	10870	10579	10479	3.1	-0.5	-0.6	-0.4	
- Oil products	1587	-343	-1580	-173	-1860	-2015	-2284	-2447	-2501					
Natural gas	2261	2839	3422	3598	3860	2750	2157	1581	1430	4.2	1.2	-5.7	-4.0	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	35118	37092	36965	36400	35591	1.2	0.8	0.5	-0.4	
Solids	5327	5950	5087	4925	5439	5279	4291	2968	2258	-0.5	0.7	-2.3	-6.2	
Oil	9939	8344	9195	10482	9190	8794	8084	7628	7472	-0.8	0.0	-1.3	-0.8	
Natural gas	2261	2839	3422	3598	3860	2750	2157	1581	1430	4.2	1.2	-5.7	-4.0	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7558	1.5	0.4	4.0	-1.7	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9196	10105	12819	14685	16247	3.8	1.5	3.4	2.4	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.5	14.2	11.6	8.2	6.3					
Oil	34.3	28.8	28.3	30.4	26.2	23.7	21.9	21.0	21.0					
Natural gas	7.8	9.8	10.5	10.4	11.0	7.4	5.8	4.3	4.0					
Nuclear	17.3	17.1	17.9	17.4	17.2	24.2	24.3	24.7	21.2					
Renewable energy forms	19.0	21.2	24.5	23.3	26.2	27.2	34.7	40.3	45.6					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	75828	84057	98612	101206	110054	2.6	0.8	2.7	1.1	
Self consumption and grid losses	5547	6510	5449	5710	6342	7252	8865	9433	10947	-0.2	1.5	3.4	2.1	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6867	6537	7784	7841	8933	2.4	-0.1	1.3	1.4	
Solids	3216	3882	3168	2974	3531	3373	2402	1279	663	-0.1	1.1	-3.8	-12.1	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8			
Gas (including derived gases)	1015	1581	2106	2384	2151	1231	884	443	508	7.6	0.2	-8.5	-5.4	
Biomass & Waste	926	996	1518	2073	1185	1934	4497	6118	7762	5.1	-2.4	14.3	5.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15447	15306	14811	14326	13782	2.4	0.1	-0.4	-0.7	
Refineries	10689	12029	13200	13194	11985	11751	11316	11028	10927	2.1	-1.0	-0.6	-0.3	
Biofuels and hydrogen production	0	0	0	0	102	255	395	445	511			14.5	2.6	
District heating	573	548	803	954	2096	2064	1964	1876	1403	3.4	10.1	-0.7	-3.3	
Derived gases, cokeries etc.	793	1451	1306	1325	1264	1236	1136	977	940	5.1	-0.3	-1.1	-1.9	
Energy Branch Consumption	781	965	1285	1228	1211	1208	1259	1286	1330	5.1	-0.6	0.4	0.6	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26296	26510	26430	25898	25875	1.1	0.9	0.1	-0.2	
by sector														
Industry	9618	9988	12053	11988	12604	12717	12655	12828	12870	2.3	0.4	0.0	0.2	
- energy intensive industries	7351	7628	9456	9067	9412	9429	9335	9441	9461	2.6	0.0	-0.1	0.1	
- other industrial sectors	2267	2359	2596	2921	3191	3288	3320	3387	3409	1.4	2.1	0.4	0.3	
Residential	5321	5418	4536	4846	5050	5102	5067	4538	4462	-1.6	1.1	0.0	-1.3	
Tertiary	2479	2484	3127	3471	3588	3605	3638	3488	3462	2.3	1.4	0.1	-0.5	
Transport	4309	4151	4443	4816	5054	5086	5070	5045	5081	0.3	1.3	0.0	0.0	
by fuel														
Solids	1621	1277	1099	966	1031	1021	1014	983	910	-3.8	-0.6	-0.2	-1.1	
Oil	8100	7563	7507	7890	7305	6907	6465	6183	6047	-0.8	-0.3	-1.2	-0.7	
Gas	1501	1523	1328	1156	1524	1394	900	717	703	-1.2	1.4	-5.1	-2.4	
Electricity	5068	5608	6487	6959	7277	7698	8262	8363	9076	2.5	1.2	1.3	0.9	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3897	4121	4246	4159	3779	3.8	3.4	0.9	-1.2	
Renewable energy forms	3522	3944	4957	4552	5262	5367	5542	5492	5358	3.5	0.6	0.5	-0.3	
Other	0	0	0	0	0	1	1	2	2			13.3	2.0	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8676	9397	11856	13329	14677		1.2	3.2	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.8	63.4	55.2	46.0	41.4	-0.3	-0.2	-2.2	-2.9	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	54.1	49.6	42.2	34.3	30.6	-0.1	0.1	-2.5	-3.2	
Power generation/District heating	17.8	21.8	20.2	20.5	21.6	18.8	14.2	8.3	5.6	1.3	0.7	-4.1	-8.9	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	2.0	1.5	1.3	7.0	-1.6	-1.4	-4.0	
Industry	14.1	12.4	12.5	11.8	10.8	10.2	8.5	7.4	6.9	-1.2	-1.4	-2.4	-2.1	
Residential	6.4	5.9	2.3	2.1	1.9	1.5	1.1	0.9	0.8	-9.6	-2.2	-4.9	-3.5	
Tertiary	2.1	1.7	3.0	3.0	2.9	2.6	2.4	2.5	2.4	3.8	-0.3	-1.9	0.0	
Transport	12.7	12.2	13.1	14.2	14.6	14.3	13.9	13.7	13.6	0.3	1.1	-0.5	-0.2	
CO ₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.9	3.7	3.6	3.5	0.1	-0.1	-0.5	-0.7	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.9	9.3	8.1	7.3	-1.2	-1.6	-1.5	-2.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	94.9	87.4	76.2	63.4	57.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	191.7	183.0	167.1	151.8	139.6	-0.8	-2.0	-1.4	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.34	1.14	0.94	0.86	-1.3	-0.7	-3.0	-2.8
Import Dependency %	61.1	53.1	55.8	54.7	52.3	44.5	36.9	32.0	30.5				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.0	21.2	24.5	27.8	30.7		3.1	2.6	2.3
as % of GDP			10.1	10.5	10.4	10.5	11.1	11.6	12.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	66.3	60.6	57.1	54.4	-2.9	-3.1	-1.9	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	83.4	77.3	71.2	59.4	55.2	-2.7	-1.8	-1.6	-2.5
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	90.6	82.3	75.6	66.4	61.5	1.0	-1.0	-1.8	-2.0
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.4	31.5	30.1	29.7	-0.3	0.3	-0.6	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.2	43.1	41.4	40.2	39.3	-1.7	0.4	-0.7	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.14	0.09	0.05	0.04	-1.6	-1.1	-5.9	-9.2
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.15	1.08	0.98	0.95	0.92	-2.3	-1.1	-1.5	-0.7
Industry	1.46	1.24	1.03	0.98	0.86	0.80	0.68	0.57	0.54	-3.4	-1.8	-2.4	-2.3
Residential	1.21	1.09	0.52	0.43	0.37	0.29	0.22	0.20	0.18	-8.1	-3.3	-5.0	-2.3
Tertiary	0.84	0.70	0.96	0.86	0.81	0.73	0.66	0.71	0.69	1.4	-1.7	-2.1	0.5
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	31.9	34.2	43.2	49.5	54.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.3	8.3	9.6				
Gross Electricity generation by source (in GWh)													
			69976	70536	75828	84057	98612	101206	110054		0.8	2.7	1.1
Nuclear energy			22475	23267	23470	36243	36243	36243	30809		0.4	4.4	-1.6
Solids			10359	9486	13582	10517	9791	5769	3793		2.7	-3.2	-9.0
Oil (including refinery gas)			444	419	471	350	267	167	125		0.6	-5.5	-7.3
Gas (including derived gases)			10776	11400	11545	6833	6299	4322	5803		0.7	-5.9	-0.8
Biomass-waste			11185	12010	11703	14819	30088	37518	49151		0.5	9.9	5.0
Hydro (pumping excluded)			14657	13782	14076	14191	14223	14293	14348		-0.4	0.1	0.1
Wind			78	170	975	1093	1683	2867	5989		28.7	5.6	13.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18319	18635	19994	20443	23381		0.7	0.9	1.6
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	3574		0.0	4.6	-1.6
<u>Renewable energy</u>			3057	3104	3459	3536	3845	4296	5515		1.2	1.1	3.7
Hydro (pumping excluded)			3016	3018	3102	3118	3143	3162	3177		0.3	0.1	0.1
Wind			38	82	349	404	679	1100	2293		24.8	6.9	12.9
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12170	10892	11942	11940	14292		0.7	-0.2	1.8
of which cogeneration units			7129	7583	6841	7128	9468	9610	10411		-0.4	3.3	1.0
Solids fired			5539	5687	5630	4653	3019	2226	1459		0.2	-6.0	-7.0
Gas fired			2479	2444	2752	2608	2494	2340	4432		1.1	-1.0	5.9
Oil fired			1341	1340	1341	590	533	448	176		0.0	-8.8	-10.5
Biomass-waste fired			1942	2247	2446	3041	5896	6927	8225		2.3	9.2	3.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.3	49.3	53.6	53.5	50.8				
Efficiency of gross thermal power generation (%)			40.7	38.0	46.7	42.8	51.3	52.4	56.7				
% of gross electricity from CHP			44.9	45.7	44.5	36.6	46.4	46.7	51.7				
Carbon free gross electricity generation (%)			69.2	69.8	66.2	78.9	83.4	89.9	91.2				
- nuclear			32.1	33.0	31.0	43.1	36.8	35.8	28.0				
- renewable energy forms			37.0	36.8	35.3	35.8	46.7	54.1	63.2				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.7	99.2	102.8	106.7	109.6	0.8	1.6	0.8	0.6
Public road transport	8.5	8.0	7.7	7.4	7.5	7.7	8.0	8.3	8.4	-1.0	-0.2	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.6	71.3	73.0	74.6	75.4	0.9	1.9	0.6	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.4	4.8	5.3	5.6	0.6	0.7	1.4	1.5
Aviation	5.3	6.1	7.9	8.6	9.7	11.1	12.3	13.8	15.3	4.1	2.1	2.5	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.1	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.5	43.4	44.3	45.6	46.5	1.7	0.0	0.4	0.5
Trucks	26.3	24.5	32.0	31.9	32.4	33.0	33.3	33.9	34.4	2.0	0.1	0.3	0.3
Rail	8.4	9.6	10.1	9.7	10.0	10.2	10.8	11.5	11.9	1.9	-0.1	0.8	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5054	5086	5070	5045	5081	0.3	1.3	0.0	0.0
Public road transport	97	84	55	57	58	57	58	57	56	-5.4	0.4	0.0	-0.2
Private cars and motorcycles	1840	1867	1904	2137	2293	2278	2266	2209	2214	0.3	1.9	-0.1	-0.2
Trucks	1699	1557	1715	1764	1786	1770	1736	1737	1757	0.1	0.4	-0.3	0.1
Rail	99	102	94	97	101	103	101	99	74	-0.6	0.7	0.0	-3.1
Aviation	459	408	505	565	624	687	718	752	790	1.0	2.1	1.4	1.0
Inland navigation	116	134	170	195	192	191	191	191	190	3.9	1.2	0.0	0.0

Source: PRIMES

Finland: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20872	23649	25072	1405	3076	3801	7.2	14.9	17.9
Solids	1581	1207	2129	1674	1706	1103	-5	-46	-602	-0.3	-2.7	-35.3
Oil	0	37	205	0	0	0	0	0	0	-21.7	264.3	-197.5
Natural gas	0	0	0	0	0	0	0	0	0	0.0	0.0	-2.9
Nuclear	5006	5799	6003	8994	8994	7558	0	0	-222	0.0	0.0	-2.9
Renewable energy sources	5273	7959	8124	10204	12949	16411	1410	3122	4625	16.0	31.8	39.2
Hydro	934	1261	1185	1220	1223	1234	26	21	0	2.2	1.7	0.0
Biomass & Waste	4338	6691	6924	8854	11497	14524	1319	2964	4135	17.5	34.7	39.8
Wind	0	7	15	94	145	515	37	73	387	66.1	101.2	301.6
Solar and others	0	1	1	36	83	137	27	64	103	305.9	333.6	302.6
Geothermal	0	0	0	0	0	0	0	0	0	88.1	216.9	296.9
Net Imports	18031	18512	19163	16721	13819	11024	-2492	-4721	-6306	-13.0	-25.5	-36.4
Solids	4378	3533	3338	3605	2585	1155	-549	-1440	-2422	-13.2	-35.8	-67.7
Oil	10477	10535	10844	9296	8586	7978	-355	-730	-1080	-3.7	-7.8	-11.9
- Crude oil and Feedstocks	8890	12115	11017	11311	10870	10479	-213	-451	-683	-1.9	-4.0	-6.1
- Oil products	1587	-1580	-173	-2015	-2284	-2501	-141	-279	-396	7.6	13.9	18.8
Natural gas	2261	3422	3598	2750	2157	1430	-1573	-2517	-2758	-36.4	-53.9	-65.9
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	37092	36965	35591	-1087	-1645	-2505	-2.8	-4.3	-6.6
Solids	5327	5087	4925	5279	4291	2258	-554	-1486	-3023	-9.5	-25.7	-57.2
Oil	9939	9195	10482	8794	8084	7472	-355	-730	-1079	-3.9	-8.3	-12.6
Natural gas	2261	3422	3598	2750	2157	1430	-1573	-2517	-2758	-36.4	-53.9	-65.9
Nuclear	5006	5799	6003	8994	8994	7558	0	0	-222	0.0	0.0	-2.9
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	10105	12819	16247	1395	3089	4578	16.0	31.7	39.2
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	14.2	11.6	6.3	-1.0	-3.4	-7.5			
Oil	34.3	28.3	30.4	23.7	21.9	21.0	-0.3	-1.0	-1.5			
Natural gas	7.8	10.5	10.4	7.4	5.8	4.0	-3.9	-6.3	-7.0			
Nuclear	17.3	17.9	17.4	24.2	24.3	21.2	0.7	1.0	0.8			
Renewable energy forms	19.0	24.5	23.3	27.2	34.7	45.6	4.4	9.5	15.0			
Gross Electricity Generation in GWh_e	54367	69976	70536	84057	98612	110054	-5487	-2393	1785	-6.1	-2.4	1.6
Self consumption and grid losses	5547	5449	5710	7252	8865	10947	-460	184	303	-6.0	2.1	2.8
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6537	7784	8933	-461	-601	-640	-6.6	-7.2	-6.7
Solids	3216	3168	2974	3373	2402	663	-622	-1491	-2918	-15.6	-38.3	-81.5
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	8.7	-100.0
Gas (including derived gases)	1015	2106	2384	1231	884	508	-1002	-1849	-1979	-44.9	-67.7	-79.6
Biomass & Waste	926	1518	2073	1934	4497	7762	1163	2739	4257	150.8	155.8	121.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	12055	15309	15473	15306	14811	13782	-625	-905	-1422	-3.9	-5.8	-9.4
Refineries	10689	13200	13194	11751	11316	10927	-214	-451	-683	-1.8	-3.8	-5.9
Biofuels and hydrogen production	0	0	0	255	395	511	31	85	61	13.6	27.2	13.4
District heating	573	803	954	2064	1964	1403	-503	-561	-797	-19.6	-22.2	-36.2
Derived gases, cokeries etc.	793	1306	1325	1236	1136	940	62	23	-2	5.2	2.1	-0.2
Energy Branch Consumption	781	1285	1228	1208	1259	1330	-54	-37	-63	-4.3	-2.8	-4.5
Non-Energy Uses	1441	896	1095	1212	1233	1258	0	-1	0	0.0	0.0	0.0
Final Energy Demand	21727	24159	25121	26510	26430	25875	-763	-1211	-2044	-2.8	-4.4	-7.3
by sector												
Industry	9618	12053	11988	12717	12655	12870	-221	-420	-293	-1.7	-3.2	-2.2
- energy intensive industries	7351	9456	9067	9429	9335	9461	-161	-317	-213	-1.7	-3.3	-2.2
- other industrial sectors	2267	2596	2921	3288	3320	3409	-59	-103	-80	-1.8	-3.0	-2.3
Residential	5321	4536	4846	5102	5067	4462	-153	-262	-914	-2.9	-4.9	-17.0
Tertiary	2479	3127	3471	3605	3638	3462	-240	-267	-499	-6.2	-6.8	-12.6
Transport	4309	4443	4816	5086	5070	5081	-149	-262	-338	-2.8	-4.9	-6.2
by fuel												
Solids	1621	1099	966	1021	1014	910	11	-47	-124	1.1	-4.5	-12.0
Oil	8100	7507	7890	6907	6465	6047	-303	-532	-852	-4.2	-7.6	-12.3
Gas	1501	1328	1156	1394	900	703	-161	-416	-289	-10.3	-31.6	-29.2
Electricity	5068	6487	6959	7698	8262	9076	-431	-218	133	-5.3	-2.6	1.5
Heat (from CHP and District Heating)	1915	2780	3597	4121	4246	3779	-170	-458	-1013	-4.0	-9.7	-21.1
Renewable energy forms	3522	4957	4552	5367	5542	5358	291	461	101	5.7	9.1	1.9
Other	0	0	0	1	1	2	0	0	-1	4.8	3.5	-27.4
RES in Gross Final Energy Consumption ^(A)		7701	7458	9397	11856	14677	1159	2804	3972	14.1	31.0	37.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	63.4	55.2	41.4	-7.9	-15.3	-23.0	-11.0	-21.7	-35.8
CO₂ Emissions (energy related)	54.4	53.8	54.1	49.6	42.2	30.6	-7.0	-13.9	-21.7	-12.3	-24.8	-41.4
Power generation/District heating	17.8	20.2	20.5	18.8	14.2	5.6	-5.7	-11.0	-17.2	-23.2	-43.5	-75.4
Energy Branch	1.4	2.7	2.5	2.2	2.0	1.3	-0.1	-0.2	-0.8	-3.8	-9.7	-37.0
Industry	14.1	12.5	11.8	10.2	8.5	6.9	-0.3	-1.2	-1.2	-2.9	-11.9	-15.1
Residential	6.4	2.3	2.1	1.5	1.1	0.8	-0.2	-0.2	-0.7	-9.7	-17.9	-46.2
Tertiary	2.1	3.0	3.0	2.6	2.4	2.4	-0.2	-0.3	-0.6	-7.8	-12.5	-19.8
Transport	12.7	13.1	14.2	14.3	13.9	13.6	-0.5	-1.0	-1.2	-3.5	-6.8	-8.3
CO₂ Emissions (non energy related)	3.9	3.9	3.9	3.9	3.7	3.5	0.0	-0.1	-0.2	1.2	-2.4	-5.8
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.9	9.3	7.3	-1.0	-1.3	-1.2	-8.8	-12.0	-13.7
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	87.4	76.2	57.0	-10.8	-21.1	-31.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	183.0	167.1	139.6	-5.4	-7.4	-9.8	-2.8	-4.3	-6.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.34	1.14	0.86	-0.14	-0.31	-0.51	-9.7	-21.4	-37.3
Import Dependency %	61.1	55.8	54.7	44.5	36.9	30.5	-5.2	-10.5	-14.4			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.2	24.5	30.7	0.5	1.1	2.2	2.3	4.6	7.9
as % of GDP		10.1	10.5	10.5	11.1	12.1	0.2	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.1	2.3						
as % of GDP				0.24	0.50	0.89						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	66.3	60.6	54.4	-1.2	-2.0	-1.2	-1.7	-3.2	-2.2
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	77.3	71.2	55.2	-2.3	-3.7	-11.3	-2.9	-4.9	-17.0
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	82.3	75.6	61.5	-5.5	-5.5	-8.9	-6.2	-6.8	-12.6
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.4	31.5	29.7	-0.4	-0.6	-1.0	-1.1	-1.9	-3.3
Freight transport (toe/Mtkm)	50.4	42.6	44.5	43.1	41.4	39.3	-1.2	-2.3	-2.3	-2.7	-5.3	-5.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.14	0.09	0.04	-0.03	-0.06	-0.10	-18.9	-40.5	-73.8
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.08	0.98	0.92	-0.01	-0.06	-0.07	-1.3	-5.4	-6.7
Industry	1.46	1.03	0.98	0.80	0.68	0.54	-0.01	-0.07	-0.08	-1.2	-9.0	-13.2
Residential	1.21	0.52	0.43	0.29	0.22	0.18	-0.02	-0.04	-0.10	-7.0	-13.6	-35.2
Tertiary	0.84	0.96	0.86	0.73	0.66	0.69	-0.01	-0.04	-0.06	-1.6	-6.0	-8.2
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.05	-0.06	-0.7	-2.0	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	34.2	43.2	54.4	5.1	11.6	17.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.3	9.6	0.7	1.9	1.7			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	84057	98612	110054	110054	-5487	-2393	1785	-6.1	-2.4	1.6
Nuclear energy	22475	23267	36243	36243	30809	30809	0	0	-1012	0.0	0.0	-3.2
Solids	10359	9486	10517	9791	3793	3793	-3985	-5390	-10893	-27.5	-35.5	-74.2
Oil (including refinery gas)	444	419	350	267	125	125	-83	-61	25	-19.2	-18.7	25.4
Gas (including derived gases)	10776	11400	6833	6299	5803	5803	-5445	-10258	-10981	-44.3	-62.0	-65.4
Biomass-waste	11185	12010	14819	30088	49151	3287	3287	12226	20149	28.5	68.4	69.5
Hydro (pumping excluded)	14657	13782	14191	14223	14348	305	305	244	0	2.2	1.7	0.0
Wind	78	170	1093	1683	5989	435	435	847	4498	66.1	101.2	301.6
Solar	2	3	11	18	35	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18635	19994	23381	23381	30	-145	1966	0.2	-0.7	9.2
<u>Nuclear energy</u>	2687	2690	4207	4207	3574	3574	0	0	-117	0.0	0.0	-3.2
<u>Renewable energy</u>	3057	3104	3536	3845	5515	5515	184	398	1759	5.5	11.6	46.8
Hydro (pumping excluded)	3016	3018	3118	3143	3177	3177	46	46	46	1.5	1.5	1.5
Wind	38	82	404	679	2293	138	138	353	1713	51.7	107.9	295.2
Solar	3	4	14	23	44	0	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10892	11942	14292	14292	-153	-543	324	-1.4	-4.4	2.3
of which cogeneration units	7129	7583	7128	9468	10411	10411	-86	411	-279	-1.2	4.5	-2.6
Solids fired	5539	5687	4653	3019	1459	1459	-395	-824	-1472	-7.8	-21.4	-50.2
Gas fired	2479	2444	2608	2494	4432	4432	-383	-1924	-1110	-12.8	-43.6	-20.0
Oil fired	1341	1340	590	533	176	176	-110	-134	-189	-15.7	-20.0	-51.8
Biomass-waste fired	1942	2247	3041	5896	8225	735	735	2339	3095	31.9	65.8	60.3
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.3	53.6	50.8	50.8	-3.3	-1.1	-3.8			
Efficiency of gross thermal power generation (%)	40.7	38.0	42.8	51.3	56.7	56.7	-4.8	0.1	2.3			
% of gross electricity from CHP	44.9	45.7	36.6	46.4	51.7	51.7	-2.2	-0.1	-1.8			
Carbon free gross electricity generation (%)	69.2	69.8	78.9	83.4	91.2	91.2	9.3	15.2	20.3			
- nuclear	32.1	33.0	43.1	36.8	28.0	28.0	2.6	0.9	-1.4			
- renewable energy forms	37.0	36.8	35.8	46.7	63.2	63.2	6.7	14.3	21.7			
Transport sector												
Passenger transport activity (Gpkm)	74.8	81.0	88.2	99.2	102.8	109.6	-1.0	-1.7	-2.3	-1.0	-1.6	-2.0
Public road transport	8.5	7.7	7.4	7.7	8.0	8.4	0.1	0.1	0.2	1.2	1.8	2.1
Private cars and motorcycles	51.9	56.6	63.4	71.3	73.0	75.4	-0.9	-1.5	-2.0	-1.3	-2.0	-2.6
Rail	3.7	3.9	4.0	4.4	4.8	5.6	0.1	0.1	0.1	1.2	1.6	2.7
Aviation	5.3	7.9	8.6	11.1	12.3	15.3	-0.2	-0.4	-0.6	-2.1	-3.1	-3.5
Inland navigation	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.5	-0.3	-0.3
Freight transport activity (Gtkm)	35.8	42.4	41.8	43.4	44.3	46.5	-0.6	-1.0	-1.2	-1.5	-2.2	-2.6
Trucks	26.3	32.0	31.9	33.0	33.3	34.4	-0.9	-1.3	-1.7	-2.5	-3.7	-4.6
Rail	8.4	10.1	9.7	10.2	10.8	11.9	0.2	0.3	0.4	2.1	2.8	3.6
Inland navigation	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.3
Energy demand in transport (ktoe)	4309	4443	4816	5086	5070	5081	-149	-262	-338	-2.8	-4.9	-6.2
Public road transport	97	55	57	57	58	56	0	-1	-3	-0.3	-1.1	-4.9
Private cars and motorcycles	1840	1904	2137	2278	2266	2214	-50	-80	-128	-2.1	-3.4	-5.5
Trucks	1699	1715	1764	1770	1736	1757	-81	-146	-155	-4.4	-7.8	-8.1
Rail	99	94	97	103	101	74	1	0	-1	1.3	-0.2	-1.9
Aviation	459	505	565	687	718	790	-17	-33	-48	-2.5	-4.4	-5.7
Inland navigation	116	170	195	191	191	190	-1	-2	-3	-0.7	-0.9	-1.6

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	France: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.7	127.3	114.0	104.0	93.2	-0.7	-1.3	-2.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.31	1.19	1.10	1.05	1.00	-0.8	-1.0	-1.7	-0.9
Import Dependency %	52.4	47.9	50.9	51.6	49.7	46.4	44.0	42.5	41.7				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	164.3	183.1	202.7	217.4	233.3		1.6	2.1	1.4
as % of GDP			8.9	8.6	8.5	8.4	8.3	8.1	8.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.0	75.4	67.7	61.2	57.0	-1.5	-1.8	-2.0	-1.7
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.1	79.5	71.6	63.8	56.6	-0.1	-1.3	-2.0	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	89.4	76.7	68.2	60.4	-2.3	0.1	-2.8	-2.4
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.6	27.9	26.2	24.4	-0.2	-1.8	-1.0	-1.3
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	73.4	70.4	68.0	66.0	0.8	0.7	-0.6	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.05	0.02	0.01	0.01	0.01	-2.4	-3.1	-14.3	
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.95	1.87	1.78	1.70	1.63	-0.5	-0.5	-0.9	-0.9
Industry	2.18	2.06	1.92	1.85	1.85	1.78	1.68	1.64	1.54	-1.3	-0.4	-1.0	-0.8
Residential	1.52	1.44	1.45	1.43	1.34	1.21	1.11	0.92	0.74	-0.5	-0.8	-1.8	-3.9
Tertiary	1.81	1.69	1.48	1.53	1.46	1.33	1.21	1.09	0.99	-2.0	-0.1	-1.9	-2.0
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.70	2.67	2.65	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	12.9	15.7	19.5	21.9	24.4				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.3	6.9	9.9	10.8	11.5				
Gross Electricity generation by source (in GWh)													
			536004	570542	586370	604837	628771	685360	732467		0.9	0.7	1.5
Nuclear energy			415087	451448	451980	475395	475869	482785	494447		0.9	0.5	0.4
Solids			25644	27018	26211	8589	5790	7823	3942		0.2	-14.0	-3.8
Oil (including refinery gas)			6896	7042	1980	1559	242	797	421		-11.7	-18.9	5.7
Gas (including derived gases)			16214	26341	21064	19256	16624	25178	22645		2.7	-2.3	3.1
Biomass-waste			4381	5496	7068	16236	33583	52474	61887		4.9	16.9	6.3
Hydro (pumping excluded)			67698	52224	68686	68445	68904	70696	71050		0.1	0.0	0.3
Wind			77	959	8863	14797	26317	43809	75956		60.7	11.5	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1262	1499	1627				2.6
Net Generation Capacity in MW_e			111945	113154	114745	117755	122444	131113	153045		0.2	0.7	2.3
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	56219	57396		0.0	0.3	-1.2
<u>Renewable energy</u>			25092	26102	29249	31673	36376	43327	55599		1.5	2.2	4.3
Hydro (pumping excluded)			25016	25313	25423	25477	25541	25720	25804		0.2	0.0	0.1
Wind			66	756	3518	5839	9973	16500	28408		48.8	11.0	11.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	655	778	844				2.6
<u>Thermal power</u>			24306	24482	22685	21515	21381	31567	40049		-0.7	-0.6	6.5
of which cogeneration units			4205	5546	4843	6130	8728	13311	14593		1.4	6.1	5.3
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	9336	8719	8520	15751	24222		7.8	-0.9	11.0
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	1730	3657	6928	10482	11986		7.2	14.9	5.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	55.9	56.5	56.5	57.5	52.5				
Efficiency of gross thermal power generation (%)			34.8	35.5	46.5	58.8	59.2	61.8	60.3				
% of gross electricity from CHP			3.1	2.9	4.8	6.0	8.0	11.3	11.3				
Carbon free gross electricity generation (%)			90.9	89.4	91.6	95.1	96.4	95.1	96.3				
- nuclear			77.4	79.1	77.1	78.6	75.7	70.4	67.5				
- renewable energy forms			13.5	10.3	14.5	16.5	20.7	24.6	28.8				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	994.2	1057.4	1115.2	1180.3	1245.3	1.7	1.2	1.2	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	50.0	54.1	58.0	61.7	0.3	1.0	1.4	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	815.9	842.8	875.7	905.7	1.7	0.9	0.8	0.7
Rail	73.9	64.6	80.7	89.7	99.5	112.5	125.2	137.3	150.5	0.9	2.1	2.3	1.9
Aviation	26.1	34.1	46.0	53.1	62.0	75.3	89.1	105.1	122.9	5.8	3.0	3.7	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.2	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	273.4	295.7	316.3	340.4	365.4	2.4	0.2	1.5	1.5
Trucks	153.5	178.2	204.0	205.3	228.6	250.5	269.0	290.1	311.2	2.9	1.1	1.6	1.5
Rail	50.7	48.1	55.3	40.7	35.9	36.3	38.3	41.2	45.0	0.9	-4.2	0.7	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.8	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	51119	52989	53342	54114	54560	2.1	-0.1	0.4	0.2
Public road transport	384	403	417	424	424	435	449	438	425	0.8	0.2	0.6	-0.5
Private cars and motorcycles	23233	22171	24945	23052	22732	22632	22066	21605	20575	0.7	-0.9	-0.3	-0.7
Trucks	12587	14909	17407	18419	19446	20677	21260	22204	23294	3.3	1.1	0.9	0.9
Rail	1150	1220	1373	1264	1172	1161	1117	1046	942	1.8	-1.6	-0.5	-1.7
Aviation	3839	4690	6683	6291	7047	7789	8148	8509	9005	5.7	0.5	1.5	1.0
Inland navigation	714	731	775	305	297	294	302	312	319	0.8	-9.1	0.1	0.6

Source: PRIMES

France: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	150257	157060	159971	6008	9792	18167	4.2	6.6	12.8
Solids	7625	2267	383	216	12	0	0	-4	-14	0.0	-24.2	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0	1500.0	-48.4	
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	116956	0	0	3770	0.0	0.0	3.3
Renewable energy sources	15778	18065	16695	27766	34652	43014	6008	9796	14410	27.6	39.4	50.4
Hydro	4635	5822	4491	5886	5926	6110	435	358	0	8.0	6.4	0.0
Biomass & Waste	11014	12087	11968	18943	23967	27487	4297	7220	7969	29.3	43.1	40.8
Wind	0	7	82	1273	2263	6532	124	464	4510	10.7	25.8	223.1
Solar and others	19	26	24	1385	2232	2678	1007	1627	1857	266.7	269.0	226.1
Geothermal	110	124	130	280	264	207	145	126	74	107.9	91.5	55.3
Net Imports	120027	133463	143600	130208	123589	114346	-17728	-26372	-35234	-12.0	-17.6	-23.6
Solids	13004	13201	13660	8441	7571	6419	-5509	-5734	-1044	-39.5	-43.1	-14.0
Oil	86558	90452	94460	91669	88514	85003	-5157	-9011	-14710	-5.3	-9.2	-14.8
- Crude oil and Feedstocks	76007	84375	84707	84475	82979	81260	-3375	-5469	-9064	-3.8	-6.2	-10.0
- Oil products	10551	6077	9753	7194	5534	3743	-1782	-3542	-5646	-19.8	-39.0	-60.1
Natural gas	24371	35778	40720	35285	31893	25022	-7042	-11594	-19443	-16.6	-26.7	-43.7
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	277417	277491	270917	-11719	-16575	-17058	-4.1	-5.6	-5.9
Solids	19955	15240	14428	8657	7583	6419	-5509	-5737	-1057	-38.9	-43.1	-14.1
Oil	87673	88790	92086	88622	85354	81604	-5155	-9006	-14701	-5.5	-9.5	-15.3
Natural gas	26032	35766	40996	35285	31893	25022	-7042	-11594	-19443	-16.6	-26.7	-43.7
Nuclear	81018	107093	116474	122274	122397	116956	0	0	3770	0.0	0.0	3.3
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	27679	34542	42888	5988	9762	14374	27.6	39.4	50.4
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	3.1	2.7	2.4	-1.8	-1.8	-0.2			
Oil	38.7	34.3	33.4	31.9	30.8	30.1	-0.5	-1.3	-3.3			
Natural gas	11.5	13.8	14.9	12.7	11.5	9.2	-1.9	-3.3	-6.2			
Nuclear	35.8	41.4	42.3	44.1	44.1	43.2	1.8	2.5	3.9			
Renewable energy forms	7.0	7.0	6.0	10.0	12.4	15.8	2.5	4.0	5.9			
Gross Electricity Generation in GWh_e	416667	536004	570542	604837	628771	732467	-20213	-8479	100893	-3.2	-1.3	16.0
Self consumption and grid losses	48047	56438	59733	58945	61185	83530	-4788	-3670	14296	-7.5	-5.7	20.6
Fuel Inputs to Thermal Power Generation	11117	13129	15985	6670	8167	12678	-5851	-4966	4098	-46.7	-37.8	47.8
Solids	7334	6231	6402	1487	999	689	-5389	-5443	-599	-78.4	-84.5	-46.5
Oil (including refinery gas)	1921	1272	1653	0	0	1	0	-13	-2		-100.0	-77.2
Gas (including derived gases)	1423	4062	6291	1443	836	1126	-3026	-3475	-1970	-67.7	-80.6	-63.6
Biomass & Waste	439	1565	1640	3739	6333	10863	2564	3964	6669	218.2	167.4	159.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	96316	95646	94090	-2874	-4452	-8807	-2.9	-4.4	-8.6
Refineries	79634	90084	87693	86107	84652	83026	-3375	-5469	-9064	-3.8	-6.1	-9.8
Biofuels and hydrogen production	0	328	434	3696	5331	6222	458	1155	608	14.1	27.7	10.8
District heating	1019	312	273	265	265	208	-26	-39	-104	-9.0	-12.8	-33.4
Derived gases, cokeries etc.	8896	6668	5837	6248	5398	4635	69	-99	-247	1.1	-1.8	-5.1
Energy Branch Consumption	9230	10689	10095	7516	7124	7705	-506	-619	-60	-6.3	-8.0	-0.8
Non-Energy Uses	13272	15672	15786	17110	17690	18734	0	1	3	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	162991	161899	158208	-7507	-12533	-21226	-4.4	-7.2	-11.8
by sector												
Industry	36205	36579	35580	37379	37600	37801	-351	-1048	-1991	-0.9	-2.7	-5.0
- energy intensive industries	24279	22143	20671	21046	20784	20303	-73	-429	-847	-0.3	-2.0	-4.0
- other industrial sectors	11926	14436	14909	16333	16816	17498	-278	-618	-1145	-1.7	-3.5	-6.1
Residential	36375	42516	45491	46037	45447	41762	-1999	-2790	-6563	-4.2	-5.8	-13.6
Tertiary	21726	21620	25696	26586	25510	24085	-2953	-4677	-6476	-10.0	-15.5	-21.2
Transport	41908	51599	49756	52989	53342	54560	-2204	-4019	-6196	-4.0	-7.0	-10.2
by fuel												
Solids	9017	5775	4685	3886	3872	3426	-159	-279	-388	-3.9	-6.7	-10.2
Oil	67377	71964	71245	71043	67829	63555	-4996	-8518	-13616	-6.6	-11.2	-17.6
Gas	23400	30880	33902	31256	28497	21788	-3823	-7364	-16284	-10.9	-20.5	-42.8
Electricity	25960	33096	36330	40769	43473	52773	-1313	-387	7472	-3.1	-0.9	16.5
Heat (from CHP and District Heating)	774	237	207	238	250	216	-24	-27	-78	-9.2	-9.7	-26.5
Renewable energy forms	9686	10364	10153	15792	17962	16433	2808	4042	1669	21.6	29.0	11.3
Other	0	0	0	8	15	18	1	1	-1	8.1	3.8	-3.8
RES in Gross Final Energy Consumption ^(A)	16928	15420	26316	32585	40187	5536	9254	13278	26.6	39.7	49.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	493.6	466.6	417.4	-62.2	-89.1	-105.9	-11.2	-16.0	-20.2
CO₂ Emissions (energy related)	352.9	373.5	378.4	329.2	306.2	271.9	-53.6	-76.6	-93.4	-14.0	-20.0	-25.6
Power generation/District heating	40.1	39.6	46.7	10.6	7.2	6.6	-28.3	-29.7	-7.1	-72.8	-80.4	-51.9
Energy Branch	17.1	19.6	16.6	13.3	10.5	7.5	-0.6	-2.6	-5.2	-4.0	-20.1	-40.9
Industry	79.1	70.1	66.0	66.7	63.1	58.4	-2.4	-5.2	-10.0	-3.4	-7.7	-14.6
Residential	55.2	61.5	64.8	55.8	50.3	31.1	-8.0	-13.1	-31.9	-12.5	-20.6	-50.7
Tertiary	39.2	32.1	39.2	35.3	30.9	23.8	-6.4	-10.4	-17.1	-15.3	-25.1	-41.8
Transport	122.1	150.6	145.2	147.3	144.1	144.5	-8.0	-15.7	-22.1	-5.2	-9.8	-13.3
CO ₂ Emissions (non energy related)	36.8	30.7	31.1	30.4	30.0	29.0	0.1	-0.3	-1.1	0.5	-1.1	-3.5
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	134.0	130.4	116.5	-8.7	-12.1	-11.4	-6.1	-8.5	-8.9
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	87.4	82.6	73.9	-11.0	-15.8	-18.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							France: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	127.3	114.0	93.2	-5.4	-6.8	-5.9	-4.1	-5.6	-5.9
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.19	1.10	1.00	-0.14	-0.20	-0.26	-10.4	-15.2	-20.9
Import Dependency %	52.4	50.9	51.6	46.4	44.0	41.7	-4.2	-6.4	-9.7			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	183.1	202.7	233.3	5.2	7.5	12.8	2.9	3.9	5.8
as % of GDP		8.9	8.6	8.4	8.3	8.0	0.2	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				5.3	7.7	13.1						
as % of GDP				0.25	0.32	0.45						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.4	67.7	57.0	-0.7	-1.9	-3.0	-0.9	-2.7	-5.0
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	79.5	71.6	56.6	-3.5	-4.4	-8.9	-4.2	-5.8	-13.6
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	89.4	76.7	60.4	-9.9	-14.1	-16.2	-10.0	-15.5	-21.2
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.6	27.9	24.4	-0.6	-1.0	-1.4	-2.0	-3.6	-5.3
Freight transport (toe/Mtkm)	65.0	70.2	76.8	73.4	70.4	66.0	-2.6	-5.0	-7.8	-3.4	-6.7	-10.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.02	0.01	0.01	-0.04	-0.05	-0.01	-71.8	-80.1	-58.5
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.87	1.78	1.63	-0.06	-0.13	-0.26	-3.2	-6.6	-13.7
Industry	2.18	1.92	1.85	1.78	1.68	1.54	-0.05	-0.09	-0.17	-2.5	-5.1	-10.1
Residential	1.52	1.45	1.43	1.21	1.11	0.74	-0.12	-0.21	-0.56	-8.7	-15.7	-42.9
Tertiary	1.81	1.48	1.53	1.33	1.21	0.99	-0.08	-0.16	-0.35	-5.9	-11.4	-26.1
Transport	2.91	2.92	2.92	2.78	2.70	2.65	-0.03	-0.08	-0.09	-1.2	-3.0	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	15.7	19.5	24.4	3.8	6.5	9.8			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	6.9	9.9	11.5	1.1	2.7	2.3			
Gross Electricity generation by source (in GWh_e)												
	536004	570542	604837	628771	732467	732467	-20213	-8479	100893	-3.2	-1.3	16.0
Nuclear energy	415087	451448	475395	475869	494447	494447	0	0	17130	0.0	0.0	3.6
Solids	25644	27018	27018	8589	5790	3942	-23350	-24177	-3387	-73.1	-80.7	-46.2
Oil (including refinery gas)	6896	7042	1559	242	421	421	-163	-1398	-3061	-9.5	-85.2	-87.9
Gas (including derived gases)	16214	26341	19256	16624	22645	22645	-13806	-15338	-5557	-41.8	-48.0	-19.7
Biomass-waste	4381	5496	16236	33583	61887	61887	10612	22073	42156	188.7	191.8	213.7
Hydro (pumping excluded)	67698	52224	68445	68904	71050	71050	5057	4167	0	8.0	6.4	0.0
Wind	77	959	14797	26317	75956	75956	1436	5396	52447	10.7	25.8	223.1
Solar	6	15	99	181	492	492	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	1262	1627	1627	0	799	1165	0.0	172.7	251.8
Net Generation Capacity in MW_e												
	111945	113154	117755	122444	153045	153045	-424	4249	37960	-0.4	3.6	33.0
<u>Nuclear energy</u>	62547	62570	64567	64687	57396	57396	0	0	2024	0.0	0.0	3.7
<u>Renewable energy</u>	25092	26102	31673	36376	55599	55599	289	2515	20292	0.9	7.4	57.5
Hydro (pumping excluded)	25016	25313	25477	25541	25804	25804	71	71	27	0.3	0.3	0.1
Wind	66	756	5839	9973	28408	28408	217	2029	19661	3.9	25.5	224.7
Solar	11	33	117	207	542	542	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	655	844	844	0	415	604	0.0	172.7	251.8
<u>Thermal power</u>	24306	24482	21515	21381	40049	40049	-713	1734	15644	-3.2	8.8	64.1
of which cogeneration units	4205	5546	6130	8728	14593	14593	-1368	710	3085	-18.2	8.9	26.8
Solids fired	9912	9150	4039	3774	2454	2454	0	0	0	0.0	0.0	0.0
Gas fired	4408	5210	8719	8520	24222	24222	-2809	-2823	10723	-24.4	-24.9	79.4
Oil fired	9128	8975	5100	2160	1387	1387	0	0	-2795	0.0	0.0	-66.8
Biomass-waste fired	860	1147	3657	6928	11986	11986	2096	4557	7716	134.3	192.1	180.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	52.2	54.9	56.5	56.5	52.5	52.5	-1.6	-2.8	-7.6			
Efficiency of gross thermal power generation (%)	34.8	35.5	58.8	59.2	60.3	60.3	9.2	10.1	1.4			
% of gross electricity from CHP	3.1	2.9	6.0	8.0	11.3	11.3	-0.3	1.5	3.2			
Carbon free gross electricity generation (%)	90.9	89.4	95.1	96.4	96.3	96.3	5.8	6.4	2.5			
- nuclear	77.4	79.1	78.6	75.7	67.5	67.5	2.5	1.0	-8.1			
- renewable energy forms	13.5	10.3	16.5	20.7	28.8	28.8	3.3	5.4	10.6			
Transport sector												
Passenger transport activity (Gpkm)												
	746.0	886.4	940.3	1057.4	1115.2	1245.3	-12.6	-21.3	-28.2	-1.2	-1.9	-2.2
Public road transport	41.3	42.4	44.0	50.0	54.1	61.7	0.8	1.3	1.7	1.7	2.5	2.8
Private cars and motorcycles	599.7	713.2	749.5	815.9	842.8	905.7	-14.4	-23.9	-33.3	-1.7	-2.8	-3.5
Rail	73.9	80.7	89.7	112.5	125.2	150.5	2.6	4.2	7.9	2.4	3.4	5.5
Aviation	26.1	46.0	53.1	75.3	89.1	122.9	-1.6	-2.8	-4.5	-2.1	-3.1	-3.5
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-0.8	-0.8	-0.8
Freight transport activity (Gtkm)												
	211.8	268.4	254.9	295.7	316.3	365.4	-5.3	-8.8	-12.5	-1.8	-2.7	-3.3
Trucks	153.5	204.0	205.3	250.5	269.0	311.2	-7.0	-11.2	-16.1	-2.7	-4.0	-4.9
Rail	50.7	55.3	40.7	36.3	38.3	45.0	1.6	2.3	3.4	4.7	6.3	8.3
Inland navigation	7.6	9.1	8.9	8.8	9.0	9.3	0.1	0.1	0.2	1.1	1.7	2.0
Energy demand in transport (ktoe)												
	41908	51599	49756	52989	53342	54560	-2204	-4019	-6196	-4.0	-7.0	-10.2
Public road transport	384	417	424	435	449	425	-2	-7	-28	-0.4	-1.5	-6.2
Private cars and motorcycles	23233	24945	23052	22632	22066	20575	-728	-1123	-1300	-3.1	-4.8	-5.9
Trucks	12587	17407	18419	20677	21260	23294	-1195	-2276	-3762	-5.5	-9.7	-13.9
Rail	1150	1373	1264	1161	1117	942	9	8	4	0.8	0.8	0.5
Aviation	3839	6683	6291	7789	8148	9005	-286	-619	-1108	-3.5	-7.1	-11.0
Inland navigation	714	775	305	294	302	319	-2	-3	-2	-0.6	-1.0	-0.8

Source: PRIMES

Germany: EC proposal with JI/CDM & RES trading **SUMMARY ENERGY BALANCE AND INDICATORS (A)**

ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	186698	141981	133330	135237	115912	110638	99432	92040	93623	-3.3	-1.4	-1.5	-0.6
Solids	125210	78868	59628	56514	42682	39408	37181	37361	36885	-7.2	-3.3	-1.4	-0.1
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6	
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6	
Renewable energy sources	6320	7420	10656	16718	23150	30562	40255	44680	48238	5.4	8.1	5.7	1.8
Hydro	1498	1873	1869	1684	1823	1854	1859	1873	1889	2.2	-0.2	0.2	0.2
Biomass & Waste	4797	5351	7877	12190	16352	20697	27385	30018	31633	5.1	7.6	5.3	1.5
Wind	6	147	804	2341	3660	4177	6224	7882	9400	62.9	16.4	5.5	4.2
Solar and others	11	41	96	365	1064	3428	4383	4524	4966	24.3	27.2	15.2	1.3
Geothermal	7	9	10	138	250	405	403	383	350	3.4	38.4	4.9	-1.4
Net Imports	164822	195060	204678	214351	206569	209104	210819	214860	211171	2.2	0.1	0.2	0.0
Solids	2881	10931	21576	26781	31553	37823	43373	46658	47315	22.3	3.9	3.2	0.9
Oil	120126	130810	125974	122228	109953	107248	103920	103059	99758	0.5	-1.4	-0.6	-0.4
- Crude oil and Feedstocks	88505	101168	101801	113120	108930	107654	106166	106867	105241	1.4	0.7	-0.3	-0.1
- Oil products	31621	29643	24173	9108	1023	-405	-2245	-3808	-5482	-2.7	-27.1		
Natural gas	41747	52904	56865	65734	64528	63096	62162	63709	62646	3.1	1.3	-0.4	0.1
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6
Gross Inland Consumption	354795	338258	340167	345456	319927	317111	307543	304122	301954	-0.4	-0.6	-0.4	-0.2
Solids	131510	92177	83727	82805	74236	77230	80554	84018	84200	-4.4	-1.2	0.8	0.4
Oil	124248	133627	129918	123409	110258	107147	103413	100281	96918	0.4	-1.6	-0.6	-0.6
Natural gas	54976	67298	71853	80856	78028	75096	73162	73709	71146	2.7	0.8	-0.6	-0.3
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6
Renewable energy forms	6320	7420	10656	16718	23150	30562	40255	44680	48238	5.4	8.1	5.7	1.8
as % in Gross Inland Consumption													
Solids	37.1	27.3	24.6	24.0	23.2	24.4	26.2	27.6	27.9				
Oil	35.0	39.5	38.2	35.7	34.5	33.8	33.6	33.0	32.1				
Natural gas	15.5	19.9	21.1	23.4	24.4	23.7	23.8	24.2	23.6				
Nuclear	10.6	11.0	12.9	12.2	10.5	8.2	2.9	0.0	0.0				
Renewable energy forms	1.8	2.2	3.1	4.8	7.2	9.6	13.1	14.7	16.0				
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	584759	601760	618278	675958	731784	0.4	0.3	0.6	1.7
Self consumption and grid losses	65998	62673	74099	72965	67012	68365	71693	81298	87823	1.2	-1.0	0.7	2.0
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72510	77517	87403	99186	102579	-0.9	-1.6	1.9	1.6
Solids	75843	69147	68066	66172	57894	61352	65461	69836	70903	-1.1	-1.6	1.2	0.8
Oil (including refinery gas)	2871	2083	1108	2038	198	96	171	113	120	-9.1	-15.8	-1.5	-3.5
Gas (including derived gases)	12676	11982	12906	19233	10035	10835	11825	15994	16555	0.2	-2.5	1.7	3.4
Biomass & Waste	1824	2665	3174	5102	4348	5189	9893	13183	14938	5.7	3.2	8.6	4.2
Geothermal heat	0	0	0	0	35	45	53	61	63			4.1	1.8
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	164613	140203	136936	144522	140731	139396	137851	134554	131825	-1.8	0.3	-0.2	-0.4
Refineries	106658	116715	119856	127082	119322	117609	115434	113504	111405	1.2	0.0	-0.3	-0.4
Biofuels and hydrogen production	0	31	222	1942	4331	6170	8182	8295	8528		34.6	6.6	0.4
District heating	6389	3638	1435	873	3590	3015	2703	2156	2007	-13.9	9.6	-2.8	-2.9
Derived gases, cokeries etc.	51565	19819	15423	14625	13488	12602	11533	10598	9885	-11.4	-1.3	-1.6	-1.5
Energy Branch Consumption	15384	14906	14242	15144	13252	12664	12073	11925	11662	-0.8	-0.7	-0.9	-0.3
Non-Energy Uses	23249	22912	25272	24779	24685	24722	24671	24251	23836	0.8	-0.2	0.0	-0.3
Final Energy Demand	228372	223799	220163	218010	217724	219469	217546	215557	213636	-0.4	-0.1	0.0	-0.2
by sector													
Industry	72116	61981	59715	56706	57071	56038	53997	53053	52999	-1.9	-0.5	-0.6	-0.2
- energy intensive industries	49422	42778	40359	38652	38640	37801	36052	34875	34366	-2.0	-0.4	-0.7	-0.5
- other industrial sectors	22693	19203	19356	18053	18431	18238	17946	18178	18633	-1.6	-0.5	-0.3	0.4
Residential	58400	62212	61905	65931	65903	66975	67307	66830	66116	0.6	0.6	0.2	-0.2
Tertiary	39361	35275	32547	33416	32032	32149	31818	31066	30151	-1.9	-0.2	-0.1	-0.5
Transport	58494	62910	65997	61958	62718	64306	64424	64609	64371	1.2	-0.5	0.3	0.0
by fuel													
Solids	38693	14917	10951	9639	9990	9980	9661	9164	8560	-11.9	-0.9	-0.3	-1.2
Oil	96422	104474	98052	87411	80520	78004	73871	71843	69745	0.2	-2.0	-0.9	-0.6
Gas	42724	52595	58030	61814	64248	62025	59849	56544	53049	3.1	1.0	-0.7	-1.2
Electricity	38391	38912	41496	44497	43664	45538	47393	51758	56033	0.8	0.5	0.8	1.7
Heat (from CHP and District Heating)	9150	8747	6831	7428	7426	7563	7709	7812	7470	-2.9	0.8	0.4	-0.3
Renewable energy forms	2991	2734	4804	7222	11871	16351	19044	18413	18756	4.9	9.5	4.8	-0.2
Other	0	0	0	0	5	8	19	23	23			15.3	1.8
RES in Gross Final Energy Consumption (A)			8812	13195	21368	28546	37180	40893	44441		9.3	5.7	1.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	925.3	912.0	903.3	889.0	858.8	-1.7	-1.2	-0.2	-0.5
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	729.1	726.2	726.1	734.1	721.1	-1.5	-1.2	0.0	-0.1
Power generation/District heating	375.1	328.9	316.2	325.0	269.0	282.9	301.6	327.2	332.2	-1.7	-1.6	1.1	1.0
Energy Branch	26.2	27.7	27.1	28.9	23.4	19.7	19.8	18.5	17.7	0.3	-1.5	-1.7	-1.1
Industry	170.5	130.6	118.3	105.6	103.8	99.9	92.7	89.1	85.9	-3.6	-1.3	-1.1	-0.8
Residential	134.3	127.4	117.7	120.0	112.9	106.6	101.5	93.0	84.2	-1.3	-0.4	-1.1	-1.9
Tertiary	84.7	64.1	53.1	51.1	48.8	45.5	43.0	38.7	35.0	-4.6	-0.8	-1.3	-2.0
Transport	168.9	181.9	190.9	174.3	171.1	171.5	167.5	167.7	166.2	1.2	-1.1	-0.2	-0.1
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.4	78.4	77.9	77.4	76.1	-0.2	-0.8	0.2	-0.2
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	107.3	99.2	77.6	61.6	-3.7	-1.1	-1.9	-4.6
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.6	73.5	72.8	71.7	69.2				

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Germany: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2	
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1	
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.5	116.9	105.1	97.6	92.1	-2.1	-1.9	-2.1	-1.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.28	2.29	2.36	2.41	2.39	-1.1	-0.6	0.4	0.1	
Import Dependency %	46.1	57.3	59.8	61.6	64.1	65.4	68.0	70.0	69.3					
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	258.9	276.8	299.6	313.0	322.7		2.6	1.5	0.7	
as % of GDP			9.2	10.5	10.5	10.2	10.2	10.0	9.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	71.5	63.4	58.2	55.1	-2.8	-2.2	-2.3	-1.4	
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.6	90.4	84.7	79.3	74.6	-1.3	-0.3	-1.3	-1.3	
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.1	75.9	69.2	63.1	58.1	-4.3	-1.7	-1.9	-1.7	
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	36.1	34.1	32.4	30.9	-1.2	-1.6	-1.1	-1.0	
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	31.1	29.9	29.0	28.1	0.6	-2.4	-0.8	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.40	0.40	0.42	0.42	0.40	-1.4	-2.0	0.6	-0.4	
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	2.01	1.93	1.86	1.80	1.74	-1.1	-0.8	-0.8	-0.7	
Industry	2.36	2.11	1.98	1.86	1.82	1.78	1.72	1.68	1.62	-1.8	-0.9	-0.6	-0.6	
Residential	2.30	2.05	1.90	1.82	1.71	1.59	1.51	1.39	1.27	-1.9	-1.0	-1.3	-1.7	
Tertiary	2.15	1.82	1.63	1.53	1.52	1.42	1.35	1.25	1.16	-2.7	-0.7	-1.2	-1.5	
Transport	2.89	2.89	2.89	2.81	2.73	2.67	2.60	2.60	2.58	0.0	-0.6	-0.5	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	9.5	12.6	16.6	18.3	20.1					
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	7.0	9.8	13.0	13.3	13.8					
Gross Electricity generation by source (in GWh)														
			567219	613054	584759	601760	618278	675958	731784		0.3	0.6	1.7	
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6		
Solids			286571	262420	294802	313920	338139	365004	390648		0.3	1.4	1.5	
Oil (including refinery gas)			5476	23814	1040	563	5959	6801	6801		-15.3	19.1	1.3	
Gas (including derived gases)			64676	96524	73403	81508	90528	120911	124226		1.3	2.1	3.2	
Biomass-waste			9782	19186	18493	30889	51507	65251	73879		6.6	10.8	3.7	
Hydro (pumping excluded)			21728	19577	21200	21562	21611	21781	21960		-0.2	0.2	0.2	
Wind			9350	27224	42553	48573	72374	91653	109307		16.4	5.5	4.2	
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0	
Geothermal and other renewables			0	0	41	52	62	71	73			4.1	1.8	
Net Generation Capacity in MW_e			112509	122874	130710	131380	142682	156087	167114		1.5	0.9	1.6	
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5		
<u>Renewable energy</u>			9611	23545	30334	33045	42340	49706	53505		12.2	3.4	2.4	
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2	
Wind			6113	18428	23976	25689	34246	41049	44378		14.6	3.6	2.6	
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			81597	78649	84768	86170	96237	106381	113608		0.4	1.3	1.7	
of which cogeneration units			40073	37870	28802	29452	34138	34994	34091		-3.2	1.7	0.0	
Solids fired			47883	45326	47625	48790	50993	52614	53898		-0.1	0.7	0.6	
Gas fired			24817	24439	27678	29410	33709	40543	45460		1.1	2.0	3.0	
Oil fired			7114	6403	5466	1860	2093	1740	1694		-2.6	-9.2	-2.1	
Biomass-waste fired			1783	2481	3991	6100	9431	11470	12542		8.4	9.0	2.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	8	10	12	13	14			4.1	1.8	
Avg. Load factor of net power capacity (%)			53.7	53.1	47.7	49.0	46.4	46.3	46.9					
Efficiency of gross thermal power generation (%)			37.0	37.4	46.0	47.4	47.8	48.4	49.9					
% of gross electricity from CHP			16.9	15.5	20.0	21.0	24.9	25.4	24.9					
Carbon free gross electricity generation (%)			37.1	37.6	36.9	34.2	29.7	27.1	28.7					
- nuclear			29.9	26.6	22.4	16.8	5.5	0.0	0.0					
- renewable energy forms			7.2	11.0	14.5	17.4	24.2	27.1	28.7					
Transport sector														
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1224.8	1321.0	1394.7	1466.0	1523.9	2.0	1.2	1.3	0.9	
Public road transport	73.1	68.5	69.0	68.2	67.1	70.4	75.6	80.0	84.1	-0.6	-0.3	1.2	1.1	
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1043.7	1084.3	1119.9	1145.0	2.0	1.3	1.0	0.5	
Rail	76.1	85.4	90.0	90.2	94.0	101.7	110.8	124.3	139.1	1.7	0.4	1.7	2.3	
Aviation	34.3	46.2	62.0	70.5	83.8	102.7	121.5	139.1	153.0	6.1	3.1	3.8	2.3	
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-1.0	0.6	0.7	
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	497.9	533.9	561.8	589.2	613.0	1.9	1.6	1.2	0.9	
Trucks	196.4	237.8	280.7	310.1	327.5	351.1	371.0	392.2	410.8	3.6	1.6	1.3	1.0	
Rail	101.7	69.5	77.5	89.7	103.6	112.2	115.8	118.0	119.5	-2.7	2.9	1.1	0.3	
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.7	75.0	79.0	82.7	1.9	0.0	1.2	1.0	
Energy demand in transport (ktoe)	58494	62910	65997	61958	62718	64306	64424	64609	64371	1.2	-0.5	0.3	0.0	
Public road transport	656	611	612	529	478	472	483	480	491	-0.7	-2.4	0.1	0.2	
Private cars and motorcycles	38247	40001	39981	36421	36046	35828	34773	33995	33379	0.4	-1.0	-0.4	-0.4	
Trucks	11518	13643	15834	14528	14193	14495	14788	15280	15724	3.2	-1.1	0.4	0.6	
Rail	2111	2126	1946	1858	2015	2052	1922	1701	1393	-0.8	0.3	-0.5	-3.2	
Aviation	5307	5975	7345	8304	9658	11118	12102	12782	13001	3.3	2.8	2.3	0.7	
Inland navigation	656	554	279	318	327	341	356	370	382	-8.2	1.6	0.9	0.7	

Source: PRIMES

Germany: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	110638	99432	93623	1257	11417	15387	1.1	13.0	19.7
Solids	125210	59628	56514	39408	37181	36885	-4858	-817	-167	-11.0	-2.2	-0.5
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	30562	40255	48238	6115	12234	15554	25.0	43.7	47.6
Hydro	1498	1869	1684	1854	1859	1889	66	58	0	3.7	3.2	0.0
Biomass & Waste	4797	7877	12190	20697	27385	31633	3466	8308	9944	20.1	43.5	45.8
Wind	6	804	2341	4177	6224	9400	0	581	2103	0.0	10.3	28.8
Solar and others	11	96	365	3428	4383	4966	2352	3078	3379	218.4	235.7	212.9
Geothermal	7	10	138	405	403	350	231	210	130	132.0	108.2	58.9
Net Imports	164822	204678	214351	209104	210819	211171	-16172	-28519	-33921	-7.2	-11.9	-13.8
Solids	2881	21576	26781	37823	43373	47315	-879	-4853	-2150	-2.3	-10.1	-4.3
Oil	120126	125974	122228	107248	103920	99758	-6977	-10250	-12918	-6.1	-9.0	-11.5
- Crude oil and Feedstocks	88505	101801	113120	107654	106166	105241	-3467	-5131	-6613	-3.1	-4.6	-5.9
- Oil products	31621	24173	9108	-405	-2245	-5482	-3509	-5118	-6305	-113.1	-178.2	-766.2
Natural gas	41747	56865	65734	63096	62162	62646	-8316	-13417	-18852	-11.6	-17.8	-23.1
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	317111	307543	301954	-14913	-17095	-18522	-4.5	-5.3	-5.8
Solids	131510	83727	82805	77230	80554	84200	-5737	-5670	-2317	-6.9	-6.6	-2.7
Oil	124248	129918	123409	107147	103413	96918	-6975	-10242	-12907	-6.1	-9.0	-11.8
Natural gas	54976	71853	80856	75096	73162	71146	-8316	-13417	-18852	-10.0	-15.5	-20.9
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	30562	40255	48238	6115	12234	15554	25.0	43.7	47.6
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	24.4	26.2	27.9	-0.6	-0.4	0.9			
Oil	35.0	38.2	35.7	33.8	33.6	32.1	-0.6	-1.4	-2.2			
Natural gas	15.5	21.1	23.4	23.7	23.8	23.6	-1.4	-2.9	-4.5			
Nuclear	10.6	12.9	12.2	8.2	2.9	0.0	0.4	0.2	0.0			
Renewable energy forms	1.8	3.1	4.8	9.6	13.1	16.0	2.3	4.5	5.8			
Gross Electricity Generation in GWh_e	547549	567219	613054	601760	618278	731784	-62503	-54500	37966	-9.4	-8.1	5.5
Self consumption and grid losses	65998	74099	72965	68365	71693	87823	-7339	-4964	6995	-9.7	-6.5	8.7
Fuel Inputs to Thermal Power Generation	93214	85253	92546	77517	87403	102579	-11587	-11179	1618	-13.0	-11.3	1.6
Solids	75843	68066	66172	61352	65461	70903	-6385	-5903	-862	-9.4	-8.3	-1.2
Oil (including refinery gas)	2871	1108	2038	96	171	120	-2035	-1953	-1627	-95.5	-92.0	-93.2
Gas (including derived gases)	12676	12906	19233	10835	11825	16555	-3427	-7499	-3820	-24.0	-38.8	-18.7
Biomass & Waste	1824	3174	5102	5189	9893	14938	236	4160	7928	4.8	72.6	113.1
Geothermal heat	0	0	0	45	53	63	24	16	0	116.1	45.2	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	139396	137851	131825	-1772	-2315	-6768	-1.3	-1.7	-4.9
Refineries	106658	119856	127082	117609	115434	111405	-3490	-5170	-6653	-2.9	-4.3	-5.6
Biofuels and hydrogen production	0	222	1942	6170	8182	8528	733	1746	990	13.5	27.1	13.1
District heating	6389	1435	873	3015	2703	2007	118	405	-1749	4.1	17.6	-46.6
Derived gases, cokeries etc.	51565	15423	14625	12602	11533	9885	868	704	644	7.4	6.5	7.0
Energy Branch Consumption	15384	14242	15144	12664	12073	11662	-580	-642	-753	-4.4	-5.0	-6.1
Non-Energy Uses	23249	25272	24779	24722	24671	23836	-62	-111	-125	-0.2	-0.4	-0.5
Final Energy Demand	228372	220163	218010	219469	217546	213636	-8751	-11914	-18230	-3.8	-5.2	-7.9
by sector												
Industry	72116	59715	56706	56038	53997	52999	-67	-1008	-1610	-0.1	-1.8	-2.9
- energy intensive industries	49422	40359	38652	37801	36052	34366	354	-335	-828	0.9	-0.9	-2.4
- other industrial sectors	22693	19356	18053	18238	17946	18633	-421	-674	-782	-2.3	-3.6	-4.0
Residential	58400	61905	65931	66975	67307	66116	-2224	-2603	-5501	-3.2	-3.7	-7.7
Tertiary	39361	32547	33416	32149	31818	30151	-4333	-4697	-6125	-11.9	-12.9	-16.9
Transport	58494	65997	61958	64306	64424	64371	-2127	-3605	-4994	-3.2	-5.3	-7.2
by fuel												
Solids	38693	10951	9639	9980	9661	8560	220	-78	-238	2.3	-0.8	-2.7
Oil	96422	98052	87411	78004	73871	69745	-3692	-7659	-11023	-4.5	-9.4	-13.6
Gas	42724	58030	61814	62025	59849	53049	-4457	-5323	-13083	-6.7	-8.2	-19.8
Electricity	38391	41496	44497	45538	47393	56033	-4731	-4233	2713	-9.4	-8.2	5.1
Heat (from CHP and District Heating)	9150	6831	7428	7563	7709	7470	-668	-924	-1292	-8.1	-10.7	-14.7
Renewable energy forms	2991	4804	7222	16351	19044	18756	4575	6302	4699	38.8	49.5	33.4
Other	0	0	0	8	19	23	0	1	-6	5.5	6.1	-21.5
RES in Gross Final Energy Consumption ^(A)		8812	13195	28546	37180	44441	6674	11493	14466	30.5	44.7	48.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	912.0	903.3	858.8	-71.1	-96.1	-101.8	-7.2	-9.6	-10.6
CO₂ Emissions (energy related)	959.8	823.3	804.8	726.2	726.1	721.1	-64.3	-84.8	-92.0	-8.1	-10.5	-11.3
Power generation/District heating	375.1	316.2	325.0	282.9	301.6	332.2	-40.3	-46.3	-24.1	-12.5	-13.3	-6.8
Energy Branch	26.2	27.1	28.9	19.7	19.8	17.7	-3.5	-3.1	-3.5	-15.1	-13.4	-16.6
Industry	170.5	118.3	105.6	99.9	92.7	85.9	5.1	3.6	3.3	5.3	4.1	3.9
Residential	134.3	117.7	120.0	106.6	101.5	84.2	-10.8	-15.9	-34.8	-9.2	-13.6	-29.2
Tertiary	84.7	53.1	51.1	45.5	43.0	35.0	-6.4	-7.7	-14.0	-12.4	-15.2	-28.6
Transport	168.9	190.9	174.3	171.5	167.5	166.2	-8.2	-15.4	-18.8	-4.6	-8.4	-10.1
CO ₂ Emissions (non energy related)	84.5	82.9	75.8	78.4	77.9	76.1	2.4	0.9	-0.6	3.2	1.1	-0.7
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	107.3	99.2	61.6	-9.2	-12.2	-9.2	-7.9	-11.0	-13.0
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	73.5	72.8	69.2	-5.7	-7.8	-8.2			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Germany: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	116.9	105.1	92.1	-5.5	-5.8	-5.7	-4.5	-5.3	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.29	2.36	2.39	-0.09	-0.14	-0.15	-3.8	-5.5	-5.9
Import Dependency %	46.1	59.8	61.6	65.4	68.0	69.3	-1.9	-5.2	-6.5			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	276.8	299.6	322.7	6.0	10.9	17.1	2.2	3.8	5.6
as % of GDP		9.2	10.5	10.2	10.2	9.8	0.2	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				6.1	11.1	17.3						
as % of GDP				0.22	0.38	0.53						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	71.5	63.4	55.1	-0.1	-1.2	-1.7	-0.1	-1.8	-2.9
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	90.4	84.7	74.6	-3.0	-3.3	-6.2	-3.2	-3.7	-7.7
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	75.9	69.2	58.1	-10.2	-10.2	-11.8	-11.9	-12.9	-16.9
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	36.1	34.1	30.9	-0.6	-0.9	-1.4	-1.7	-2.6	-4.2
Freight transport (toe/Mtkm)	39.2	41.5	35.3	31.1	29.9	28.1	-1.0	-1.8	-2.1	-3.1	-5.7	-6.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.40	0.42	0.40	-0.02	-0.02	-0.04	-3.6	-5.3	-9.3
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.93	1.86	1.74	-0.02	-0.06	-0.14	-0.8	-3.0	-7.5
Industry	2.36	1.98	1.86	1.78	1.72	1.62	0.09	0.10	0.11	5.5	6.0	7.1
Residential	2.30	1.90	1.82	1.59	1.51	1.27	-0.10	-0.17	-0.39	-6.2	-10.2	-23.4
Tertiary	2.15	1.63	1.53	1.42	1.35	1.16	-0.01	-0.04	-0.19	-0.6	-2.7	-14.1
Transport	2.89	2.89	2.81	2.67	2.60	2.58	-0.04	-0.09	-0.08	-1.4	-3.3	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	12.6	16.6	20.1	3.3	5.7	7.5			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	9.8	13.0	13.8	1.5	3.4	2.6			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	169575	163026	101327	34100		0	0	0	0	0.0	0.0	
Solids	286571	262420	313920	338139	390648		-32034	-29408	1423	-9.3	-8.0	0.4
Oil (including refinery gas)	5476	23814	563	5959	6801		-15258	-10476	-8148	-96.4	-63.7	-54.5
Gas (including derived gases)	64676	96524	81508	90528	124226		-20475	-43958	-17450	-20.1	-32.7	-12.3
Biomass-waste	9782	19186	30889	51507	73879		4463	21888	37694	16.9	73.9	104.2
Hydro (pumping excluded)	21728	19577	21562	21611	21960		772	677	0	3.7	3.2	0.0
Wind	9350	27224	48573	72374	109307		0	6757	24448	0.0	10.3	28.8
Solar	60	1282	3366	3997	4891		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	52	62	73		28	19	0	116.1	45.2	0.0
Net Generation Capacity in MW_e	112509	122874	131380	142682	167114	-11386	-8335	15069	-8.0	-5.5	9.9	
Nuclear energy	21301	20680	12165	4105	0	0	0	0	0.0	0.0		
Renewable energy	9611	23545	33045	42340	53505	-17	1800	9124	-0.1	4.4	20.6	
Hydro (pumping excluded)	3408	3580	3732	3790	3862	0	0	0	0.0	0.0	0.0	
Wind	6113	18428	25689	34246	44378	-17	1800	9124	-0.1	5.5	25.9	
Solar	90	1537	3624	4303	5266	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
Thermal power	81597	78649	86170	96237	113608	-11369	-10135	5945	-11.7	-9.5	5.5	
of which cogeneration units	40073	37870	29452	34138	34091	-4684	-6691	-2109	-13.7	-16.4	-5.8	
Solids fired	47883	45326	48790	50993	53898	-4167	-2508	1743	-7.9	-4.7	3.3	
Gas fired	24817	24439	29410	33709	45460	-6317	-9517	-953	-17.7	-22.0	-2.1	
Oil fired	7114	6403	1860	2093	1694	-3260	-2284	-1643	-63.7	-52.2	-49.2	
Biomass-waste fired	1783	2481	6100	9431	12542	2369	4170	6798	63.5	79.3	118.4	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	10	12	14	5	4	0	114.4	44.8	0.0	
Avg. Load factor of net power capacity (%)	53.7	53.1	49.0	46.4	46.9	-0.7	-1.3	-1.9				
Efficiency of gross thermal power generation (%)	37.0	37.4	47.4	47.8	49.9	0.1	0.0	0.4				
% of gross electricity from CHP	16.9	15.5	21.0	24.9	24.9	-1.4	-4.1	-3.6				
Carbon free gross electricity generation (%)	37.1	37.6	34.2	29.7	28.7	4.0	6.8	7.4				
- nuclear	29.9	26.6	16.8	5.5	0.0	1.6	0.4	0.0				
- renewable energy forms	7.2	11.0	17.4	24.2	28.7	2.4	6.3	7.4				
Transport sector												
Passenger transport activity (Gpkm)	889.5	1081.9	1142.4	1321.0	1394.7	1523.9	-15.3	-27.3	-35.3	-1.1	-1.9	-2.3
Public road transport	73.1	69.0	68.2	70.4	75.6	84.1	1.0	1.6	2.1	1.4	2.2	2.6
Private cars and motorcycles	702.1	858.2	911.1	1043.7	1084.3	1145.0	-16.2	-27.5	-35.1	-1.5	-2.5	-3.0
Rail	76.1	90.0	90.2	101.7	110.8	139.1	2.2	2.4	3.3	2.2	2.2	2.4
Aviation	34.3	62.0	70.5	102.7	121.5	153.0	-2.3	-3.8	-5.5	-2.2	-3.1	-3.5
Inland navigation	3.8	2.7	2.5	2.5	2.5	2.7	0.0	0.0	0.0	-0.5	-0.1	0.0
Freight transport activity (Gtkm)	352.9	424.7	463.9	533.9	561.8	613.0	-6.8	-12.2	-16.9	-1.3	-2.1	-2.7
Trucks	196.4	280.7	310.1	351.1	371.0	410.8	-10.2	-16.8	-22.3	-2.8	-4.3	-5.2
Rail	101.7	77.5	89.7	112.2	115.8	119.5	3.2	4.1	4.8	3.0	3.7	4.2
Inland navigation	54.8	66.5	64.1	70.7	75.0	82.7	0.1	0.5	0.7	0.2	0.6	0.8
Energy demand in transport (ktoe)	58494	65997	61958	64306	64424	64371	-2127	-3605	-4994	-3.2	-5.3	-7.2
Public road transport	656	612	529	472	483	491	-3	-6	-25	-0.5	-1.2	-4.8
Private cars and motorcycles	38247	39981	36421	35828	34773	33379	-1038	-1574	-1893	-2.8	-4.3	-5.4
Trucks	11518	15834	14528	14495	14788	15724	-763	-1425	-1734	-5.0	-8.8	-9.9
Rail	2111	1946	1858	2052	1922	1393	15	15	-43	0.7	0.8	-3.0
Aviation	5307	7345	8304	11118	12102	13001	-336	-613	-1296	-2.9	-4.8	-9.1
Inland navigation	656	279	318	341	356	382	-2	-2	-4	-0.5	-0.5	-1.1

Source: PRIMES

Greece: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9152	9740	10010	10315	10880	6942	6516	6343	6304	0.9	0.8	-5.0	-0.3	
Solids	7077	7911	8222	8538	8266	3460	2183	1447	1099	1.5	0.1	-12.5	-6.6	
Oil	832	459	280	100	97	100	98	0	0	-10.3	-10.1	0.2		
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2489	3382	4234	4896	5206	2.9	5.4	5.5	2.1	
Hydro	152	303	318	431	424	427	435	439	442	7.6	2.9	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2801	2844	1.2	4.2	4.6	1.8	
Wind	0	3	39	109	254	486	695	862	1079	74.8	20.7	10.6	4.5	
Solar and others	56	82	99	102	270	505	630	688	723	5.8	10.6	8.8	1.4	
Geothermal	3	3	2	1	19	62	96	107	118	-4.7	27.9	17.7	2.1	
Net Imports	15415	18207	21982	23336	24825	28509	29258	30111	30146	3.6	1.2	1.7	0.3	
Solids	988	925	768	371	226	1070	1072	1084	1441	-2.5	-11.5	16.8	3.0	
Oil	14366	17214	19527	20307	20597	21523	20733	20426	19917	3.1	0.5	0.1	-0.4	
- Crude oil and Feedstocks	14757	16955	20439	19352	20462	21336	20940	20829	20570	3.3	0.0	0.2	-0.2	
- Oil products	-391	259	-912	955	135	188	-207	-404	-653					
Natural gas	0	0	1689	2332	3687	5262	5752	6659	6838		8.1	4.5	1.7	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	32599	32131	32282	32823	32713	2.4	1.5	-0.1	0.1	
Solids	8091	8783	9040	8952	8493	4530	3255	2531	2539	1.1	-0.6	-9.1	-2.5	
Oil	12883	13952	15929	17951	17587	18303	17339	16794	16179	2.1	1.0	-0.1	-0.7	
Natural gas	138	44	1705	2354	3716	5262	5752	6659	6838	28.6	8.1	4.5	1.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2538	3796	5719	6644	6980	2.9	5.6	8.5	2.0	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.1	14.1	10.1	7.7	7.8					
Oil	57.8	57.7	56.6	57.5	53.9	57.0	53.7	51.2	49.5					
Natural gas	0.6	0.2	6.1	7.5	11.4	16.4	17.8	20.3	20.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	7.8	11.8	17.7	20.2	21.3					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62290	64133	67520	75362	81548	4.4	1.5	0.8	1.9	
Self consumption and grid losses	5818	6451	8431	10125	9828	9181	9338	10357	11138	3.8	1.5	-0.5	1.8	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11761	9843	9405	10056	10309	3.0	0.1	-2.2	0.9	
Solids	6890	7810	8234	8693	8152	4189	2934	2258	2271	1.8	-0.1	-9.7	-2.5	
Oil (including refinery gas)	1708	2075	2036	2053	1027	1471	1239	1097	1076	1.8	-6.6	1.9	-1.4	
Gas (including derived gases)	18	14	1280	1605	2469	3709	4348	5292	5518	53.1	6.8	5.8	2.4	
Biomass & Waste	0	38	64	52	95	415	791	1307	1330		4.1	23.6	5.3	
Geothermal heat	0	0	0	0	17	60	93	103	113			18.3	2.0	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21216	22306	22167	22068	21868	3.0	-0.6	0.4	-0.1	
Refineries	16621	17860	22404	21415	20902	21771	21374	21170	20906	3.0	-0.7	0.2	-0.2	
Biofuels and hydrogen production	0	0	0	0	252	479	746	867	941			11.4	2.3	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	62	56	47	31	21	-8.8	7.4	-2.8	-7.9	
Energy Branch Consumption	1196	1174	1637	1758	1618	1579	1616	1613	1583	3.2	-0.1	0.0	-0.2	
Non-Energy Uses	651	441	689	711	702	701	712	721	719	0.6	0.2	0.1	0.1	
Final Energy Demand	14509	15801	18513	20742	22528	23834	24318	24572	24457	2.5	2.0	0.8	0.1	
by sector														
Industry	3942	4107	4437	4132	4059	4138	4173	4108	4103	1.2	-0.9	0.3	-0.2	
- energy intensive industries	2534	2489	2693	2526	2524	2595	2629	2614	2601	0.6	-0.6	0.4	-0.1	
- other industrial sectors	1408	1618	1744	1607	1534	1543	1494	1503	1503	2.2	-1.3	0.1	-0.3	
Residential	3048	3323	4470	5467	6260	6785	7024	7102	7021	3.9	3.4	1.2	0.0	
Tertiary	1711	1940	2410	3075	3252	3438	3424	3512	3503	3.5	3.0	0.5	0.2	
Transport	5808	6431	7196	8068	8957	9473	9698	9850	9830	2.2	2.2	0.8	0.1	
by fuel														
Solids	1053	1074	888	446	321	323	306	263	261	-1.7	-9.7	-0.5	-1.6	
Oil	10041	10799	12584	14219	14966	15334	15203	14859	14305	2.3	1.7	0.2	-0.6	
Gas	15	14	257	585	943	1210	1083	1033	981	33.0	13.9	1.4	-1.0	
Electricity	2448	2931	3710	4377	4602	4786	5040	5606	6054	4.2	2.2	0.9	1.8	
Heat (from CHP and District Heating)	0	0	28	49	38	43	56	76	88		3.2	3.9	4.5	
Renewable energy forms	952	982	1046	1066	1658	2137	2627	2731	2766	0.9	4.7	4.7	0.5	
Other	0	0	0	0	1	1	3	3	3			16.6	1.7	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2455	3576	4636	5304	5646	5.5	6.6	2.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.4	114.3	106.6	103.3	101.4	2.0	0.2	-1.8	-0.5	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	94.8	84.0	76.9	74.2	72.8	2.3	0.6	-2.1	-0.5	
Power generation/District heating	34.1	39.0	43.7	46.3	42.9	30.6	26.1	25.0	25.4	2.5	-0.2	-4.9	-0.3	
Energy Branch	2.6	2.3	3.4	3.6	3.1	2.9	1.2	1.0	0.9	2.9	-0.8	-9.5	-2.5	
Industry	9.4	10.0	10.1	8.6	7.7	7.5	6.9	6.4	6.2	0.7	-2.7	-1.1	-1.0	
Residential	4.6	4.7	7.4	9.6	10.8	11.6	11.7	11.0	9.8	4.9	3.8	0.8	-1.7	
Tertiary	3.3	3.2	3.4	4.2	4.4	4.5	4.2	3.9	3.7	0.1	2.7	-0.4	-1.3	
Transport	17.2	19.0	21.2	23.8	25.8	26.8	26.8	27.0	26.7	2.1	2.0	0.4	-0.1	
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.3	9.7	9.8	9.8	1.2	0.8	0.8	0.2	
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	21.1	20.1	19.3	18.8	1.3	-1.6	-1.6	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	123.8	111.1	103.6	100.4	98.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: EC proposal with JI/CDM & RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.4	128.3	113.6	104.0	95.9	0.0	-2.4	-2.8	-1.7	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.91	2.61	2.38	2.26	2.22	-0.1	-0.9	-2.0	-0.7	
Import Dependency %	62.1	65.7	69.3	68.5	69.5	80.4	81.8	82.6	82.7					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	26.7	30.7	33.6	35.3		4.1	3.0	1.4	
as % of GDP			10.5	10.2	10.6	10.7	10.8	10.6	10.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	64.1	58.6	54.1	51.2	1.1	-3.4	-1.8	-1.3	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.8	93.3	85.9	78.8	72.4	1.6	-0.1	-1.4	-1.7	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.6	84.4	74.2	68.4	62.9	1.2	-0.8	-2.2	-1.6	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.2	29.9	28.7	27.3	-2.0	-0.8	-0.9	-0.9	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	95.1	89.6	86.9	85.2	-1.1	-1.4	-1.0	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.47	0.38	0.33	0.31	-1.9	-1.7	-5.7	-2.2	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.16	2.12	2.04	1.96	1.90	-0.4	-0.5	-0.6	-0.7	
Industry	2.39	2.43	2.28	2.09	1.90	1.81	1.65	1.56	1.52	-0.5	-1.8	-1.4	-0.8	
Residential	1.51	1.43	1.66	1.76	1.73	1.72	1.66	1.54	1.40	0.9	0.4	-0.4	-1.7	
Tertiary	1.96	1.65	1.40	1.36	1.36	1.31	1.24	1.11	1.06	-3.3	-0.3	-0.9	-1.5	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.71	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.5	14.5	18.4	20.8	22.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.2	8.1	8.9					
Gross Electricity generation by source (in GWh)														
			53415	59416	62290	64133	67520	75362	81548		1.5	0.8	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids	33790	35982	34192	19826	14592	11776	12585			0.1	-8.2	-1.5		
Oil (including refinery gas)	8979	8858	4873	7050	6063	5413	5265			-5.9	2.2	-1.4		
Gas (including derived gases)	5960	8114	14663	23539	26932	32690	35036			9.4	6.3	2.7		
Biomass-waste	543	179	578	2633	5723	8810	9090			0.6	25.8	4.7		
Hydro (pumping excluded)	3692	5016	4926	4961	5057	5103	5135			2.9	0.3	0.2		
Wind	451	1266	2957	5650	8085	10028	12546			20.7	10.6	4.5		
Solar		0	1	73	397	606	1040	1343				23.6	8.3	
Geothermal and other renewables		0	0	28	77	463	502	547				32.4	1.7	
Net Generation Capacity in MW_e			11361	13277	15920	18949	20817	22121	23672		3.4	2.7	1.3	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>	3233	3744	4521	5835	7354	8545	9731			3.4	5.0	2.8		
Hydro (pumping excluded)	3043	3165	3235	3386	3489	3542	3577			0.6	0.8	0.2		
Wind	189	573	1226	2126	3202	4004	4914			20.6	10.1	4.4		
Solar	1	5	60	324	494	814	1051			46.8	23.6	7.8		
Other renewables (tidal etc.)	0	0	0	0	170	184	189						1.1	
<u>Thermal power</u>	8128	9533	11399	13114	13462	13576	13941			3.4	1.7	0.4		
of which cogeneration units	340	381	515	741	842	1055	1144			4.2	5.0	3.1		
Solids fired	4505	4798	4796	4263	4263	4217	3967			0.6	-1.2	-0.7		
Gas fired	1134	1876	3344	5639	5610	5528	6598			11.4	5.3	1.6		
Oil fired	2487	2827	3145	2773	2654	2547	1945			2.4	-1.7	-3.1		
Biomass-waste fired	2	31	106	421	899	1247	1324			52.3	23.8	4.0		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat			0	8	17	37	107					16.7	11.1	
Avg. Load factor of net power capacity (%)			49.7	47.4	41.9	36.9	35.6	37.5	38.0					
Efficiency of gross thermal power generation (%)			36.5	36.8	39.7	46.4	48.9	50.3	51.9					
% of gross electricity from CHP			1.2	1.5	2.5	4.9	8.3	9.6	9.6					
Carbon free gross electricity generation (%)			8.8	10.9	13.7	21.4	29.5	33.8	35.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			8.8	10.9	13.7	21.4	29.5	33.8	35.1					
Transport sector														
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	159.0	174.3	185.6	193.7	199.1	4.4	3.2	1.6	0.7	
Public road transport	17.7	20.2	21.7	21.4	21.7	21.8	22.3	22.5	22.7	2.0	0.0	0.3	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	103.8	110.4	115.1	117.4	6.2	4.7	1.7	0.6	
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.8	5.2	5.6	0.9	2.2	2.3	1.6	
Aviation	15.5	19.9	24.1	27.7	31.5	35.5	39.0	41.7	44.1	4.5	2.7	2.2	1.2	
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.1	9.2	9.2	2.1	0.2	0.3	0.2	
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	37.6	42.4	46.3	49.4	51.6	3.0	3.5	2.1	1.1	
Trucks	12.5	14.6	17.5	22.0	25.4	28.9	31.6	34.1	36.1	3.4	3.8	2.2	1.4	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.2	-3.5	6.5	3.1	1.3	
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.6	14.1	14.3	2.8	2.8	1.7	0.5	
Energy demand in transport (ktoe)	5808	6431	7196	8068	8957	9473	9698	9850	9830	2.2	2.2	0.8	0.1	
Public road transport	154	175	175	153	150	141	140	134	125	1.3	-1.5	-0.7	-1.1	
Private cars and motorcycles	1404	1704	2243	2913	3290	3401	3455	3453	3316	4.8	3.9	0.5	-0.4	
Trucks	2345	2726	2902	3120	3519	3788	3883	4017	4131	2.2	1.9	1.0	0.6	
Rail	75	57	60	58	64	68	74	77	73	-2.2	0.7	1.5	-0.2	
Aviation	1264	1226	1325	1181	1269	1392	1450	1473	1494	0.5	-0.4	1.3	0.3	
Inland navigation	566	544	491	643	665	682	695	696	691	-1.4	3.1	0.4	-0.1	

Source: PRIMES

Greece: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	6942	6516	6304	-2377	-3789	-4036	-25.5	-36.8	-39.0
Solids	7077	8222	8538	3460	2183	1099	-3069	-4854	-5193	-47.0	-69.0	-82.5
Oil	832	280	100	100	98	0	0	-2	0	0.0	-1.8	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3382	4234	5206	691	1067	1157	25.7	33.7	28.6
Hydro	152	318	431	427	435	442	1	4	3	0.2	0.9	0.6
Biomass & Waste	893	1010	1015	1903	2378	2844	323	558	638	20.4	30.7	28.9
Wind	0	39	109	486	695	1079	29	115	141	6.4	19.8	15.0
Solar and others	56	99	102	505	630	723	292	356	373	137.2	130.0	106.3
Geothermal	3	2	1	62	96	118	46	34	4	295.1	55.4	3.1
Net Imports	15415	21982	23336	28509	29258	30146	-439	-612	-640	-1.5	-2.0	-2.1
Solids	988	768	371	1070	1072	1441	-5	-10	49	-0.4	-1.0	3.5
Oil	14366	19527	20307	21523	20733	19917	-868	-2088	-2818	-3.9	-9.1	-12.4
- Crude oil and Feedstocks	14757	20439	19352	21336	20940	20570	-486	-1279	-1658	-2.2	-5.8	-7.5
- Oil products	-391	-912	955	188	-207	-653	-382	-809	-1160	-67.1	-134.4	-228.9
Natural gas	0	1689	2332	5262	5752	6838	21	2	353	0.4	0.0	5.4
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	32131	32282	32713	-2815	-4397	-4668	-8.1	-12.0	-12.5
Solids	8091	9040	8952	4530	3255	2539	-3074	-4864	-5144	-40.4	-59.9	-66.9
Oil	12883	15929	17951	18303	17339	16179	-867	-2086	-2810	-4.5	-10.7	-14.8
Natural gas	138	1705	2354	5262	5752	6838	21	2	353	0.4	0.0	5.4
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3796	5719	6980	1105	2551	2932	41.1	80.5	72.4
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	14.1	10.1	7.8	-7.7	-12.1	-12.8			
Oil	57.8	56.6	57.5	57.0	53.7	49.5	2.1	0.8	-1.3			
Natural gas	0.6	6.1	7.5	16.4	17.8	20.9	1.4	2.1	3.6			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.8	17.7	21.3	4.1	9.1	10.5			
Gross Electricity Generation in GWh_e	34767	53415	59416	64133	67520	81548	-10342	-12482	-6603	-13.9	-15.6	-7.5
Self consumption and grid losses	5818	8431	10125	9181	9338	11138	-2154	-2836	-2205	-19.0	-23.3	-16.5
Fuel Inputs to Thermal Power Generation	8617	11614	12403	9843	9405	10309	-2686	-3831	-2876	-21.4	-28.9	-21.8
Solids	6890	8234	8693	4189	2934	2271	-3060	-4827	-5046	-42.2	-62.2	-69.0
Oil (including refinery gas)	1708	2036	2053	1471	1239	1076	-85	-118	91	-5.5	-8.7	9.2
Gas (including derived gases)	18	1280	1605	3709	4348	5518	74	442	1051	2.0	11.3	23.5
Biomass & Waste	0	64	52	415	791	1330	340	639	1028	455.5	421.3	340.5
Geothermal heat	0	0	0	60	93	113	45	33	0	316.2	54.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	22306	22167	21868	-440	-1136	-1589	-1.9	-4.9	-6.8
Refineries	16621	22404	21415	21771	21374	20906	-488	-1284	-1660	-2.2	-5.7	-7.4
Biofuels and hydrogen production	0	0	0	479	746	941	59	161	103	14.0	27.6	12.3
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	56	47	21	-11	-14	-32	-16.1	-22.4	-60.4
Energy Branch Consumption	1196	1637	1758	1579	1616	1583	-117	-118	-162	-6.9	-6.8	-9.3
Non-Energy Uses	651	689	711	701	712	719	-2	-3	-3	-0.3	-0.4	-0.4
Final Energy Demand	14509	18513	20742	23834	24318	24457	-849	-1581	-2322	-3.4	-6.1	-8.7
by sector												
Industry	3942	4437	4132	4138	4173	4103	-65	-129	-265	-1.6	-3.0	-6.1
- energy intensive industries	2534	2693	2526	2595	2629	2601	-24	-55	-105	-0.9	-2.0	-3.9
- other industrial sectors	1408	1744	1607	1543	1543	1503	-41	-74	-160	-2.6	-4.6	-9.6
Residential	3048	4470	5467	6785	7024	7021	-150	-318	-550	-2.2	-4.3	-7.3
Tertiary	1711	2410	3075	3438	3424	3503	-331	-576	-679	-8.8	-14.4	-16.2
Transport	5808	7196	8068	9473	9698	9830	-304	-557	-828	-3.1	-5.4	-7.8
by fuel												
Solids	1053	888	446	323	306	261	-10	-33	-88	-3.0	-9.8	-25.2
Oil	10041	12584	14219	15334	15203	14305	-591	-1199	-2038	-3.7	-7.3	-12.5
Gas	15	257	585	1210	1083	981	-87	-400	-666	-6.7	-27.0	-40.4
Electricity	2448	3710	4377	4786	5040	6054	-701	-823	-366	-12.8	-14.0	-5.7
Heat (from CHP and District Heating)	0	28	49	43	56	88	-5	4	31	-9.7	7.5	55.1
Renewable energy forms	952	1046	1066	2137	2627	2766	544	870	804	34.1	49.5	41.0
Other	0	0	0	1	3	3	0	0	0	6.9	3.0	-6.2
RES in Gross Final Energy Consumption ^(A)		1439	1626	3576	4636	5646	1001	1670	1929	38.9	56.3	51.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	114.3	106.6	101.4	-17.9	-30.0	-32.7	-13.5	-21.9	-24.4
CO₂ Emissions (energy related)	71.2	89.2	96.2	84.0	76.9	72.8	-15.4	-26.4	-29.0	-15.5	-25.6	-28.5
Power generation/District heating	34.1	43.7	46.3	30.6	26.1	25.4	-12.8	-19.5	-18.3	-29.5	-42.7	-41.9
Energy Branch	2.6	3.4	3.6	2.9	1.2	0.9	-0.5	-2.3	-2.6	-15.1	-66.8	-74.1
Industry	9.4	10.1	8.6	7.5	6.9	6.2	-0.3	-0.9	-1.5	-3.7	-11.5	-19.5
Residential	4.6	7.4	9.6	11.6	11.7	9.8	-0.7	-1.3	-2.8	-5.5	-9.7	-22.3
Tertiary	3.3	3.4	4.2	4.5	4.2	3.7	0.0	-0.5	-0.9	-0.2	-9.8	-18.8
Transport	17.2	21.2	23.8	26.8	26.8	26.7	-1.0	-2.1	-2.9	-3.7	-7.1	-9.7
CO₂ Emissions (non energy related)	7.2	8.2	8.6	9.3	9.7	9.8	0.0	-0.2	-0.2	-0.5	-1.6	-2.1
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	21.1	20.1	18.8	-2.5	-3.4	-3.5	-10.6	-14.4	-15.7
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	111.1	103.6	98.5	-17.4	-29.1	-31.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Greece: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	128.3	113.6	95.9	-11.2	-15.5	-13.7	-8.1	-12.0	-12.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.61	2.38	2.22	-0.23	-0.44	-0.50	-8.1	-15.5	-18.3
Import Dependency %	62.1	69.3	68.5	80.4	81.8	82.7	4.8	7.4	7.8			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	26.7	30.7	35.3	1.1	2.0	2.8	4.4	6.9	8.5
as % of GDP		10.5	10.2	10.7	10.8	10.3	0.5	0.7	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				1.2	2.0	2.8						
as % of GDP				0.46	0.71	0.82						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	64.1	58.6	51.2	-1.0	-1.8	-3.3	-1.6	-3.0	-6.1
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	93.3	85.9	72.4	-2.1	-3.9	-5.7	-2.2	-4.3	-7.3
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	84.4	74.2	62.9	-8.1	-12.5	-12.2	-8.8	-14.4	-16.2
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.2	29.9	27.3	-0.4	-0.7	-1.0	-1.3	-2.1	-3.5
Freight transport (toe/Mtkm)	127.8	114.6	101.5	95.1	89.6	85.2	-2.8	-5.2	-7.3	-2.8	-5.5	-7.9
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.47	0.38	0.31	-0.11	-0.18	-0.18	-18.2	-32.3	-37.6
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.12	2.04	1.90	-0.01	-0.06	-0.14	-0.4	-2.7	-6.7
Industry	2.39	2.28	2.09	1.81	1.65	1.52	-0.04	-0.16	-0.25	-2.2	-8.8	-14.3
Residential	1.51	1.66	1.76	1.72	1.66	1.40	-0.06	-0.10	-0.27	-3.5	-5.6	-16.2
Tertiary	1.96	1.40	1.36	1.31	1.24	1.06	0.11	0.06	-0.03	9.4	5.4	-3.1
Transport	2.96	2.95	2.95	2.83	2.77	2.71	-0.02	-0.05	-0.06	-0.7	-1.8	-2.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.5	18.4	22.2	4.5	7.4	8.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.2	8.9	0.7	1.9	1.7			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	0	0	0	0			
Solids	33790	35982	19826	14592	12585	12522	-12522	-19893	-20823	-38.7	-57.7	-62.3
Oil (including refinery gas)	8979	8858	7050	6063	5265	4844	-844	-928	-12	-10.7	-13.3	-0.2
Gas (including derived gases)	5960	8114	23539	26932	35036	32914	329	1600	4247	1.4	6.3	13.8
Biomass-waste	543	179	2633	5723	9090	2291	2291	4997	7682	669.9	688.4	545.7
Hydro (pumping excluded)	3692	5016	4961	5057	5135	12	12	44	30	0.2	0.9	0.6
Wind	451	1266	5650	8085	12546	339	339	1334	1640	6.4	19.8	15.0
Solar	0	1	397	606	1343	0	0	0	268	0.0	0.0	24.9
Geothermal and other renewables	0	0	77	463	547	54	54	365	363	231.6	372.1	197.7
Net Generation Capacity in MW_e												
Nuclear energy		0	0	0	0	0	0	0	0			
Renewable energy	3233	3744	5835	7354	9731	114	114	717	858	2.0	10.8	9.7
Hydro (pumping excluded)	3043	3165	3386	3489	3577	0	0	28	28	0.0	0.8	0.8
Wind	189	573	2126	3202	4914	114	114	519	466	5.7	19.4	10.5
Solar	1	5	324	494	1051	0	0	0	175	0.0	0.0	19.9
Other renewables (tidal etc.)	0	0	0	170	189	0	0	170	189			
Thermal power	8128	9533	13114	13462	13941	83	211	-1142		0.6	1.6	-7.6
of which cogeneration units	340	381	741	842	1144	-3	-5	193		-0.4	-0.6	20.2
Solids fired	4505	4798	4263	4263	3967	-126	-126	70		-2.9	-2.9	1.8
Gas fired	1134	1476	5639	5610	6598	0	-320	-2280		0.0	-5.4	-25.7
Oil fired	2487	2827	2773	2654	1945	-152	-120	-88		-5.2	-4.3	-4.3
Biomass-waste fired	2	31	421	899	1324	352	767	1147		505.2	583.2	648.2
Fuel Cells	0	0	0	0	0	0	0	0		0	0	0
Geothermal heat	0	0	17	37	107	9	9	9		117.0	33.4	9.5
Avg. Load factor of net power capacity (%)	49.7	47.4	36.9	35.6	38.0		-6.0	-7.9	-1.9			
Efficiency of gross thermal power generation (%)	36.5	36.8	46.4	48.9	51.9		2.6	4.9	5.5			
% of gross electricity from CHP	1.2	1.5	4.9	8.3	9.6		0.3	3.1	4.1			
Carbon free gross electricity generation (%)	8.8	10.9	21.4	29.5	35.1		6.6	13.0	14.0			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	21.4	29.5	35.1		6.6	13.0	14.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	21.7	21.4	21.8	22.3	22.7	0.4	0.5	0.6	1.6	2.4	2.7
Private cars and motorcycles	32.2	58.6	80.0	103.8	110.4	117.4	-1.4	-2.6	-3.4	-1.3	-2.3	-2.8
Rail	2.8	3.1	3.4	4.3	4.8	5.6	0.1	0.1	0.2	1.8	1.7	2.8
Aviation	15.5	24.1	27.7	35.5	39.0	44.1	-0.7	-1.1	-1.5	-2.0	-2.8	-3.3
Inland navigation	7.0	8.7	8.7	8.9	9.1	9.2	0.0	0.0	0.0	-0.4	-0.3	-0.5
Freight transport activity (Gtkm)												
Trucks	12.5	17.5	22.0	28.9	31.6	36.1	-0.7	-1.2	-1.7	-2.4	-3.7	-4.5
Rail	0.6	0.4	0.6	0.9	1.1	1.2	0.0	0.0	0.1	3.1	4.1	4.8
Inland navigation	6.6	8.7	10.1	12.7	13.6	14.3	0.1	0.2	0.2	0.7	1.1	1.3
Energy demand in transport (ktoe)												
Public road transport	154	175	153	141	140	125	0	-1	-6	-0.3	-1.0	-4.5
Private cars and motorcycles	1404	2243	2913	3401	3455	3316	-91	-154	-217	-2.6	-4.3	-6.1
Trucks	2345	2902	3120	3788	3883	4131	-178	-337	-512	-4.5	-8.0	-11.0
Rail	75	60	58	68	74	73	1	-2	1	1.1	-2.1	1.4
Aviation	1264	1325	1181	1392	1450	1494	-31	-56	-80	-2.2	-3.7	-5.1
Inland navigation	566	491	643	682	695	691	-5	-7	-13	-0.7	-1.0	-1.9

Source: PRIMES

Hungary: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	14146	13456	11207	10514	10402	10346	10089	10599	10789	-2.3	-0.7	-0.3	0.7	
Solids	3948	3095	2893	1748	1720	1117	227	219	216	-3.1	-5.1	-18.3	-0.5	
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2	
Natural gas	3812	3788	2475	2331	2200	2000	1799	1570	1554	-4.2	-1.2	-2.0	-1.5	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Renewable energy sources	523	626	516	1212	1495	2366	3122	3938	4246	-0.1	11.2	7.6	3.1	
Hydro	15	14	15	17	17	17	17	17	17	0.0	0.9	0.1	0.1	
Biomass & Waste	422	526	415	1105	1309	2058	2590	3238	3428	-0.2	12.2	7.1	2.8	
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8	
Solar and others	0	0	0	2	25	119	354	515	617			30.2	5.7	
Geothermal	86	86	86	87	138	164	143	137	136	0.0	4.9	0.4	-0.6	
Net Imports	14436	12629	14011	17558	18544	19885	21180	21664	22105	-0.3	2.8	1.3	0.4	
Solids	1686	1395	1081	1340	1092	1118	940	825	968	-4.3	0.1	-1.5	0.3	
Oil	6621	5496	5352	5875	6590	7248	7275	7582	7751	-2.1	2.1	1.0	0.6	
- Crude oil and Feedstocks	6475	5937	5866	6167	6662	7294	7320	7619	7785	-1.0	1.3	0.9	0.6	
- Oil products	146	-441	-514	-291	-71	-46	-45	-37	-35					
Natural gas	5170	5532	7283	9807	10322	11167	10047	8766	8680	3.5	3.5	-0.3	-1.5	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Gross Inland Consumption	28641	25864	25000	27920	28946	30230	31269	32263	32893	-1.4	1.5	0.8	0.5	
Solids	5969	4549	3967	3090	2813	2235	1168	1044	1184	-4.0	-3.4	-8.4	0.1	
Oil	8734	7689	6907	7420	7790	8248	8275	8482	8551	-2.3	1.2	0.6	0.3	
Natural gas	8913	9175	9657	12094	12522	13167	11846	10336	10234	0.8	2.6	-0.6	-1.5	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Renewable energy forms	523	626	516	1212	1495	2366	5737	8207	8766	-0.1	11.2	14.4	4.3	
as % in Gross Inland Consumption														
Solids	20.8	17.6	15.9	11.1	9.7	7.4	3.7	3.2	3.6					
Oil	30.5	29.7	27.6	26.6	26.9	27.3	26.5	26.3	26.0					
Natural gas	31.1	35.5	38.6	43.3	43.3	43.6	37.9	32.0	31.1					
Nuclear	12.4	14.0	14.6	12.8	13.1	12.8	12.6	12.3	12.1					
Renewable energy forms	1.8	2.4	2.1	4.3	5.2	7.8	18.3	25.4	26.6					
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	37187	42951	46365	52063	56657	2.2	0.6	2.2	2.0	
Self consumption and grid losses	5478	6171	6295	5979	5511	5669	5863	6656	7111	1.4	-1.3	0.6	1.9	
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5042	5254	5321	6353	7120	1.9	-1.7	0.5	3.0	
Solids	2871	2977	2731	1924	1897	1363	368	305	461	-0.5	-3.6	-15.1	2.3	
Oil (including refinery gas)	440	1447	1052	122	0	5	2	2	5	9.1			8.8	
Gas (including derived gases)	1636	1634	2140	3078	2849	3118	2541	1822	2035	2.7	2.9	-1.1	-2.2	
Biomass & Waste	24	55	62	534	296	767	2409	4224	4619	10.2	16.9	23.3	6.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11679	10680	9226	9831	10423	11125	11336	11536	11577	-2.3	1.2	0.8	0.2	
Refineries	8831	8500	7588	8390	9045	9593	9615	9787	9817	-1.5	1.8	0.6	0.2	
Biofuels and hydrogen production	0	0	0	0	208	329	558	639	683			10.4	2.0	
District heating	1145	789	471	629	465	527	547	574	557	-8.5	-0.1	1.6	0.2	
Derived gases, cokeries etc.	1704	1392	1168	813	703	676	616	537	520	-3.7	-4.9	-1.3	-1.7	
Energy Branch Consumption	1402	1310	1162	1581	1623	1697	1798	1889	1913	-1.9	3.4	1.0	0.6	
Non-Energy Uses	1569	1609	1586	2282	2501	2659	2723	2754	2781	0.1	4.7	0.9	0.2	
Final Energy Demand	19258	15814	15998	16098	19676	20754	21594	22138	22393	-1.8	2.1	0.9	0.4	
by sector														
Industry	6523	3808	3489	3427	3466	3645	3892	3935	4025	-6.1	-0.1	1.2	0.3	
- energy intensive industries	4160	2691	2563	2328	2259	2327	2451	2446	2468	-4.7	-1.3	0.8	0.1	
- other industrial sectors	2364	1116	926	1099	1207	1318	1442	1489	1557	-8.9	2.7	1.8	0.8	
Residential	6437	5911	5465	6411	7083	7252	7349	7432	7435	-1.6	2.6	0.4	0.1	
Tertiary	3273	3442	3792	4085	4447	4706	4861	4986	5036	1.5	1.6	0.9	0.4	
Transport	3024	2653	3252	4175	4679	5151	5492	5785	5897	0.7	3.7	1.6	0.7	
by fuel														
Solids	2502	965	793	692	594	560	505	478	469	-10.9	-2.8	-1.6	-0.7	
Oil	6009	4147	4173	4792	5118	5529	5666	5889	5945	-3.6	2.1	1.0	0.5	
Gas	5941	6370	6503	7852	8455	8584	8134	7864	7675	0.9	2.7	-0.4	-0.6	
Electricity	2811	2500	2658	2823	2988	3278	3506	3847	4169	-0.6	1.2	1.6	1.7	
Heat (from CHP and District Heating)	1570	1287	1440	1297	1431	1337	1166	1426	1480	-0.9	-0.1	-2.0	2.4	
Renewable energy forms	425	545	430	642	1089	1464	2615	2631	2652	0.1	9.7	9.2	0.1	
Other	0	0	0	0	0	1	2	2	2			16.7	3.2	
RES in Gross Final Energy Consumption ^(A)			482	869	1350	2128	4843	6328	6729		10.8	13.6	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	81.1	81.5	74.6	70.6	70.8	-2.1	0.5	-0.8	-0.5	
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	55.9	55.9	48.5	45.1	45.6	-2.0	0.4	-1.4	-0.6	
Power generation/District heating	20.5	23.0	21.0	17.3	15.7	14.3	8.2	6.2	7.1	0.2	-2.9	-6.3	-1.3	
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.5	2.1	0.8	0.7	-4.9	5.2	-1.7	-10.7	
Industry	14.7	8.7	6.4	6.3	6.0	6.3	5.1	4.7	4.8	-7.9	-0.7	-1.6	-0.6	
Residential	13.7	9.9	9.0	10.5	11.5	11.2	11.1	10.6	10.2	-4.1	2.5	-0.4	-0.8	
Tertiary	5.6	5.5	6.2	6.7	7.1	7.3	7.3	7.3	7.2	1.1	1.4	0.3	-0.2	
Transport	8.6	7.6	9.4	12.2	13.2	14.3	14.8	15.4	15.6	0.9	3.4	1.1	0.6	
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.7	3.9	4.0	-3.6	-0.4	1.6	0.8	
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	22.1	22.5	21.6	21.2	-2.2	1.0	0.2	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	85.2	85.6	78.4	74.2	74.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Hungary: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	276.3	240.7	212.1	189.9	171.7	-2.5	-2.3	-2.6	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.93	1.85	1.55	1.40	1.39	-0.7	-1.0	-2.2	-1.1
Import Dependency %	50.4	48.8	56.0	62.9	64.1	65.8	67.7	67.1	67.2				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.4	20.5	23.5	26.1	27.1		2.9	3.1	1.4
as % of GDP			18.2	16.1	16.6	16.3	15.9	15.4	14.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.4	63.7	59.8	53.6	49.9	-9.6	-3.4	-1.6	-1.8
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.9	69.3	60.1	52.9	47.1	-1.9	-2.1	-2.9	-2.4
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.5	70.6	62.2	55.3	49.4	1.6	-2.3	-2.4	-2.3
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.9	34.5	33.4	32.2	30.1	2.1	2.2	-0.4	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.3	38.9	37.7	36.8	36.1	0.5	0.8	-0.4	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.27	0.23	0.13	0.09	0.09	-0.8	-3.4	-7.3	-3.3
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.92	1.89	1.77	1.72	1.69	-1.3	-0.1	-0.8	-0.5
Industry	2.25	2.28	1.85	1.84	1.73	1.72	1.31	1.19	1.19	-2.0	-0.7	-2.8	-1.0
Residential	2.13	1.68	1.64	1.64	1.62	1.55	1.50	1.43	1.37	-2.6	-0.2	-0.7	-0.9
Tertiary	1.70	1.59	1.64	1.64	1.60	1.56	1.51	1.47	1.42	-0.3	-0.2	-0.6	-0.6
Transport	2.84	2.85	2.90	2.92	2.82	2.78	2.69	2.67	2.65	0.2	-0.3	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.7	10.0	21.9	27.9	29.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.0	5.7	9.2	10.0	10.6				
Gross Electricity generation by source (in GWh)													
			35185	35749	37187	42951	46365	52063	56657		0.6	2.2	2.0
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	5350	4227	1868	1668	2416		-4.4	-10.0	2.6
Oil (including refinery gas)			4243	497	90	108	59	70	70		-32.0	-4.1	1.7
Gas (including derived gases)			8040	13021	15117	19433	17014	12427	13653		6.5	1.2	-2.2
Biomass-waste			197	2348	1692	3914	11733	21892	24287		24.0	21.4	7.5
Hydro (pumping excluded)			178	203	194	197	197	198	199		0.9	0.1	0.1
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9789	10524	10155	10108	10343		2.3	0.4	0.2
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7923	8582	8049	7758	7664		2.8	0.2	-0.5
of which cogeneration units			1915	2391	2283	2749	2882	2171	2357		1.8	2.4	-2.0
Solids fired			1683	1592	1521	1142	494	486	377		-1.0	-10.6	-2.7
Gas fired			3516	4572	5668	6250	5225	3698	3505		4.9	-0.8	-3.9
Oil fired			762	313	322	238	167	128	88		-8.3	-6.4	-6.2
Biomass-waste fired			76	316	413	951	2163	3445	3694		18.5	18.0	5.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	41.1	44.6	49.9	55.9	59.4				
Efficiency of gross thermal power generation (%)			29.9	33.0	37.9	45.3	49.6	48.8	48.8				
% of gross electricity from CHP			24.5	28.3	30.9	27.9	27.9	29.7	29.8				
Carbon free gross electricity generation (%)			41.4	45.9	44.7	44.7	59.1	72.8	71.5				
- nuclear			40.3	38.7	39.5	34.9	32.9	29.6	27.2				
- renewable energy forms			1.1	7.2	5.3	9.8	26.2	43.2	44.3				
Transport sector													
Passenger transport activity (Gpkm)													
	82.0	75.2	80.0	80.3	86.8	95.1	104.4	113.6	122.5	-0.2	0.8	1.9	1.6
Public road transport	19.3	16.6	18.7	18.2	17.6	16.6	15.9	15.4	14.9	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.9	62.2	71.0	79.6	87.3	-0.1	1.5	2.8	2.1
Rail	13.9	10.9	12.3	12.2	12.1	12.1	12.2	12.1	12.2	-1.2	-0.2	0.1	0.0
Aviation	1.6	1.9	2.4	2.7	3.2	4.1	5.2	6.6	8.1	4.3	2.9	5.0	4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	34.0	22.2	27.9	35.8	42.0	48.0	53.3	58.0	61.2	-1.9	4.2	2.4	1.4
Trucks	15.2	13.8	19.1	25.2	30.8	36.1	40.8	44.9	47.7	2.4	4.9	2.9	1.6
Rail	16.8	8.4	8.8	8.6	8.8	9.2	9.6	9.9	10.2	-6.3	0.0	0.8	0.6
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.2	3.4			2.0	1.3
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4679	5151	5492	5785	5897	0.7	3.7	1.6	0.7
Public road transport	160	124	149	167	156	140	126	112	100	-0.7	0.4	-2.1	-2.2
Private cars and motorcycles	1482	1462	1824	2321	2564	2791	2959	3089	3079	2.1	3.5	1.4	0.4
Trucks	938	695	886	1297	1545	1760	1906	2041	2143	-0.6	5.7	2.1	1.2
Rail	271	190	175	159	149	143	131	115	87	-4.3	-1.6	-1.3	-4.0
Aviation	164	182	219	230	264	316	368	427	487	2.9	1.9	3.4	2.8
Inland navigation	9	0	0	1	1	1	1	1	2			1.9	1.1

Source: PRIMES

Hungary: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	10346	10089	10789	256	-189	532	2.5	-1.8	5.2
Solids	3948	2893	1748	1117	227	216	-608	-1506	-1524	-35.2	-86.9	-87.6
Oil	2320	1665	1655	1000	1000	800	0	0	0	0.0	0.0	0.0
Natural gas	3812	2475	2331	2000	1799	1554	0	-101	-146	0.0	-5.3	-8.6
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	2366	3122	4246	863	1418	2202	57.5	83.2	107.8
Hydro	15	15	17	17	17	17	0	0	0	2.8	2.5	0.0
Biomass & Waste	422	415	1105	2058	2590	3428	681	1056	1642	49.5	68.8	92.0
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	119	354	617	99	280	470	474.4	378.0	318.6
Geothermal	86	86	87	164	143	136	83	81	90	102.7	130.9	198.1
Net Imports	14436	14011	17558	19885	21180	22105	-785	-895	-1280	-3.8	-4.1	-5.5
Solids	1686	1081	1340	1118	940	968	15	-258	-353	1.4	-21.5	-26.7
Oil	6621	5352	5875	7248	7275	7751	-335	-649	-584	-4.4	-8.2	-7.0
- Crude oil and Feedstocks	6475	5866	6167	7294	7320	7785	-320	-619	-557	-4.2	-7.8	-6.7
- Oil products	146	-514	-291	-46	-45	-35	-15	-30	-28	49.6	204.2	396.3
Natural gas	5170	7283	9807	11167	10047	8680	-465	-2604	-4861	-4.0	-20.6	-35.9
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	30230	31269	32893	-530	-1084	-747	-1.7	-3.4	-2.2
Solids	5969	3967	3090	2235	1168	1184	-592	-1764	-1878	-21.0	-60.2	-61.3
Oil	8734	6907	7420	8248	8275	8551	-335	-649	-584	-3.9	-7.3	-6.4
Natural gas	8913	9657	12094	13167	11846	10234	-465	-2704	-5007	-3.4	-18.6	-32.9
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	2366	5737	8766	863	4033	6722	57.5	236.6	328.9
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	7.4	3.7	3.6	-1.8	-5.3	-5.5			
Oil	30.5	27.6	26.6	27.3	26.5	26.0	-0.6	-1.1	-1.2			
Natural gas	31.1	38.6	43.3	43.6	37.9	31.1	-0.8	-7.1	-14.2			
Nuclear	12.4	14.6	12.8	12.8	12.6	12.1	0.2	0.4	0.3			
Renewable energy forms	1.8	2.1	4.3	7.8	18.3	26.6	2.9	13.1	20.6			
Gross Electricity Generation in GWh_e	28431	35185	35749	42951	46365	56657	-4134	-6342	-3797	-8.8	-12.0	-6.3
Self consumption and grid losses	5478	6295	5979	5669	5863	7111	-624	-925	-51	-9.9	-13.6	-0.7
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5254	5321	7120	-755	-1284	-187	-12.6	-19.4	-2.6
Solids	2871	2731	1924	1363	368	461	-609	-1642	-1731	-30.9	-81.7	-79.0
Oil (including refinery gas)	440	1052	122	5	2	5	-158	-140	-11	-96.7	-98.6	-70.1
Gas (including derived gases)	1636	2140	3078	3118	2541	2035	-449	-1575	-2622	-12.6	-38.3	-56.3
Biomass & Waste	24	62	534	767	2409	4619	461	2074	4177	150.8	617.2	944.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	11125	11336	11577	-268	-517	-511	-2.4	-4.4	-4.2
Refineries	8831	7588	8390	9593	9615	9817	-321	-619	-558	-3.2	-6.0	-5.4
Biofuels and hydrogen production	0	0	0	329	558	683	48	143	120	17.3	34.6	21.3
District heating	1145	471	629	527	547	557	-28	-42	-58	-5.0	-7.1	-9.4
Derived gases, cokeries etc.	1704	1168	813	676	616	520	32	0	-15	5.0	0.0	-2.9
Energy Branch Consumption	1402	1162	1581	1697	1798	1913	-27	7	70	-1.6	0.4	3.8
Non-Energy Uses	1569	1586	2282	2659	2723	2781	-1	0	-2	0.0	0.0	-0.1
Final Energy Demand	19258	15998	18098	20754	21594	22393	-181	-390	-740	-0.9	-1.8	-3.2
by sector												
Industry	6523	3489	3427	3645	3892	4025	-16	23	-176	-0.4	0.6	-4.2
- energy intensive industries	4160	2563	2328	2327	2451	2468	-8	5	-130	-0.3	0.2	-5.0
- other industrial sectors	2364	926	1099	1318	1442	1557	-8	18	-46	-0.6	1.3	-2.9
Residential	6437	5465	6411	7252	7349	7435	-26	-75	-105	-0.4	-1.0	-1.4
Tertiary	3273	3792	4085	4706	4861	5036	-89	-220	-259	-1.9	-4.3	-4.9
Transport	3024	3252	4175	5151	5492	5897	-50	-118	-200	-1.0	-2.1	-3.3
by fuel												
Solids	2502	793	692	560	505	469	5	-23	-41	1.0	-4.3	-8.1
Oil	6009	4173	4792	5529	5666	5945	-81	-253	-367	-1.4	-4.3	-5.8
Gas	5941	6503	7852	8584	8134	7675	-46	-889	-1350	-0.5	-9.9	-15.0
Electricity	2811	2658	2823	3278	3506	4169	-302	-463	-316	-8.4	-11.7	-7.1
Heat (from CHP and District Heating)	1570	1440	1297	1337	1166	1480	-137	-171	56	-9.3	-12.8	4.0
Renewable energy forms	425	430	642	1464	2615	2652	380	1408	1278	35.1	116.7	93.0
Other	0	0	0	1	2	2	0	0	0	2.5	4.3	0.5
RES in Gross Final Energy Consumption ^(A)		482	869	2128	4843	6729	848	3379	4846	66.3	230.7	257.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	81.5	74.6	70.8	-5.1	-16.1	-21.7	-5.9	-17.8	-23.4
CO₂ Emissions (energy related)	65.5	53.6	55.0	55.9	48.5	45.6	-4.6	-15.4	-20.9	-7.6	-24.1	-31.5
Power generation/District heating	20.5	21.0	17.3	14.3	8.2	7.1	-4.2	-11.8	-14.5	-22.7	-59.1	-67.0
Energy Branch	2.5	1.5	1.9	2.5	2.1	0.7	-0.1	-0.6	-2.0	-3.8	-23.5	-74.6
Industry	14.7	6.4	6.3	6.3	5.1	4.8	0.1	-1.9	-2.2	1.3	-27.1	-32.0
Residential	13.7	9.0	10.5	11.2	11.1	10.2	0.0	0.2	-0.3	0.0	1.4	-3.0
Tertiary	5.6	6.2	6.7	7.3	7.3	7.2	-0.1	-0.5	-0.9	-1.7	-5.8	-11.0
Transport	8.6	9.4	12.2	14.3	14.8	15.6	-0.3	-0.7	-1.0	-1.9	-4.8	-5.9
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.7	4.0	0.0	0.0	-0.1	0.2	-0.4	-1.8
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	22.1	22.5	21.2	-0.5	-0.7	-0.7	-2.2	-3.0	-3.1
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	85.6	78.4	74.4	-5.3	-16.9	-22.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Hungary: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	240.7	212.1	171.7	-4.2	-7.4	-3.9	-1.7	-3.4	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.85	1.55	1.39	-0.12	-0.42	-0.59	-6.0	-21.5	-29.9
Import Dependency %	50.4	56.0	62.9	65.8	67.7	67.2	-1.4	-0.5	-2.3			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	20.5	23.5	27.1	0.2	0.7	0.9	0.9	3.1	3.4
as % of GDP		18.2	16.1	16.3	15.9	14.1	0.1	0.5	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.7	0.9						
as % of GDP				0.14	0.49	0.47						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	63.7	59.8	49.9	-0.3	0.4	-2.2	-0.4	0.6	-4.2
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	69.3	60.1	47.1	-0.2	-0.6	-0.7	-0.4	-1.0	-1.4
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	70.6	62.2	49.4	-1.3	-2.8	-2.5	-1.9	-4.3	-4.9
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	34.5	33.4	30.1	-0.2	-0.4	-0.5	-0.6	-1.2	-1.6
Freight transport (toe/Mtkm)	34.4	36.4	39.3	38.9	37.7	36.1	-0.2	-0.6	-1.1	-0.6	-1.7	-2.9
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.23	0.13	0.09	-0.04	-0.15	-0.17	-15.5	-53.8	-65.6
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.89	1.77	1.69	0.00	-0.10	-0.14	0.1	-5.4	-7.5
Industry	2.25	1.85	1.84	1.72	1.31	1.19	0.03	-0.50	-0.49	1.8	-27.5	-29.0
Residential	2.13	1.64	1.64	1.55	1.50	1.37	0.01	0.04	-0.02	0.4	2.4	-1.6
Tertiary	1.70	1.64	1.64	1.56	1.51	1.42	0.00	-0.02	-0.10	0.2	-1.6	-6.4
Transport	2.84	2.90	2.92	2.78	2.69	2.65	-0.03	-0.07	-0.07	-0.9	-2.7	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	10.0	21.9	29.2	4.1	15.4	21.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.7	9.2	10.6	0.9	2.5	2.2			
Gross Electricity generation by source (in GWh_e)												
Gross electricity generation	35185	35749	42951	46365	56657	56657	-4134	-6342	-3797	-8.8	-12.0	-6.3
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	4227	1868	2416	2416	-2598	-6211	-7790	-38.1	-76.9	-76.3
Oil (including refinery gas)	4243	497	108	59	70	70	-676	-633	-82	-86.3	-91.4	-53.8
Gas (including derived gases)	8040	13021	19433	17014	13653	13653	-3055	-9518	-17882	-13.6	-35.9	-56.7
Biomass-waste	197	2348	3914	11733	24287	24287	2190	10014	21957	127.1	582.5	942.4
Hydro (pumping excluded)	178	203	197	197	199	199	5	5	0	2.8	2.5	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	7789	8587	10524	10155	10343	10343	-50	222	-702	-0.5	2.2	-6.4
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8582	8049	7664	7664	-50	222	-702	-0.6	2.8	-8.4
of which cogeneration units	1915	2391	2749	2882	2357	2357	-75	102	-195	-2.7	3.7	-7.6
Solids fired	1683	1592	1142	494	377	377	-214	-407	-805	-15.8	-45.2	-68.1
Gas fired	3516	4572	6250	5225	3505	3505	-431	-1142	-2827	-6.5	-17.9	-44.6
Oil fired	762	313	238	167	88	88	-16	-53	-176	-6.2	-24.1	-66.7
Biomass-waste fired	76	316	951	2163	3694	3694	611	1824	3106	179.6	539.2	527.6
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	44.6	49.9	59.4	59.4	-4.0	-8.1	-0.5			
Efficiency of gross thermal power generation (%)	29.9	33.0	45.3	49.6	48.8	48.8	-0.2	1.4	-3.2			
% of gross electricity from CHP	24.5	28.3	27.9	27.9	29.8	29.8	0.4	4.7	4.1			
Carbon free gross electricity generation (%)	41.4	45.9	44.7	59.1	71.5	71.5	8.6	26.1	40.8			
- nuclear	40.3	38.7	34.9	32.9	27.2	27.2	3.1	4.0	1.7			
- renewable energy forms	1.1	7.2	9.8	26.2	44.3	44.3	5.5	22.2	39.1			
Transport sector												
Passenger transport activity (Gpkm)	82.0	80.0	80.3	95.1	104.4	122.5	-0.4	-0.8	-1.7	-0.4	-0.8	-1.4
Public road transport	19.3	18.7	18.2	16.6	15.9	14.9	0.0	0.1	0.1	0.2	0.5	0.9
Private cars and motorcycles	47.3	46.6	47.2	62.2	71.0	87.3	-0.4	-1.0	-1.5	-0.6	-1.4	-1.7
Rail	13.9	12.3	12.2	12.1	12.2	12.2	0.1	0.3	0.0	0.8	2.2	0.1
Aviation	1.6	2.4	2.7	4.1	5.2	8.1	-0.1	-0.2	-0.4	-2.5	-3.7	-4.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	34.0	27.9	35.8	48.0	53.3	61.2	-0.2	-0.4	-0.6	-0.4	-0.7	-1.0
Trucks	15.2	19.1	25.2	36.1	40.8	47.7	-0.3	-0.5	-0.7	-0.7	-1.2	-1.5
Rail	16.8	8.8	8.6	9.2	9.6	10.2	0.1	0.1	0.1	0.9	1.5	1.1
Inland navigation	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.0	0.0	0.2	0.4	0.7
Energy demand in transport (ktoe)	3024	3252	4175	5151	5492	5897	-50	-118	-200	-1.0	-2.1	-3.3
Public road transport	160	149	167	140	126	100	0	0	-2	-0.1	-0.2	-1.5
Private cars and motorcycles	1482	1824	2321	2791	2959	3079	-22	-51	-71	-0.8	-1.7	-2.2
Trucks	938	886	1297	1760	1906	2143	-19	-49	-87	-1.0	-2.5	-3.9
Rail	271	175	159	143	131	87	1	1	-1	0.6	1.1	-0.9
Aviation	164	219	230	316	368	487	-10	-20	-40	-3.1	-5.1	-7.6
Inland navigation	9	0	1	1	1	2	0	0	0	0.1	0.2	0.3

Source: PRIMES

Ireland: EC proposal with JI/CDM & RES trading					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	3353	4020	2175	1650	1959	2387	2793	3168	3520	-4.2	-1.0	3.6	2.3	
Solids	1312	1606	959	789	754	662	520	403	501	-3.1	-2.4	-3.6	-0.4	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	1873	2249	958	461	477	457	455	443	478	-6.5	-6.7	-0.5	0.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	168	165	258	401	728	1269	1817	2322	2542	4.4	10.9	9.6	3.4	
Hydro	60	61	73	54	80	81	82	83	83	2.0	1.0	0.2	0.1	
Biomass & Waste	108	102	164	250	375	469	587	719	775	4.3	8.6	4.6	2.8	
Wind	0	1	21	96	252	559	875	1227	1340		28.2	13.3	4.4	
Solar and others	0	0	0	0	20	159	273	293	342	14.8	59.3	29.8	2.3	
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.4	6.3	3.6	
Net Imports	7074	7604	12234	13620	14926	14862	14435	13766	13597	5.6	2.0	-0.3	-0.6	
Solids	2064	1823	1789	1969	2035	1992	1229	654	490	-1.4	1.3	-4.9	-8.8	
Oil	5010	5698	7959	8466	9620	9528	9395	9209	8895	4.7	1.9	-0.2	-0.5	
- Crude oil and Feedstocks	2018	2260	3002	3297	3340	3299	3251	3194	3116	4.1	1.1	-0.3	-0.4	
- Oil products	2992	3438	4957	5168	6279	6229	6144	6014	5779	5.2	2.4	-0.2	-0.6	
Natural gas	0	85	2478	3010	3115	2985	2974	2891	3119		2.3	-0.5	0.5	
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Gross Inland Consumption	10225	10844	14319	15121	16765	17121	17094	16795	16976	3.4	1.6	0.2	-0.1	
Solids	3416	2775	2711	2685	2789	2653	1750	1057	991	-2.3	0.3	-4.6	-5.5	
Oil	4768	5571	7906	8390	9500	9400	9261	9070	8754	5.2	1.9	-0.3	-0.6	
Natural gas	1873	2334	3436	3470	3592	3442	3429	3333	3596	6.3	0.4	-0.5	0.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Renewable energy forms	168	165	258	401	805	1539	2559	3232	3523	4.4	12.0	12.3	3.2	
as % in Gross Inland Consumption														
Solids	33.4	25.6	18.9	17.8	16.6	15.5	10.2	6.3	5.8					
Oil	46.6	51.4	55.2	55.5	56.7	54.9	54.2	54.0	51.6					
Natural gas	18.3	21.5	24.0	22.9	21.4	20.1	20.1	19.8	21.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.6	1.5	1.8	2.6	4.8	9.0	15.0	19.2	20.8					
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27738	30167	32953	37145	40831	5.2	1.6	1.7	2.2	
Self consumption and grid losses	2263	2665	3458	3870	3569	3733	3684	3844	4294	4.3	0.3	0.3	1.5	
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4368	4132	3667	3341	3656	4.7	-0.9	-1.7	0.0	
Solids	1839	2028	1925	1903	2191	2124	1318	703	678	0.5	1.3	-5.0	-6.4	
Oil (including refinery gas)	339	622	1019	774	147	27	0	1	1	11.6	-17.6			
Gas (including derived gases)	841	1060	1825	2040	1950	1874	2037	2146	2348	8.1	0.7	0.4	1.4	
Biomass & Waste	0	0	24	30	80	107	312	491	629		13.0	14.6	7.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	1939	2429	3481	3472	3557	3652	3805	3779	3722	6.0	0.2	0.7	-0.2	
Refineries	1742	2263	3310	3336	3340	3299	3251	3194	3116	6.6	0.1	-0.3	-0.4	
Biofuels and hydrogen production	0	0	0	1	138	294	514	559	590			14.1	1.4	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	197	167	171	135	79	59	40	25	16	-1.4	-7.5	-6.6	-8.8	
Energy Branch Consumption	168	185	246	380	339	333	304	278	284	3.9	3.3	-1.1	-0.7	
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4	
Final Energy Demand	7355	7903	10678	12346	13268	13699	13962	13956	13954	3.8	2.2	0.5	0.0	
by sector														
Industry	1744	1851	2344	2484	2717	2822	2899	2969	3086	3.0	1.5	0.7	0.6	
- energy intensive industries	869	879	1170	1231	1383	1470	1536	1586	1647	3.0	1.7	1.1	0.7	
- other industrial sectors	875	972	1173	1253	1334	1352	1364	1383	1439	3.0	1.3	0.2	0.5	
Residential	2404	2208	2509	2923	3034	3116	3132	2991	2916	0.4	1.9	0.3	-0.7	
Tertiary	1222	1502	1821	1958	1906	1894	1926	1915	1884	4.1	0.5	0.1	-0.2	
Transport	1985	2343	4005	4981	5611	5867	6005	6080	6069	7.3	3.4	0.7	0.1	
by fuel														
Solids	1784	933	699	704	582	517	423	347	305	-9.0	-1.8	-3.2	-3.2	
Oil	3874	4796	6894	7990	8612	8604	8474	8273	7988	5.9	2.2	-0.2	-0.6	
Gas	568	796	1201	1337	1565	1499	1330	1156	1156	7.8	2.7	-1.6	-1.4	
Electricity	1020	1277	1744	2094	2144	2346	2599	2954	3242	5.5	2.1	1.9	2.2	
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			6.4	2.0	
Renewable energy forms	108	102	141	221	364	732	1132	1245	1258	2.7	10.0	12.0	1.1	
Other	0	0	0	0	1	1	3	3	4			18.7	2.6	
RES in Gross Final Energy Consumption ^(A)			245	382	766	1466	2411	3056	3272		12.1	12.1	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.2	71.4	66.5	63.1	62.6	2.1	0.8	-1.2	-0.6	
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.5	45.2	41.1	37.6	37.0	3.1	1.0	-1.2	-1.1	
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	13.0	10.1	7.9	8.3	3.9	-1.0	-3.1	-1.9	
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.6	0.5	0.5	4.0	5.8	-0.3	-0.9	
Industry	4.0	3.9	4.8	5.2	5.7	5.7	5.4	5.1	5.3	1.8	1.6	-0.5	-0.1	
Residential	7.5	6.0	6.1	6.6	6.6	6.3	5.9	5.2	4.5	-2.1	0.9	-1.2	-2.6	
Tertiary	2.9	3.4	3.8	3.6	3.5	3.0	2.7	2.2	1.9	2.8	-0.8	-2.5	-3.6	
Transport	5.9	6.9	11.9	14.8	16.4	16.7	16.6	16.6	16.5	7.3	3.2	0.1	-0.1	
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.7	6.2	6.7	7.2	2.1	5.5	1.9	1.4	
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	20.5	19.1	18.8	18.5	0.6	-0.3	-2.1	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	133.9	127.2	118.4	112.3	111.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	70.3	59.7	51.1	46.5	-3.6	-3.2	-3.2	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.77	2.64	2.41	2.24	2.18	-0.3	-0.6	-1.4	-1.0
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.2	83.8	81.3	79.4				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	15.8	17.7	18.5	19.1		3.9	2.0	0.8
as % of GDP			7.9	7.4	7.1	6.5	6.2	5.6	5.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	59.9	52.6	47.3	44.7	-4.0	-3.6	-2.7	-1.6
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	72.8	63.6	53.7	47.6	-4.7	-1.9	-2.6	-2.9
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	55.5	48.1	41.5	36.6	-2.4	-4.0	-3.2	-2.7
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.5	49.4	44.8	42.1	-0.2	-0.8	-1.8	-1.6
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	91.7	85.6	82.2	77.9	2.8	-1.5	-1.6	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.43	0.30	0.21	0.20	-1.3	-2.5	-4.8	-4.0
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.42	2.31	2.19	2.09	2.02	-1.0	-0.3	-1.0	-0.8
Industry	2.31	2.09	2.05	2.08	2.08	2.01	1.85	1.72	1.72	-1.2	0.2	-1.2	-0.7
Residential	3.11	2.71	2.42	2.27	2.19	2.02	1.88	1.73	1.56	-2.5	-1.0	-1.5	-1.9
Tertiary	2.34	2.28	2.07	1.83	1.82	1.56	1.40	1.17	0.99	-1.2	-1.3	-2.6	-3.4
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.76	2.74	2.71	0.1	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.5	16.9	21.4	22.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.0	8.7	9.5	10.2				
Gross Electricity generation by source (in GWh)													
			23669	24992	27738	30167	32953	37145	40831		1.6	1.7	2.2
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10577	10256	6346	3376	3292		1.9	-5.0	-6.4
Oil (including refinery gas)			4516	3390	641	91	0	8	8		-17.7	-63.2	74.8
Gas (including derived gases)			9231	11197	12292	11878	12957	14561	16012		2.9	0.5	2.1
Biomass-waste			96	125	359	489	1958	3198	3971		14.1	18.5	7.3
Hydro (pumping excluded)			846	631	934	945	956	966	969		1.0	0.2	0.1
Wind			244	1112	2930	6497	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	545	742	956				5.8
Net Generation Capacity in MW_e			4627	6052	8293	8109	10184	12450	13878		6.0	2.1	3.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2655	4144	5486	6099		17.3	9.4	3.9
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2386	3572	4788	5261		28.5	9.5	3.9
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	283	385	496				5.8
<u>Thermal power</u>			4284	5338	6603	5455	6039	6964	7779		4.4	-0.9	2.6
of which cogeneration units			108	561	389	568	622	553	582		13.6	4.8	-0.7
Solids fired			1282	1367	1361	1335	1314	1312	1345		0.6	-0.4	0.2
Gas fired			1974	2937	4116	3889	4247	4906	5669		7.6	0.3	2.9
Oil fired			1010	995	1006	92	64	9	9		0.0	-24.1	-18.3
Biomass-waste fired			18	39	120	138	414	738	756		20.8	13.2	6.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.1	40.5	35.7	33.3	32.8				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.3	49.9	54.4	54.8				
% of gross electricity from CHP			1.1	0.9	6.2	7.1	7.2	8.5	8.0				
Carbon free gross electricity generation (%)			5.0	7.5	15.2	26.3	41.4	51.7	52.7				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	15.2	26.3	41.4	51.7	52.7				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	62.3	70.4	77.6	82.8	5.5	3.7	2.6	1.6
Public road transport	3.9	5.2	6.1	6.7	7.3	7.6	8.1	8.4	8.8	4.7	1.8	1.1	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	36.2	40.7	44.4	46.3	5.3	4.1	2.6	1.3
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.3	4.0	4.6	1.3	5.5	3.5	3.3
Aviation	3.2	5.1	7.9	9.6	11.7	14.2	16.7	19.2	21.5	9.5	4.0	3.6	2.6
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.9	29.5	31.7	33.1	8.5	5.9	2.2	1.2
Trucks	5.1	5.5	12.3	17.9	22.6	25.7	28.2	30.2	31.5	9.2	6.3	2.2	1.1
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.5	-1.8	-3.3	1.8	1.1
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.2	9.3	2.1	2.9	2.3
Energy demand in transport (ktoe)	1985	2343	4005	4981	5611	5867	6005	6080	6069	7.3	3.4	0.7	0.1
Public road transport	58	76	99	101	98	91	88	87	90	5.5	-0.2	-1.0	0.3
Private cars and motorcycles	993	1146	1695	1915	2085	2119	2114	2023	1968	5.5	2.1	0.1	-0.7
Trucks	495	653	1532	2066	2355	2438	2489	2567	2561	12.0	4.4	0.6	0.3
Rail	48	50	42	44	51	51	39	39	27	-1.4	2.1	-2.7	-3.7
Aviation	365	390	613	836	1002	1147	1251	1340	1397	5.3	5.0	2.2	1.1
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.9

Source: PRIMES

Ireland: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2387	2793	3520	145	356	846	6.5	14.6	31.7
Solids	1312	959	789	662	520	501	-81	-208	-171	-10.9	-28.5	-25.5
Oil	0	0	0	0	0	0	0	0	0	-102.3	-885.3	-186.7
Natural gas	1873	958	461	457	455	478	-111	-120	-22	-19.5	-20.8	-4.5
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	168	258	401	1269	1817	2542	338	684	1040	36.3	60.3	69.3
Hydro	60	73	54	81	82	83	4	2	0	5.2	2.7	0.0
Biomass & Waste	108	164	250	469	587	775	0	0	-8	0.0	0.0	-1.0
Wind	0	21	96	559	875	1340	210	460	772	60.2	110.7	135.9
Solar and others	0	0	0	159	273	342	124	222	275	346.5	432.9	409.7
Geothermal	0	0	0	0	0	0	0	0	0	49.9	120.6	242.2
Net Imports	7074	12234	13620	14862	14435	13597	-1502	-2451	-3372	-9.2	-14.5	-19.9
Solids	2064	1789	1969	1992	1229	490	-302	-1422	-1658	-13.2	-53.6	-77.2
Oil	5010	7959	8466	9528	9395	8895	-675	-864	-1540	-6.6	-8.4	-14.8
- Crude oil and Feedstocks	2018	3002	3297	3299	3251	3116	-259	-303	-452	-7.3	-8.5	-12.7
- Oil products	2992	4957	5168	6229	6144	5779	-416	-561	-1087	-6.3	-8.4	-15.8
Natural gas	0	2478	3010	2985	2974	3119	-724	-782	-987	-19.5	-20.8	-24.0
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	17121	17094	16976	-1356	-2094	-2524	-7.3	-10.9	-12.9
Solids	3416	2711	2685	2653	1750	991	-383	-1630	-1829	-12.6	-48.2	-64.9
Oil	4768	7906	8390	9400	9261	8754	-675	-864	-1539	-6.7	-8.5	-14.9
Natural gas	1873	3436	3470	3442	3429	3596	-835	-901	-1010	-19.5	-20.8	-21.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1539	2559	3523	537	1300	1853	53.6	103.3	111.0
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	15.5	10.2	5.8	-0.9	-7.4	-8.6			
Oil	46.6	55.2	55.5	54.9	54.2	51.6	0.4	1.4	-1.2			
Natural gas	18.3	24.0	22.9	20.1	20.1	21.2	-3.0	-2.5	-2.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	9.0	15.0	20.8	3.6	8.4	12.2			
Gross Electricity Generation in GWh_e	14226	23669	24992	30167	32953	40831	-4067	-3791	2108	-11.9	-10.3	5.4
Self consumption and grid losses	2263	3458	3870	3733	3684	4294	-556	-896	-237	-13.0	-19.6	-5.2
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4132	3667	3656	-1054	-1712	-1383	-20.3	-31.8	-27.5
Solids	1839	1925	1903	2124	1318	678	-337	-1564	-1769	-13.7	-54.3	-72.3
Oil (including refinery gas)	339	1019	774	27	0	1	-199	-16	1	-87.8	-100.0	93370.4
Gas (including derived gases)	841	1825	2040	1874	2037	2348	-542	-342	-46	-22.4	-14.4	-1.9
Biomass & Waste	0	24	30	107	312	629	23	211	430	27.5	206.5	216.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	1939	3481	3472	3652	3805	3722	-225	-192	-392	-5.8	-4.8	-9.5
Refineries	1742	3310	3336	3299	3251	3116	-259	-303	-452	-7.3	-8.5	-12.7
Biofuels and hydrogen production	0	0	1	294	514	590	40	119	67	15.7	30.0	12.8
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	197	171	135	59	40	16	-6	-7	-6	-9.4	-14.8	-28.7
Energy Branch Consumption	168	246	380	333	304	284	-30	-69	-71	-8.2	-18.6	-20.1
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13699	13962	13954	-792	-1122	-1760	-5.5	-7.4	-11.2
by sector												
Industry	1744	2344	2484	2822	2899	3086	-68	-132	-199	-2.3	-4.4	-6.0
- energy intensive industries	869	1170	1231	1470	1536	1647	-17	-32	-48	-1.1	-2.0	-2.8
- other industrial sectors	875	1173	1253	1352	1364	1439	-51	-101	-150	-3.6	-6.9	-9.5
Residential	2404	2509	2923	3116	3132	2916	-130	-180	-426	-4.0	-5.4	-12.8
Tertiary	1222	1821	1958	1894	1926	1884	-391	-444	-594	-17.1	-18.7	-24.0
Transport	1985	4005	4981	5867	6005	6069	-203	-366	-541	-3.3	-5.7	-8.2
by fuel												
Solids	1784	699	704	517	423	305	-45	-62	-57	-8.0	-12.9	-15.8
Oil	3874	6894	7990	8604	8474	7988	-461	-829	-1483	-5.1	-8.9	-15.7
Gas	568	1201	1337	1499	1330	1156	-276	-536	-974	-15.6	-28.7	-45.7
Electricity	1020	1744	2094	2346	2599	3242	-301	-248	203	-11.4	-8.7	6.7
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	0	1	-1.1	34.0	57.8
Renewable energy forms	108	141	221	732	1132	1258	292	553	551	66.3	95.4	77.9
Other	0	0	0	1	3	4	0	0	0	8.2	5.3	-4.7
RES in Gross Final Energy Consumption ^(A)		245	382	1466	2411	3272	528	1248	1756	56.2	107.4	115.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	71.4	66.5	62.6	-7.8	-14.2	-17.5	-9.8	-17.6	-21.9
CO₂ Emissions (energy related)	30.9	42.1	45.7	45.2	41.1	37.0	-5.5	-11.1	-14.2	-10.8	-21.3	-27.8
Power generation/District heating	10.4	15.2	14.8	13.0	10.1	8.3	-3.2	-7.1	-7.1	-20.0	-41.2	-46.3
Energy Branch	0.2	0.3	0.6	0.6	0.6	0.5	0.0	-0.1	-0.1	-3.9	-9.1	-17.9
Industry	4.0	4.8	5.2	5.7	5.4	5.3	-0.3	-0.8	-1.2	-4.6	-13.6	-18.0
Residential	7.5	6.1	6.6	6.3	5.9	4.5	-0.5	-0.8	-1.9	-7.4	-11.6	-29.5
Tertiary	2.9	3.8	3.6	3.0	2.7	1.9	-0.7	-1.0	-2.0	-19.7	-26.3	-51.4
Transport	5.9	11.9	14.8	16.7	16.6	16.5	-0.7	-1.4	-2.0	-4.1	-8.0	-10.7
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.7	6.2	7.2	0.0	-0.1	-0.1	-0.9	-1.1	-1.5
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	20.5	19.1	18.5	-2.2	-3.0	-3.2	-9.9	-13.5	-14.6
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	127.2	118.4	111.5	-13.9	-25.2	-31.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Ireland: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	70.3	59.7	46.5	-5.6	-7.3	-6.9	-7.3	-10.9	-12.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.64	2.41	2.18	-0.10	-0.32	-0.45	-3.8	-11.6	-17.1
Import Dependency %	69.1	84.5	89.5	86.2	83.8	79.4	-1.8	-3.6	-7.0			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	15.8	17.7	19.1	0.5	1.1	1.2	3.2	6.6	6.6
as % of GDP		7.9	7.4	6.5	6.2	5.2	0.2	0.4	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.1	1.2						
as % of GDP				0.22	0.40	0.34						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	59.9	52.6	44.7	-1.4	-2.4	-2.9	-2.3	-4.4	-6.0
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	72.8	63.6	47.6	-3.0	-3.6	-7.0	-4.0	-5.4	-12.8
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	55.5	48.1	36.6	-11.5	-11.1	-11.5	-17.1	-18.7	-24.0
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.5	49.4	42.1	-0.9	-1.4	-1.7	-1.7	-2.7	-4.0
Freight transport (toe/Mtkm)	89.6	117.7	111.2	91.7	85.6	77.9	-2.3	-4.3	-6.6	-2.5	-4.8	-7.8
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.43	0.30	0.20	-0.04	-0.16	-0.19	-9.3	-34.5	-49.0
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.19	2.02	-0.03	-0.10	-0.22	-1.2	-4.5	-9.8
Industry	2.31	2.05	2.08	2.01	1.85	1.72	-0.05	-0.20	-0.25	-2.4	-9.6	-12.7
Residential	3.11	2.42	2.27	2.02	1.88	1.56	-0.07	-0.13	-0.37	-3.6	-6.5	-19.2
Tertiary	2.34	2.07	1.83	1.56	1.40	0.99	-0.05	-0.14	-0.56	-3.1	-9.3	-36.1
Transport	2.96	2.97	2.98	2.85	2.76	2.71	-0.02	-0.07	-0.08	-0.8	-2.4	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.5	16.9	22.8	4.1	9.4	13.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.0	8.7	10.2	0.8	2.4	2.1			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	30167	32953	40831	40831	-4067	-3791	2108	-11.9	-10.3	5.4
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	10256	6346	3292	3292	-1966	-8197	-10191	-16.1	-56.4	-75.6
Oil (including refinery gas)	4516	3390	91	0	8	8	-952	-55	8	-91.3	-99.9	151252.8
Gas (including derived gases)	9231	11197	11878	12957	16012	16012	-3747	-2947	-674	-24.0	-18.5	-4.0
Biomass-waste	96	125	489	1958	3971	3971	108	1492	3029	28.5	320.4	321.9
Hydro (pumping excluded)	846	631	945	956	969	969	47	26	0	5.2	2.7	0.0
Wind	244	1112	6497	10172	15585	15585	2442	5345	8979	60.2	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	545	956	956	0	545	956			
Net Generation Capacity in MW_e												
	4627	6052	8109	10184	13878	13878	-48	1181	3587	-0.6	13.1	34.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2655	4144	6099	6099	839	2005	3247	46.2	93.7	113.8
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2386	3572	5261	5261	839	1723	2750	54.3	93.1	109.6
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	283	496	496	0	283	496			
<u>Thermal power</u>	4284	5338	5455	6039	7779	7779	-887	-825	341	-14.0	-12.0	4.6
of which cogeneration units	108	561	568	622	582	582	-39	97	-328	-6.4	18.4	-36.0
Solids fired	1282	1367	1335	1314	1345	1345	-261	-460	-1130	-16.4	-26.0	-45.6
Gas fired	1974	2937	3889	4247	5669	5669	-649	-635	836	-14.3	-13.0	17.3
Oil fired	1010	995	92	64	9	9	0	-17	2	0.0	-20.7	21.4
Biomass-waste fired	18	39	138	414	756	756	23	287	633	19.9	226.3	510.8
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	40.5	35.7	32.8	32.8	-5.0	-8.7	-8.5			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.3	49.9	54.8	54.8	-1.3	0.4	1.7			
% of gross electricity from CHP	1.1	0.9	7.1	7.2	8.0	8.0	-0.1	-0.7	0.1			
Carbon free gross electricity generation (%)	5.0	7.5	26.3	41.4	52.7	52.7	10.7	24.4	30.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	26.3	41.4	52.7	52.7	10.7	24.4	30.6			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	62.3	70.4	82.8	-0.7	-1.3	-1.9	-1.1	-1.9	-2.3
Public road transport	3.9	6.1	6.7	7.6	8.1	8.8	0.1	0.2	0.3	1.8	2.6	3.0
Private cars and motorcycles	12.6	21.1	26.0	36.2	40.7	46.3	-0.6	-1.2	-1.6	-1.6	-2.8	-3.3
Rail	1.2	1.4	1.8	2.8	3.3	4.6	0.1	0.1	0.1	1.8	2.9	3.0
Aviation	3.2	7.9	9.6	14.2	16.7	21.5	-0.3	-0.5	-0.7	-1.9	-2.8	-3.2
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.3	0.1	0.2
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.9	29.5	33.1	-0.5	-0.8	-1.1	-1.7	-2.7	-3.3
Trucks	5.1	12.3	17.9	25.7	28.2	31.5	-0.5	-0.9	-1.2	-1.9	-3.0	-3.6
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.0	5.2	6.8	7.6
Inland navigation	0.2	0.6	0.6	0.8	0.9	1.2	0.0	0.0	0.0	2.3	3.3	4.0
Energy demand in transport (ktoe)												
	1985	4005	4981	5867	6005	6069	-203	-366	-541	-3.3	-5.7	-8.2
Public road transport	58	99	101	91	88	90	-1	-2	-5	-0.6	-2.0	-4.8
Private cars and motorcycles	993	1695	1915	2119	2114	1968	-66	-109	-133	-3.0	-4.9	-6.3
Trucks	495	1532	2066	2438	2489	2561	-108	-202	-313	-4.2	-7.5	-10.9
Rail	48	42	44	51	39	27	1	0	-1	1.3	0.4	-2.2
Aviation	365	613	836	1147	1251	1397	-29	-53	-90	-2.4	-4.1	-6.0
Inland navigation	26	25	18	22	24	26	0	0	0	-0.1	0.0	-0.6

Source: PRIMES

Italy: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	25537	29408	27099	28044	31012	33760	36132	38862	41316	0.6	1.4	1.5	1.3	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5929	6101	5995	5800	5500	0.1	2.2	0.1	-0.9	
Natural gas	14030	16347	13622	9886	10687	10000	8000	8000	8000	-0.3	-2.4	-2.9	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14397	17659	22137	25062	27816	2.9	5.2	4.4	2.3	
Hydro	2719	3249	3812	3101	3243	3210	3195	3184	3184	3.4	-1.6	-0.2	0.0	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	10009	11208	7.3	11.8	4.6	3.2	
Wind	0	1	48	202	464	858	1522	2082	2465	73.3	25.4	12.6	4.9	
Solar and others	5	8	12	23	126	1618	3725	4201	5234	9.2	26.2	40.3	3.5	
Geothermal	2971	3167	3103	4791	5306	5402	5480	5586	5725	0.4	5.5	0.3	0.4	
Net Imports	132060	134651	152953	160475	163619	169228	172972	175452	174943	1.5	0.7	0.6	0.1	
Solids	13792	12987	13188	16366	16942	17538	17380	17813	17558	-0.4	2.5	0.3	0.1	
Oil	89885	89684	88458	79421	75827	78164	75308	75153	73577	-0.2	-1.5	-0.1	-0.2	
- Crude oil and Feedstocks	84284	82558	90244	94404	90566	93202	91537	91555	90749	0.7	0.0	0.1	-0.1	
- Oil products	5602	7126	-1786	-14983	-14739	-15038	-16228	-16402	-17172					
Natural gas	25311	28530	47008	59840	65684	67061	70348	71340	71789	6.4	3.4	0.7	0.2	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	191092	199346	205431	210620	212567	1.2	1.0	0.7	0.3	
Solids	14621	12272	12659	16477	16942	17538	17380	17813	17558	-1.4	3.0	0.3	0.1	
Oil	89860	93248	88947	83169	78217	80623	77631	77259	75385	-0.1	-1.3	-0.1	-0.3	
Natural gas	39001	44652	57940	70651	76371	77061	78348	79340	79789	4.0	2.8	0.3	0.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	15771	20175	28216	32469	36111	3.3	5.6	6.0	2.5	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.9	8.8	8.5	8.5	8.3					
Oil	58.7	57.8	51.6	44.5	40.9	40.4	37.8	36.7	35.5					
Natural gas	25.5	27.7	33.6	37.8	40.0	38.7	38.1	37.7	37.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	8.3	10.1	13.7	15.4	17.0					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314818	345393	374150	409176	433924	2.4	1.5	1.7	1.5	
Self consumption and grid losses	30076	32312	36552	38396	33345	37416	40396	44679	46903	2.0	-0.9	1.9	1.5	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	49000	52199	54009	57839	58029	1.7	0.3	1.0	0.7	
Solids	7017	5287	5836	10001	10139	10514	10435	10991	10965	-1.8	5.7	0.3	0.5	
Oil (including refinery gas)	21528	25009	18955	9642	2734	3688	1393	1230	526	-1.3	-17.6	-6.5	-9.3	
Gas (including derived gases)	8971	10234	19665	26402	29480	30010	30603	30525	29257	8.2	4.1	0.4	-0.4	
Biomass & Waste	39	94	419	2270	1537	2785	6306	9716	11740	26.8	13.9	15.2	6.4	
Geothermal heat	2770	2954	2890	4578	5109	5202	5272	5377	5540	0.4	5.9	0.3	0.5	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	105806	109862	110037	110082	109022	0.3	0.3	0.4	-0.1	
Refineries	91545	92283	96749	102214	98607	101461	99709	99447	98264	0.6	0.2	0.1	-0.1	
Biofuels and hydrogen production	0	0	0	162	1947	3021	5016	5519	5934			9.9	1.7	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5251	5380	5313	5117	4824	-2.8	-1.0	0.1	-1.0	
Energy Branch Consumption	7045	7362	7289	8620	7881	8030	8009	8069	7948	0.3	0.8	0.2	-0.1	
Non-Energy Uses	9896	13633	10838	11007	11298	11878	12339	12428	12411	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	142223	148350	153225	156355	159062	1.4	1.4	0.7	0.4	
by sector														
Industry	36221	36430	39489	40729	43399	44691	45626	46764	48113	0.9	0.9	0.5	0.5	
- energy intensive industries	25218	24737	24840	25798	27435	28314	28726	29050	29463	-0.2	1.0	0.5	0.3	
- other industrial sectors	11002	11692	14648	14931	15964	16378	16901	17714	18650	2.9	0.9	0.6	1.0	
Residential	26284	26673	28331	31849	34137	35816	37480	37987	38316	0.8	1.9	0.9	0.2	
Tertiary	11252	12970	14171	17898	18777	19837	20742	21146	21319	2.3	2.9	1.0	0.3	
Transport	33404	37636	41263	43604	45910	48005	49377	50458	51313	2.1	1.1	0.7	0.4	
by fuel														
Solids	4209	4012	3681	4220	4695	4905	4855	4779	4666	-1.3	2.5	0.3	-0.4	
Oil	53623	53099	56147	58196	60051	60922	59965	59893	58955	0.5	0.7	0.0	-0.2	
Gas	29813	34652	37984	43747	45047	45192	45787	46712	48275	2.5	1.7	0.2	0.5	
Electricity	18408	20442	23435	25828	27364	29785	31903	34432	36359	2.4	1.6	1.5	1.3	
Heat (from CHP and District Heating)	0	0	0	0	12	13	15	15	16			1.9	1.0	
Renewable energy forms	1107	1505	2007	2089	5051	7526	10689	10512	10776	6.1	9.7	7.8	0.1	
Other	0	0	0	0	3	6	11	12	13			14.2	1.8	
RES in Gross Final Energy Consumption ^(A)			6472	7301	10443	14854	22005	25611	28714		4.9	7.7	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	573.2	575.9	564.2	566.6	560.7	0.7	0.5	-0.2	-0.1	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	446.0	455.7	447.0	449.6	443.9	0.9	0.6	0.0	-0.1	
Power generation/District heating	118.9	126.1	130.7	133.8	119.6	125.3	119.0	120.5	115.0	1.0	-0.9	0.0	-0.3	
Energy Branch	16.6	17.0	16.6	20.2	18.2	18.3	17.9	17.6	17.2	0.1	0.9	-0.2	-0.5	
Industry	79.6	75.4	77.5	81.6	85.9	87.6	88.2	89.3	89.8	-0.3	1.0	0.3	0.2	
Residential	55.6	52.8	54.7	61.3	64.9	65.6	64.7	64.3	63.7	-0.2	1.7	0.0	-0.2	
Tertiary	19.1	21.2	22.0	27.2	27.9	25.9	25.1	24.4	23.8	1.4	2.4	-1.0	-0.5	
Transport	97.1	108.9	119.7	126.8	129.5	133.1	132.0	133.6	134.5	2.1	0.8	0.2	0.2	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	38.4	39.0	39.8	40.5	-1.6	2.2	0.4	0.4	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	81.7	78.2	77.1	76.2	0.8	-0.2	-1.3	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	113.0	113.5	111.2	111.7	110.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Italy: EC proposal with JI/CDM & RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.0	116.9	110.2	104.1	98.0	-0.4	-0.1	-1.2	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.33	2.29	2.18	2.13	2.09	-0.3	-0.4	-0.7	-0.4	
Import Dependency %	84.8	82.3	87.3	84.4	84.1	83.4	82.7	81.9	80.9					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	171.0	193.1	217.0	232.6	245.0		2.3	2.4	1.2	
as % of GDP			9.9	10.3	11.1	11.3	11.6	11.5	11.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.8	100.0	92.7	86.4	82.3	-0.3	0.8	-1.5	-1.2	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.6	103.7	99.8	93.7	88.5	-0.9	0.8	-0.8	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.9	110.5	105.5	99.0	93.2	0.4	1.5	-0.9	-1.2	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	31.1	31.4	31.0	30.9	-0.5	-0.1	0.2	-0.2	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	54.1	52.6	52.5	52.0	-1.1	1.5	-0.4	-0.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.36	0.32	0.29	0.26	-1.4	-2.4	-1.8	-1.8	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.17	2.10	2.02	1.99	1.96	-0.5	-0.3	-0.7	-0.3	
Industry	2.20	2.07	1.96	2.00	1.98	1.96	1.93	1.91	1.87	-1.1	0.1	-0.2	-0.4	
Residential	2.11	1.98	1.93	1.93	1.90	1.83	1.73	1.69	1.66	-0.9	-0.2	-1.0	-0.4	
Tertiary	1.70	1.63	1.55	1.52	1.49	1.30	1.21	1.15	1.12	-0.9	-0.4	-2.0	-0.8	
Transport	2.91	2.89	2.90	2.91	2.82	2.77	2.67	2.65	2.62	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	7.2	9.8	14.0	16.0	17.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	6.1	10.0	11.0	11.7					
Gross Electricity generation by source (in GWh)														
			270016	296786	314818	345393	374150	409176	433924		1.5	1.7	1.5	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	48870	55161	54807	60102	60006		6.6	1.2	0.9	
Oil (including refinery gas)			82354	43300	13014	17925	6641	6137	2763		-16.8	-6.5	-8.4	
Gas (including derived gases)			109707	154992	194961	203060	217205	223115	229986		5.9	1.1	0.6	
Biomass-waste			2685	7485	6458	13057	28537	43159	51861		9.2	16.0	6.2	
Hydro (pumping excluded)			44328	36061	37714	37329	37148	37023	37022		-1.6	-0.2	0.0	
Wind			563	2344	5398	9980	17702	24212	28664		25.4	12.6	4.9	
Solar			18	31	84	378	3417	6548	14856		16.6	44.9	15.8	
Geothermal and other renewables			4682	7417	8318	8504	8693	8879	8765		5.9	0.4	0.1	
Net Generation Capacity in MW_e			69851	76966	100381	93086	98608	104495	120726		3.7	-0.2	2.0	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17269	19988	25975	33291	42422		1.7	4.2	5.0	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3040	5468	9389	14554	18087		21.7	11.9	6.8	
Solar			26	38	93	344	2353	4471	10014		13.6	38.2	15.6	
Other renewables (tidal etc.)			0	0	0	38	94	127	183				6.9	
<u>Thermal power</u>			55264	61156	83113	73098	72633	71205	78303		4.2	-1.3	0.8	
of which cogeneration units			9682	10847	11307	12451	14637	16210	16925		1.6	2.6	1.5	
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8	
Gas fired			27466	33995	53571	51265	50309	48627	56576		6.9	-0.6	1.2	
Oil fired			16795	15253	15327	7906	5868	3894	1157		-0.9	-9.2	-15.0	
Biomass-waste fired			597	1223	1392	3275	6090	9033	10877		8.8	15.9	6.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	971	989	1005	1028	1092		2.1	0.3	0.8	
Avg. Load factor of net power capacity (%)			41.7	41.7	34.6	40.8	41.8	43.1	39.6					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.7	49.0	50.3	50.7	52.3					
% of gross electricity from CHP			11.6	8.1	17.6	19.8	23.3	23.5	23.3					
Carbon free gross electricity generation (%)			19.4	18.0	18.4	20.0	25.5	29.3	32.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	18.4	20.0	25.5	29.3	32.5					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	1027.2	1058.8	1092.4	1120.4	3.0	0.3	0.6	0.6	
Public road transport	84.0	87.1	93.6	101.3	107.1	110.2	113.2	114.7	115.2	1.1	1.4	0.6	0.2	
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	796.4	812.1	831.4	847.7	3.3	0.0	0.4	0.4	
Rail	48.9	49.1	52.7	52.3	51.8	52.6	55.5	59.8	64.0	0.8	-0.2	0.7	1.4	
Aviation	21.3	27.9	38.2	43.1	51.3	62.1	72.0	80.4	87.3	6.0	3.0	3.5	2.0	
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.9	6.0	6.1	6.2	-0.8	-0.1	0.3	0.4	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	296.9	306.6	315.6	321.0	2.5	1.6	1.0	0.5	
Trucks	130.9	174.4	184.7	211.8	229.4	245.1	251.7	258.0	260.9	3.5	2.2	0.9	0.4	
Rail	19.4	21.7	22.8	20.1	21.3	23.2	25.1	27.1	28.8	1.7	-0.7	1.6	1.4	
Inland navigation	35.8	35.4	30.2	28.1	28.2	28.6	29.8	30.6	31.3	-1.7	-0.7	0.5	0.5	
Energy demand in transport (ktoe)	33404	37636	41263	43604	45910	48005	49377	50458	51313	2.1	1.1	0.7	0.4	
Public road transport	684	599	656	701	752	770	777	763	737	-0.4	1.4	0.3	-0.5	
Private cars and motorcycles	20584	23615	25521	24557	25005	25562	26257	26375	26759	2.2	-0.2	0.5	0.2	
Trucks	9137	9737	10559	13327	14505	15284	15341	15748	15877	1.5	3.2	0.6	0.3	
Rail	738	819	834	907	920	915	912	935	942	1.2	1.0	-0.1	0.3	
Aviation	1872	2418	3491	3863	4481	5227	5839	6384	6742	6.4	2.5	2.7	1.4	
Inland navigation	389	448	202	248	247	247	251	254	255	-6.3	2.0	0.2	0.2	

Source: PRIMES

Italy: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	33760	36132	41316	1713	4294	6956	5.3	13.5	20.2
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	6101	5995	5500	-246	-5	0	-3.9	-0.1	0.0
Natural gas	14030	13622	9886	10000	8000	8000	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	17659	22137	27816	1959	4299	6956	12.5	24.1	33.3
Hydro	2719	3812	3101	3210	3195	3184	64	95	116	2.0	3.1	3.8
Biomass & Waste	849	1716	3505	6571	8214	11208	356	610	1566	5.7	8.0	16.2
Wind	0	48	202	858	1522	2465	0	323	1285	0.0	27.0	108.8
Solar and others	5	12	23	1618	3725	5234	1072	2780	3913	196.6	294.3	296.3
Geothermal	2971	3103	4791	5402	5480	5725	467	490	77	9.5	9.8	1.4
Net Imports	132060	152953	160475	169228	172972	174943	-12889	-20041	-25984	-7.1	-10.4	-12.9
Solids	13792	13188	16366	17538	17380	17558	-2271	-3364	-3600	-11.5	-16.2	-17.0
Oil	89885	88458	79421	78164	75308	73577	-6196	-10884	-12735	-7.3	-12.6	-14.8
- Crude oil and Feedstocks	84284	90244	94404	93202	91537	90749	-3836	-7454	-8655	-4.0	-7.5	-8.7
- Oil products	5602	-1786	-14983	-15038	-16228	-17172	-2359	-3430	-4080	18.6	26.8	31.2
Natural gas	25311	47008	59840	67061	70348	71789	-5836	-10526	-16235	-8.0	-13.0	-18.4
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	199346	205431	212567	-11174	-15740	-19017	-5.3	-7.1	-8.2
Solids	14621	12659	16477	17538	17380	17558	-2271	-3364	-3600	-11.5	-16.2	-17.0
Oil	89860	88947	83169	80623	77631	75385	-6440	-10881	-12724	-7.4	-12.3	-14.4
Natural gas	39001	57940	70651	77061	78348	79789	-5836	-10526	-16235	-7.0	-11.8	-16.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	20175	28216	36111	3373	9030	13542	20.1	47.1	60.0
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.8	8.5	8.3	-0.6	-0.9	-0.9			
Oil	58.7	51.6	44.5	40.4	37.8	35.5	-0.9	-2.2	-2.6			
Natural gas	25.5	33.6	37.8	38.7	38.1	37.5	-0.7	-2.0	-3.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	10.1	13.7	17.0	2.1	5.1	7.2			
Gross Electricity Generation in GWh_e	213400	270016	296786	345393	374150	433924	-48007	-63608	-62276	-12.2	-14.5	-12.6
Self consumption and grid losses	30076	36552	38396	37416	40396	46903	-5158	-6796	-6284	-12.1	-14.4	-11.8
Fuel Inputs to Thermal Power Generation	40325	47764	52894	52199	54009	58029	-7947	-11436	-12731	-13.2	-17.5	-18.0
Solids	7017	5836	10001	10514	10435	10965	-2467	-3244	-3348	-19.0	-23.7	-23.4
Oil (including refinery gas)	21528	18955	9642	3688	1393	526	-3188	-4826	-4552	-46.4	-77.6	-89.6
Gas (including derived gases)	8971	19665	26402	30010	30603	29257	-2824	-6989	-12205	-8.6	-18.6	-29.4
Biomass & Waste	39	419	2270	2785	6306	11740	92	3190	7372	3.4	102.4	168.8
Geothermal heat	2770	2890	4578	5202	5272	5540	438	432	0	9.2	8.9	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	109862	110037	109022	-3217	-6080	-7790	-2.8	-5.2	-6.7
Refineries	91545	96749	102214	101461	99709	98264	-4093	-7471	-8668	-3.9	-7.0	-8.1
Biofuels and hydrogen production	0	0	162	3021	5016	5934	374	1102	658	14.1	28.2	12.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5380	5313	4824	502	289	220	10.3	5.7	4.8
Energy Branch Consumption	7045	7289	8620	8030	8009	7948	-423	-662	-735	-5.0	-7.6	-8.5
Non-Energy Uses	9896	10838	11007	11878	12339	12411	-38	-47	-54	-0.3	-0.4	-0.4
Final Energy Demand	107160	123254	134080	146350	153225	159062	-6724	-9406	-12911	-4.3	-5.8	-7.5
by sector												
Industry	36221	39489	40729	44691	45626	48113	-210	-1119	-2147	-0.5	-2.4	-4.3
- energy intensive industries	25218	24840	25798	28314	28726	29463	254	-370	-1084	0.9	-1.3	-3.5
- other industrial sectors	11002	14648	14931	16378	16901	18650	-464	-749	-1062	-2.8	-4.2	-5.4
Residential	26284	28331	31849	35816	37480	38316	-1532	-1310	-1482	-4.1	-3.4	-3.7
Tertiary	11252	14171	17898	19837	20742	21319	-3095	-3705	-4524	-13.5	-15.2	-17.5
Transport	33404	41263	43604	48005	49377	51313	-1887	-3272	-4759	-3.8	-6.2	-8.5
by fuel												
Solids	4209	3681	4220	4905	4855	4666	208	-75	-204	4.4	-1.5	-4.2
Oil	53623	56147	58196	60922	59965	58955	-3010	-5665	-7629	-4.7	-8.6	-11.5
Gas	29813	37984	43747	45192	45787	48275	-2941	-3345	-3795	-6.1	-6.8	-7.3
Electricity	18408	23435	25828	29785	31903	36359	-3675	-4864	-4780	-11.0	-13.2	-11.6
Heat (from CHP and District Heating)	0	0	0	13	15	16	-10	-10	-11	-42.5	-41.0	-39.5
Renewable energy forms	1107	2007	2089	7526	10689	10776	2703	4552	3515	56.0	74.2	48.4
Other	0	0	0	6	11	13	0	1	-7	6.8	5.5	-34.5
RES in Gross Final Energy Consumption ^(A)		6472	7301	14854	22005	28714	3097	8379	12844	26.3	61.5	80.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	575.9	564.2	560.7	-48.5	-80.4	-100.6	-7.8	-12.5	-15.2
CO₂ Emissions (energy related)	386.9	421.3	451.0	455.7	447.0	443.9	-42.4	-71.4	-91.3	-8.5	-13.8	-17.1
Power generation/District heating	118.9	130.7	133.8	125.3	119.0	115.0	-26.5	-44.6	-56.3	-17.5	-27.3	-32.9
Energy Branch	16.6	16.6	20.2	18.3	17.9	17.2	-0.9	-1.6	-2.0	-4.7	-8.0	-10.3
Industry	79.6	77.5	81.6	87.6	88.2	89.8	0.6	-1.0	-2.8	0.7	-1.2	-3.0
Residential	55.6	54.7	61.3	65.6	64.7	63.7	-4.6	-6.7	-8.1	-6.6	-9.4	-11.2
Tertiary	19.1	22.0	27.2	25.9	25.1	23.8	-4.2	-4.7	-5.1	-14.1	-15.7	-17.5
Transport	97.1	119.7	126.8	133.1	132.0	134.5	-6.7	-12.9	-17.1	-4.8	-8.9	-11.3
CO₂ Emissions (non energy related)	35.5	30.2	36.1	38.4	39.0	40.5	0.0	-0.6	-0.7	-0.1	-1.5	-1.7
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	81.7	78.2	76.2	-6.1	-8.4	-8.6	-6.9	-9.7	-10.1
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	113.5	111.2	110.5	-9.6	-15.9	-19.8			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Italy: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	116.9	110.2	98.0	-6.6	-8.4	-8.8	-5.3	-7.1	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.29	2.18	2.09	-0.08	-0.17	-0.22	-3.4	-7.2	-9.6
Import Dependency %	84.8	87.3	84.4	83.4	82.7	80.9	-1.7	-3.1	-4.5			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	193.1	217.0	245.0	3.8	6.6	10.4	2.0	3.1	4.4
as % of GDP		9.9	10.3	11.3	11.6	11.3	0.2	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				3.9	6.7	10.6						
as % of GDP				0.23	0.36	0.49						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	100.0	92.7	82.3	-0.5	-2.3	-3.7	-0.5	-2.4	-4.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	103.7	99.8	88.5	-4.4	-3.5	-3.4	-4.1	-3.4	-3.7
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	110.5	105.5	93.2	-17.2	-18.8	-19.8	-13.5	-15.2	-17.5
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	31.1	31.4	30.9	-0.6	-0.9	-1.4	-1.8	-2.8	-4.4
Freight transport (toe/Mtkm)	53.0	47.3	54.0	54.1	52.6	52.0	-2.2	-4.0	-5.5	-3.8	-7.1	-9.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.36	0.32	0.26	-0.02	-0.06	-0.08	-6.0	-14.9	-23.2
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.10	2.02	1.96	-0.01	-0.04	-0.04	-0.2	-1.9	-2.2
Industry	2.20	1.96	2.00	1.96	1.93	1.87	0.02	0.02	0.02	1.2	1.3	1.3
Residential	2.11	1.93	1.93	1.83	1.73	1.66	-0.05	-0.11	-0.14	-2.6	-6.2	-7.8
Tertiary	1.70	1.55	1.52	1.30	1.21	1.12	-0.01	-0.01	0.00	-0.7	-0.7	0.0
Transport	2.91	2.90	2.91	2.77	2.67	2.62	-0.03	-0.08	-0.08	-1.0	-2.8	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	9.8	14.0	17.6	2.4	5.9	8.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	6.1	10.0	11.7	1.0	2.8	2.3			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	345393	374150	433924	433924	-48007	-63608	-62276	-12.2	-14.5	-12.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	55161	54807	60006	60006	-10903	-14845	-18729	-16.5	-21.3	-23.8
Oil (including refinery gas)	82354	43300	17925	6641	2763	2763	-15999	-23470	-27054	-47.2	-77.9	-90.7
Gas (including derived gases)	109707	154992	203060	217205	229986	229986	-23014	-47439	-75933	-10.2	-17.9	-24.8
Biomass-waste	2685	7485	13057	28537	51861	51861	416	13924	30009	3.3	95.3	137.3
Hydro (pumping excluded)	44328	36061	37329	37148	37022	37022	747	1100	1344	2.0	3.1	3.8
Wind	563	2344	9980	17702	28664	28664	0	3759	14938	0.0	27.0	108.8
Solar	18	31	378	3417	14856	14856	0	2609	12944	0.0	322.9	676.7
Geothermal and other renewables	4682	7417	8504	8693	8765	8765	748	755	206	9.6	9.5	2.4
Net Generation Capacity in MW_e	69851	76966	93086	98608	120726	120726	-5409	-5146	2264	-5.5	-5.0	1.9
Nuclear energy	0	0	0	0	0	0	0	0	0			
Renewable energy	14588	15810	19988	25975	42422	42422	-14	3640	19276	-0.1	16.3	83.3
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5468	9389	18087	18087	-52	1920	10876	-0.9	25.7	150.8
Solar	26	38	344	2353	10014	10014	0	1656	8293	0.0	237.6	482.0
Other renewables (tidal etc.)	0	0	38	94	183	183	38	64	107		213.5	140.1
Thermal power	55264	61156	73098	72633	78303	78303	-5395	-8786	-17012	-6.9	-10.8	-17.8
of which cogeneration units	9682	10847	12451	14637	16925	16925	-2462	-2747	-1827	-16.5	-15.8	-9.7
Solids fired	9621	9715	9662	9361	8602	8602	-269	-533	-1215	-2.7	-5.4	-12.4
Gas fired	27466	33995	51265	50309	56576	56576	-5648	-11481	-18353	-9.9	-18.6	-24.5
Oil fired	16795	15253	7906	5868	1157	1157	16	16	-4776	0.2	0.3	-80.5
Biomass-waste fired	597	1223	3275	6090	10877	10877	487	3178	7344	17.5	109.1	207.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	989	1005	1092	1092	19	34	-13	1.9	3.5	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	40.8	41.8	39.6	39.6	-3.1	-4.7	-6.7			
Efficiency of gross thermal power generation (%)	40.5	42.0	49.0	50.3	52.3	52.3	-0.5	-0.6	-1.7			
% of gross electricity from CHP	11.6	8.1	19.8	23.3	23.3	23.3	-1.0	-0.1	0.1			
Carbon free gross electricity generation (%)	19.4	18.0	20.0	25.5	32.5	32.5	2.9	8.8	16.1			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	20.0	25.5	32.5	32.5	2.9	8.8	16.1			
Transport sector												
Passenger transport activity (Gpkm)	722.2	969.5	980.5	1027.2	1058.8	1120.4	-11.3	-19.5	-25.8	-1.1	-1.8	-2.3
Public road transport	84.0	93.6	101.3	110.2	113.2	115.2	1.9	2.8	3.4	1.8	2.6	3.0
Private cars and motorcycles	561.6	779.1	777.9	796.4	812.1	847.7	-12.5	-20.8	-26.8	-1.5	-2.5	-3.1
Rail	48.9	52.7	52.3	52.6	55.5	64.0	0.6	0.6	0.7	1.1	1.1	1.1
Aviation	21.3	38.2	43.1	62.1	72.0	87.3	-1.3	-2.2	-3.1	-2.1	-3.0	-3.4
Inland navigation	6.4	5.9	5.8	5.9	6.0	6.2	0.0	0.0	0.0	-0.6	-0.4	-0.3
Freight transport activity (Gtkm)	186.1	237.6	260.0	296.9	306.6	321.0	-5.2	-8.0	-10.0	-1.7	-2.5	-3.0
Trucks	130.9	184.7	211.8	245.1	251.7	260.9	-6.4	-9.8	-12.2	-2.6	-3.7	-4.5
Rail	19.4	22.8	20.1	23.2	25.1	28.8	0.9	1.2	1.5	3.9	4.9	5.4
Inland navigation	35.8	30.2	28.1	28.6	29.8	31.3	0.4	0.6	0.7	1.4	2.0	2.4
Energy demand in transport (ktoe)	33404	41263	43604	48005	49377	51313	-1887	-3272	-4759	-3.8	-6.2	-8.5
Public road transport	684	656	701	770	777	737	-6	-20	-40	-0.8	-2.5	-5.2
Private cars and motorcycles	20584	25521	24557	25562	26257	26759	-793	-1273	-1783	-3.0	-4.6	-6.2
Trucks	9137	10559	13327	15284	15341	15877	-940	-1719	-2444	-5.8	-10.1	-13.3
Rail	738	834	907	915	912	942	-6	14	74	-0.6	1.5	8.6
Aviation	1872	3491	3863	5227	5839	6742	-141	-273	-563	-2.6	-4.5	-7.7
Inland navigation	389	202	248	247	251	255	-1	-1	-3	-0.2	-0.4	-1.1

Source: PRIMES

Latvia: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	1245	1639	1576	2304	2845	3469	4574	5208	5523	2.4	6.1	4.9	1.9
Solids	182	234	49	6	4	3	0	0	0	-12.3	-22.6		
Oil	1	0	0	7	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1062	1405	1527	2291	2841	3465	4574	5208	5523	3.7	6.4	4.9	1.9
Hydro	387	253	242	286	262	256	262	262	261	-4.6	0.8	0.0	0.0
Biomass & Waste	675	1153	1284	2001	2548	3128	4189	4774	5060	6.6	7.1	5.1	1.9
Wind	0	0	0	4	30	76	112	157	181		56.5	14.0	4.9
Solar and others	0	0	0	0	1	6	11	15	20			22.1	6.9
Geothermal	0	0	0	0	0	0	0	0	0			14.8	1.4
Net Imports	7440	3358	2253	2783	2829	2992	2481	2276	2302	-11.3	2.3	-1.3	-0.7
Solids	627	170	62	76	76	64	65	69	71	-20.7	2.1	-1.5	0.9
Oil	3944	2086	1096	1662	1968	2253	2286	2398	2431	-12.0	6.0	1.5	0.6
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.6	2.1	0.4
- Oil products	3942	2084	1003	1658	1967	2251	2285	2396	2429	-12.8	7.0	1.5	0.6
Natural gas	2561	999	1113	1434	1343	1390	1105	869	940	-8.0	1.9	-1.9	-1.6
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Gross Inland Consumption	8059	4854	4007	4720	5349	6068	6605	6984	7290	-6.7	2.9	2.1	1.0
Solids	867	456	252	83	80	68	65	69	71	-11.6	-10.9	-2.0	0.9
Oil	3458	1885	1155	1376	1643	1860	1837	1898	1896	-10.4	3.6	1.1	0.3
Natural gas	2380	1010	1092	1358	1343	1390	1105	869	940	-7.5	2.1	-1.9	-1.6
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Renewable energy forms	1045	1309	1354	1718	2111	2569	3374	3840	4073	2.6	4.5	4.8	1.9
as % in Gross Inland Consumption													
Solids	10.8	9.4	6.3	1.8	1.5	1.1	1.0	1.0	1.0				
Oil	42.9	38.8	28.8	29.2	30.7	30.7	27.8	27.2	26.0				
Natural gas	29.5	20.8	27.3	28.8	25.1	22.9	16.7	12.4	12.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	13.0	27.0	33.8	36.4	39.5	42.3	51.1	55.0	55.9				
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6319	7744	8950	9892	11431	-4.6	4.3	3.5	2.5
Self consumption and grid losses	1248	732	720	783	476	568	706	896	1067	-5.4	-4.0	4.0	4.2
Fuel Inputs to Thermal Power Generation	926	722	607	591	555	738	871	997	1224	-4.1	-0.9	4.6	3.5
Solids	59	194	142	0	0	0	0	0	0	9.2			
Oil (including refinery gas)	177	242	77	13	0	18	0	0	0	-8.0			
Gas (including derived gases)	690	286	388	541	499	637	401	88	107	-5.6	2.5	-2.2	-12.4
Biomass & Waste	0	0	0	37	56	83	469	909	1116			23.7	9.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2601	941	645	591	666	699	773	751	759	-13.0	0.3	1.5	-0.2
Refineries	1	1	1	1	1	2	2	2	2	0.0	1.9	2.1	0.4
Biofuels and hydrogen production	0	0	0	3	51	88	162	191	209			12.2	2.6
District heating	2573	930	643	587	613	609	610	559	548	-12.9	-0.5	-0.1	-1.1
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3			
Energy Branch Consumption	130	149	151	102	100	109	113	121	129	1.5	-4.0	1.2	1.3
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1
Final Energy Demand	6445	3880	3332	4046	4794	5390	5877	6283	6497	-6.4	3.7	2.1	1.0
by sector													
Industry	1972	701	614	827	1129	1331	1505	1709	1856	-11.0	6.3	2.9	2.1
- energy intensive industries	707	305	219	282	452	531	561	592	611	-11.1	7.5	2.2	0.9
- other industrial sectors	1265	396	396	545	677	799	944	1117	1245	-11.0	5.5	3.4	2.8
Residential	1632	1663	1368	1476	1549	1618	1730	1795	1823	-1.7	1.3	1.1	0.5
Tertiary	1747	804	606	744	860	966	1028	1067	1068	-10.0	3.6	1.8	0.4
Transport	1094	712	744	999	1255	1476	1615	1712	1750	-3.8	5.4	2.6	0.8
by fuel													
Solids	330	126	58	73	75	63	64	69	71	-16.0	2.6	-1.5	0.9
Oil	2047	1119	1003	1220	1434	1628	1705	1756	1751	-6.9	3.6	1.7	0.3
Gas	672	366	329	508	569	661	687	762	808	-6.9	5.6	1.9	1.6
Electricity	768	470	443	537	672	796	931	1079	1198	-5.3	4.2	3.3	2.6
Heat (from CHP and District Heating)	2013	905	590	598	547	545	597	692	729	-11.5	-0.8	0.9	2.0
Renewable energy forms	616	894	909	1111	1496	1697	1892	1924	1939	4.0	5.1	2.4	0.2
Other	0	0	0	0	0	0	1	1	1			18.4	4.6
RES in Gross Final Energy Consumption ^(A)			1305	1787	2029	2431	3136	3534	3705		4.5	4.4	1.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	12.9	13.6	13.1	12.1	12.0	-9.3	2.3	0.1	-0.9
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.1	8.7	7.9	7.6	7.7	-9.7	1.5	-0.1	-0.3
Power generation/District heating	10.0	4.5	2.8	2.1	2.1	2.0	0.9	0.2	0.3	-12.0	-2.8	-7.7	-11.5
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	5.0	-11.4	-2.2	-1.5
Industry	2.5	1.3	0.9	1.0	1.2	1.4	1.4	1.5	1.6	-9.7	2.9	1.7	1.0
Residential	1.2	0.5	0.3	0.5	0.5	0.6	0.6	0.7	0.8	-13.7	6.7	1.6	2.6
Tertiary	2.1	0.8	0.5	0.6	0.6	0.6	0.5	0.5	0.5	-12.8	0.6	-0.6	-0.7
Transport	3.2	2.1	2.2	2.9	3.6	4.1	4.3	4.5	4.5	-3.7	5.1	2.0	0.3
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	1.0	1.2	1.4	1.5	-8.5	11.4	5.4	2.4
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.8	4.0	3.2	2.8	-8.3	3.0	-0.5	-3.5
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	47.6	50.0	48.3	44.8	44.3				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	283.3	238.9	207.6	182.5	168.1	-3.4	-4.8	-3.1	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.51	1.44	1.20	1.08	1.06	-3.1	-1.4	-2.2	-1.3
Import Dependency %	87.3	67.1	56.1	55.9	49.9	46.3	35.2	30.4	29.4				
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.2	5.1	5.8	6.3		6.6	4.2	2.2
as % of GDP			20.5	18.8	17.9	16.7	16.0	15.2	14.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.0	71.8	64.0	60.0	57.5	-3.7	-1.7	-2.7	-1.1
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.2	40.1	34.4	29.9	26.9	1.7	-6.5	-3.9	-2.4
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	65.3	54.3	46.1	39.6	34.9	-10.7	-4.2	-3.4	-2.7
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.6	29.7	28.1	26.8	1.4	-0.5	-1.1	-1.0
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	17.4	17.2	16.8	16.3	-2.5	-0.1	0.1	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.15	0.13	0.05	0.01	0.01	-3.0	-3.7	-9.7	-13.1
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.23	1.18	1.16	1.14	-1.8	0.5	-0.4	-0.4
Industry	1.28	1.88	1.48	1.26	1.07	1.03	0.95	0.90	0.86	1.5	-3.2	-1.2	-1.1
Residential	0.75	0.31	0.21	0.33	0.35	0.36	0.37	0.41	0.45	-12.1	5.4	0.5	2.1
Tertiary	1.21	1.02	0.89	0.85	0.66	0.58	0.52	0.49	0.47	-3.0	-2.9	-2.4	-1.1
Transport	2.90	2.89	2.92	2.94	2.85	2.80	2.69	2.62	2.56	0.1	-0.3	-0.6	-0.5
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	41.1	44.0	52.1	55.0	55.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.5	9.2	10.4	11.4				
Gross Electricity generation by source (in GWh)													
			4135	4904	6319	7744	8950	9892	11431		4.3	3.5	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			91	0	0	0	0	0	0				
Oil (including refinery gas)			117	0	0	68	0	0	0				
Gas (including derived gases)			1104	1490	2676	3443	2294	474	646		9.3	-1.5	-11.9
Biomass-waste			0	43	248	378	2304	4549	5636			25.0	9.4
Hydro (pumping excluded)			2818	3324	3041	2975	3043	3044	3037		0.8	0.0	0.0
Wind			4	47	353	879	1305	1820	2106		56.5	14.0	4.9
Solar			0	0	0	2	3	5	7			21.7	7.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2062	2144	2786	3068	3499	3739	3998		3.1	2.3	1.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1519	1578	1730	1970	2161	2438	2611		1.3	2.2	1.9
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0
Wind			2	24	170	404	587	858	1024		56.0	13.2	5.7
Solar			0	0	1	4	7	11	14			21.4	7.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			543	565	1056	1098	1338	1301	1387		6.9	2.4	0.4
of which cogeneration units			542	564	448	648	635	972	788		-1.9	3.5	2.2
Solids fired			29	2	2	2	2	0	0		-23.3	1.1	
Gas fired			414	502	949	957	868	581	578		8.7	-0.9	-4.0
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0
Biomass-waste fired			2	16	44	78	407	705	793		34.3	24.8	6.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			20.4	23.5	25.4	28.3	28.6	29.3	31.6				
Efficiency of gross thermal power generation (%)			18.6	22.3	45.3	45.3	45.4	43.3	44.1				
% of gross electricity from CHP			24.0	11.8	43.3	42.3	39.2	45.2	41.4				
Carbon free gross electricity generation (%)			68.3	69.6	57.7	54.7	74.4	95.2	94.4				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			68.3	69.6	57.7	54.7	74.4	95.2	94.4				
Transport sector													
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.6	25.0	27.2	28.6	-3.6	4.7	2.5	1.4
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.3	3.3	-8.7	2.7	0.6	0.2
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	17.3	19.3	21.1	22.3	4.2	5.4	2.8	1.5
Rail	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.3	-15.5	3.2	2.8	1.6
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.8	2.4
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4			
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	43.6	50.6	56.5	60.2	-3.1	7.0	3.6	1.8
Trucks	5.9	1.8	4.8	8.4	11.8	15.9	19.6	23.3	26.1	-2.0	9.5	5.2	2.9
Rail	18.5	9.8	13.3	17.9	23.7	27.7	31.0	33.2	34.0	-3.3	5.9	2.7	0.9
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1094	712	744	999	1255	1476	1615	1712	1750	-3.8	5.4	2.6	0.8
Public road transport	111	41	23	25	26	25	25	22	21	-14.6	1.3	-0.5	-1.4
Private cars and motorcycles	317	284	373	451	539	595	620	640	644	1.7	3.7	1.4	0.4
Trucks	370	240	241	371	495	631	741	850	926	-4.2	7.5	4.1	2.3
Rail	188	90	75	93	118	134	134	102	59	-8.7	4.6	1.3	-7.8
Aviation	73	26	27	59	77	91	96	99	99	-9.6	11.1	2.2	0.3
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7			

Source: PRIMES

Latvia: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	3469	4574	5523	610	1436	2148	21.3	45.8	63.7
Solids	182	49	6	3	0	0	0	-4	-3	-7.7	-100.0	-100.0
Oil	1	0	7	0	0	0	0	0	0	36.5	-57.9	50.4
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	1062	1527	2291	3465	4574	5523	610	1440	2151	21.4	45.9	63.8
Hydro	387	242	286	256	262	261	12	0	1	4.8	0.1	0.5
Biomass & Waste	675	1284	2001	3128	4189	5060	589	1413	2077	23.2	50.9	69.6
Wind	0	0	4	76	112	181	6	20	59	8.2	21.6	48.5
Solar and others	0	0	0	6	11	20	4	7	13	212.3	199.0	190.1
Geothermal	0	0	0	0	0	0	0	0	0	161.3	329.0	384.8
Net Imports	7440	2253	2783	2992	2481	2302	-886	-1796	-2659	-22.8	-42.0	-53.6
Solids	627	62	76	64	65	71	-8	-18	-17	-10.7	-21.8	-18.8
Oil	3944	1096	1662	2253	2286	2431	-190	-370	-600	-7.8	-13.9	-19.8
- Crude oil and Feedstocks	1	93	4	2	2	2	0	0	0	-6.4	-12.3	-17.3
- Oil products	3942	1003	1658	2251	2285	2429	-190	-370	-600	-7.8	-13.9	-19.8
Natural gas	2561	1113	1434	1390	1105	940	-519	-1003	-1447	-27.2	-47.6	-60.6
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	6068	6605	7290	-276	-360	-510	-4.3	-5.2	-6.5
Solids	867	252	83	68	65	71	-8	-22	-19	-10.5	-25.0	-21.5
Oil	3458	1155	1376	1860	1837	1896	-190	-370	-599	-9.3	-16.8	-24.0
Natural gas	2380	1092	1358	1390	1105	940	-519	-1003	-1447	-27.2	-47.6	-60.6
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2569	3374	4073	441	1035	1556	20.8	44.3	61.8
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.1	1.0	1.0	-0.1	-0.3	-0.2			
Oil	42.9	28.8	29.2	30.7	27.8	26.0	-1.7	-3.9	-6.0			
Natural gas	29.5	27.3	28.8	22.9	16.7	12.9	-7.2	-13.5	-17.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	42.3	51.1	55.9	8.8	17.5	23.6			
Gross Electricity Generation in GWh_e	6647	4135	4904	7744	8950	11431	-490	-283	422	-6.0	-3.1	3.8
Self consumption and grid losses	1248	720	783	568	706	1067	-70	-34	155	-10.9	-4.6	17.0
Fuel Inputs to Thermal Power Generation	926	607	591	738	871	1224	-139	-111	44	-15.9	-11.3	3.7
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	18	0	0	-24	-41	0	-57.4	-100.0	
Gas (including derived gases)	690	388	541	637	401	107	-108	-456	-915	-14.5	-53.2	-89.5
Biomass & Waste	0	0	37	83	469	1116	-7	386	959	-7.8	465.5	610.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	699	773	759	-68	-51	-144	-8.9	-6.2	-15.9
Refineries	1	1	1	2	2	2	0	0	0	-6.4	-12.3	-17.3
Biofuels and hydrogen production	0	0	3	88	162	209	12	36	19	15.0	28.2	10.2
District heating	2573	643	587	609	610	548	-79	-87	-163	-11.5	-12.4	-22.9
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	109	113	129	-20	-27	-25	-15.7	-19.4	-16.5
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5390	5877	6497	-199	-273	-413	-3.6	-4.4	-6.0
by sector												
Industry	1972	614	827	1331	1505	1856	-19	-59	-76	-1.4	-3.8	-3.9
- energy intensive industries	707	219	282	531	561	611	-2	-8	-6	-0.4	-1.4	-0.9
- other industrial sectors	1265	396	545	799	944	1245	-17	-51	-70	-2.1	-5.1	-5.3
Residential	1632	1368	1476	1618	1730	1823	-58	-22	-22	-3.5	-1.2	-1.2
Tertiary	1747	606	744	966	1028	1068	-46	-47	-82	-4.6	-4.4	-7.1
Transport	1094	744	999	1476	1615	1750	-75	-146	-234	-4.8	-8.3	-11.8
by fuel												
Solids	330	58	73	63	64	71	-8	-10	-12	-11.0	-13.5	-14.7
Oil	2047	1003	1220	1628	1705	1751	-140	-222	-531	-7.9	-11.5	-23.3
Gas	672	329	508	661	687	808	-68	-120	-253	-9.4	-14.8	-23.9
Electricity	768	443	537	796	931	1198	-36	-21	23	-4.3	-2.2	2.0
Heat (from CHP and District Heating)	2013	590	598	545	597	729	-148	-138	-71	-21.3	-18.8	-8.8
Renewable energy forms	616	909	1111	1697	1892	1939	201	237	431	13.4	14.3	28.6
Other	0	0	0	0	1	1	0	0	0	6.6	1.3	-2.5
RES in Gross Final Energy Consumption ^(A)		1305	1787	2431	3136	3705	403	907	1371	19.9	40.7	58.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	13.6	13.1	12.0	-2.5	-4.6	-6.2	-15.7	-26.1	-34.0
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.7	7.9	7.7	-1.8	-3.6	-5.3	-17.3	-31.0	-40.8
Power generation/District heating	10.0	2.8	2.1	2.0	0.9	0.3	-1.0	-2.4	-2.8	-33.6	-71.6	-90.9
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.0	-0.2	-0.2	-0.3	-72.4	-79.5	-84.3
Industry	2.5	0.9	1.0	1.4	1.4	1.6	-0.2	-0.2	-1.2	-12.6	-13.6	-43.5
Residential	1.2	0.3	0.5	0.6	0.6	0.8	-0.1	-0.1	-0.1	-13.0	-15.8	-14.9
Tertiary	2.1	0.5	0.6	0.6	0.5	0.5	-0.1	-0.1	-0.1	-12.5	-16.5	-19.8
Transport	3.2	2.2	2.9	4.1	4.3	4.5	-0.3	-0.5	-0.8	-5.8	-11.1	-15.1
CO₂ Emissions (non energy related)	0.6	0.2	0.2	1.0	1.2	1.5	0.0	0.0	0.0	-0.4	-1.1	-1.4
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.8	4.0	2.8	-0.7	-1.0	-0.8	-15.0	-20.7	-23.4
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	50.0	48.3	44.3	-9.3	-17.1	-22.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	238.9	207.6	168.1	-10.8	-11.3	-11.8	-4.3	-5.2	-6.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.44	1.20	1.06	-0.23	-0.45	-0.61	-13.6	-27.3	-36.7
Import Dependency %	87.3	56.1	55.9	46.3	35.2	29.4	-11.3	-22.5	-30.1			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.2	5.1	6.3	0.2	0.3	0.5	4.0	6.1	8.3
as % of GDP		20.5	18.8	16.7	16.0	14.5	0.6	0.9	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.5						
as % of GDP				0.68	0.97	1.15						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	71.8	64.0	57.5	-1.1	-2.5	-2.4	-1.4	-3.8	-3.9
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	40.1	34.4	26.9	-1.4	-0.4	-0.3	-3.5	-1.2	-1.2
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	54.3	46.1	34.9	-2.6	-2.1	-2.7	-4.6	-4.4	-7.1
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.6	29.7	26.8	-0.7	-1.1	-1.0	-2.0	-3.5	-3.4
Freight transport (toe/Mtkm)	22.3	17.3	17.5	17.4	17.2	16.3	-0.9	-1.6	-2.5	-5.1	-8.7	-13.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.13	0.05	0.01	-0.04	-0.12	-0.13	-25.7	-69.1	-90.9
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.23	1.18	1.14	-0.07	-0.11	-0.26	-5.2	-8.4	-18.8
Industry	1.28	1.48	1.26	1.03	0.95	0.86	-0.13	-0.11	-0.60	-11.4	-10.3	-41.2
Residential	0.75	0.21	0.33	0.36	0.37	0.45	-0.04	-0.06	-0.07	-9.9	-14.7	-13.9
Tertiary	1.21	0.89	0.85	0.58	0.52	0.47	-0.05	-0.08	-0.07	-8.3	-12.7	-13.6
Transport	2.90	2.92	2.94	2.80	2.69	2.56	-0.03	-0.09	-0.10	-1.0	-3.1	-3.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	44.0	52.1	55.8	8.7	16.8	22.7				
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.5	9.2	11.4	1.0	2.7	2.4				
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7744	8950	11431	11431	-490	-283	422	-6.0	-3.1	3.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	68	0	0	0	-92	-159	0	-57.4	-100.0	
Gas (including derived gases)	1104	1490	3443	2294	646	646	-540	-2249	-5146	-13.5	-49.5	-88.9
Biomass-waste	0	43	378	2304	5636	5636	-61	1890	4866	-13.9	456.0	631.5
Hydro (pumping excluded)	2818	3324	2975	3043	3037	3037	135	4	15	4.8	0.1	0.5
Wind	4	47	879	1305	2106	2106	67	232	688	8.2	21.6	48.5
Solar	0	0	2	3	7	7	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2062	2144	3068	3499	3998	3998	16	409	778	0.5	13.2	24.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1519	1578	1970	2161	2611	2611	0	71	359	0.0	3.4	15.9
Hydro (pumping excluded)	1517	1554	1563	1567	1574	1574	0	0	0	0.0	0.0	0.0
Wind	2	24	404	587	1024	1024	0	71	359	-0.1	13.9	53.9
Solar	0	0	4	7	14	14	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	543	565	1098	1338	1387	1387	16	338	419	1.5	33.7	43.3
of which cogeneration units	542	564	648	635	788	788	83	-123	44	14.8	-16.2	5.9
Solids fired	29	2	2	2	0	0	0	0	0	0.0	0.0	
Gas fired	414	502	957	868	578	578	0	-8	-274	0.0	-0.9	-32.2
Oil fired	98	45	61	62	15	15	0	0	0	0.0	0.0	0.0
Biomass-waste fired	2	16	78	407	793	793	16	345	694	26.1	560.7	695.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	28.3	28.6	31.6	31.6	-1.8	-4.8	-6.7			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.3	45.4	44.1	44.1	0.4	0.6	-3.7			
% of gross electricity from CHP	24.0	11.8	42.3	39.2	41.4	41.4	0.0	1.4	0.5			
Carbon free gross electricity generation (%)	68.3	69.6	54.7	74.4	94.4	94.4	5.0	25.3	47.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	54.7	74.4	94.4	94.4	5.0	25.3	47.0			
Transport sector												
Passenger transport activity (Gpkm)												
	17.7	12.3	15.8	22.6	25.0	28.6	-0.3	-0.5	-0.7	-1.1	-2.0	-2.5
Public road transport	5.9	2.3	2.8	3.2	3.3	3.3	0.1	0.1	0.1	1.7	2.6	3.1
Private cars and motorcycles	5.8	8.7	11.6	17.3	19.3	22.3	-0.3	-0.6	-0.9	-1.9	-3.1	-3.9
Rail	5.8	1.1	1.3	1.7	1.9	2.3	0.0	0.1	0.1	1.8	2.7	3.4
Aviation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-2.2	-3.1	-3.6
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	24.8	18.1	26.3	43.6	50.6	60.2	-0.6	-1.1	-1.8	-1.3	-2.1	-2.9
Trucks	5.9	4.8	8.4	15.9	19.6	26.1	-0.8	-1.5	-2.3	-5.0	-6.9	-8.1
Rail	18.5	13.3	17.9	27.7	31.0	34.0	0.2	0.4	0.5	0.9	1.2	1.4
Inland navigation	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1094	744	999	1476	1615	1750	-75	-146	-234	-4.8	-8.3	-11.8
Public road transport	111	23	25	25	25	21	0	0	-2	-0.4	-1.4	-9.4
Private cars and motorcycles	317	373	451	595	620	644	-19	-34	-35	-3.1	-5.2	-5.1
Trucks	370	241	371	631	741	926	-52	-103	-181	-7.6	-12.2	-16.4
Rail	188	75	93	134	134	59	0	0	-4	0.0	-0.3	-6.5
Aviation	73	27	59	91	96	99	-4	-8	-11	-4.0	-7.5	-10.2
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	4768	3724	3210	3721	1294	1773	4937	5450	5882	-3.9	-8.7	14.3	1.8
Solids	42	43	35	39	9	6	5	3	2	-1.7	-12.5	-6.8	-7.0
Oil	12	130	347	239	233	261	259	258	263	40.0	-3.9	1.1	0.2
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Renewable energy sources	321	501	656	777	1052	1505	1873	2344	2724	7.4	4.8	5.9	3.8
Hydro	36	32	29	39	36	37	37	37	37	-2.0	2.1	0.2	0.1
Biomass & Waste	285	469	627	735	957	1378	1723	2154	2476	8.2	4.3	6.1	3.7
Wind	0	0	0	0	58	85	104	138	191			6.1	6.3
Solar and others	0	0	0	0	1	5	9	15	19			21.3	7.7
Geothermal	0	0	0	3	0	0	0	0	0			13.1	0.9
Net Imports	11666	5643	4327	5096	6593	7242	6043	6175	6415	-9.4	4.3	-0.9	0.6
Solids	758	157	84	190	232	221	164	163	167	-19.8	10.7	-3.4	0.2
Oil	7260	3686	2299	2677	2810	3125	3058	3019	3081	-10.9	2.0	0.8	0.1
- Crude oil and Feedstocks	9531	3609	4827	9054	9853	10985	10881	10821	11044	-6.6	7.4	1.0	0.1
- Oil products	-2271	77	-2528	-6377	-7042	-7859	-7823	-7802	-7963				
Natural gas	4678	2029	2065	2492	3552	3985	2516	2221	2224	-7.9	5.6	-3.4	-1.2
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Gross Inland Consumption	16071	8706	7080	8606	7719	8824	10775	11412	12083	-7.9	0.9	3.4	1.2
Solids	831	285	121	215	242	228	168	166	169	-17.5	7.2	-3.5	0.0
Oil	6878	3080	2190	2746	2875	3196	3113	3065	3132	-10.8	2.8	0.8	0.1
Natural gas	4678	2029	2064	2476	3552	3985	2516	2221	2224	-7.9	5.6	-3.4	-1.2
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Renewable energy forms	320	493	649	758	1027	1486	2596	3528	4085	7.3	4.7	9.7	4.6
as % in Gross Inland Consumption													
Solids	5.2	3.3	1.7	2.5	3.1	2.6	1.6	1.5	1.4				
Oil	42.8	35.4	30.9	31.9	37.2	36.2	28.9	26.9	25.9				
Natural gas	29.1	23.3	29.1	28.8	46.0	45.2	23.4	19.5	18.4				
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	26.0	24.9	23.9				
Renewable energy forms	2.0	5.7	9.2	8.8	13.3	16.8	24.1	30.9	33.8				
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11485	14519	21237	22809	24814	-9.0	0.3	6.3	1.6
Self consumption and grid losses	3486	2241	1906	1788	862	1101	1737	1977	2153	-5.9	-7.6	7.3	2.2
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2244	2743	1644	1908	2122	-10.0	9.4	-3.1	2.6
Solids	0	0	0	0	53	53	1	1	3			-30.9	9.0
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.3	
Gas (including derived gases)	1543	433	716	1044	2124	2424	776	426	443	-7.4	11.5	-9.6	-5.5
Biomass & Waste	0	0	0	5	66	266	866	1481	1676			29.3	6.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11408	4490	5755	9951	10419	11646	11756	11560	11704	-6.6	6.1	1.2	0.0
Refineries	9561	3392	5086	9418	10018	11208	11119	11069	11302	-6.1	7.0	1.0	0.2
Biofuels and hydrogen production	0	0	0	3	14	57	173	196	206			28.4	1.8
District heating	1823	1079	657	522	383	378	463	294	195	-9.7	-5.3	1.9	-8.3
Derived gases, cokeries etc.	24	18	12	8	4	2	1	1	1	-7.0	-10.4	-9.2	-3.1
Energy Branch Consumption	991	601	655	915	776	871	974	1023	1060	-4.1	1.7	2.3	0.8
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0
Final Energy Demand	9696	4728	3820	4527	5142	5776	6267	6689	7141	-8.9	3.0	2.0	1.3
by sector													
Industry	3334	1025	782	996	1132	1319	1483	1674	1888	-13.5	3.8	2.7	2.4
- energy intensive industries	1678	482	362	436	532	619	696	784	878	-14.2	3.9	2.7	2.4
- other industrial sectors	1656	543	420	560	600	701	787	890	1010	-12.8	3.6	2.7	2.5
Residential	1854	1733	1402	1437	1524	1687	1854	2004	2166	-2.8	0.8	2.0	1.6
Tertiary	2518	933	589	697	791	861	940	974	1025	-13.5	3.0	1.7	0.9
Transport	1990	1037	1048	1397	1694	1908	1989	2037	2061	-6.2	4.9	1.6	0.4
by fuel													
Solids	760	241	96	197	175	165	160	161	163	-18.7	6.2	-0.9	0.2
Oil	4055	1666	1348	1599	1944	2159	2162	2209	2247	-10.4	3.7	1.1	0.4
Gas	1483	510	363	503	561	578	453	494	558	-13.1	4.4	-2.1	2.1
Electricity	1048	670	606	749	864	1003	1153	1269	1418	-5.3	3.6	2.9	2.1
Heat (from CHP and District Heating)	2078	1193	828	905	954	1005	1018	1031	1040	-8.8	1.4	0.6	0.2
Renewable energy forms	272	448	579	574	644	867	1321	1525	1713	7.9	1.1	7.4	2.6
Other	0	0	0	0	0	0	1	1	1			16.5	1.9
RES in Gross Final Energy Consumption ^(A)			671	726	992	1408	2408	3076	3464		4.0	9.3	3.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	21.6	23.0	19.3	16.4	15.2	-9.1	2.3	-1.1	-2.4
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	15.2	16.7	12.4	11.2	11.1	-10.8	3.9	-2.0	-1.2
Power generation/District heating	12.0	5.6	3.9	4.0	5.6	6.3	2.4	1.4	1.3	-10.5	3.5	-8.1	-5.8
Energy Branch	1.7	0.9	1.2	2.0	1.9	2.0	2.0	1.5	1.2	-3.3	4.4	0.6	-4.9
Industry	6.1	1.7	1.1	1.3	1.6	1.6	1.3	1.4	1.5	-15.9	3.9	-1.8	1.3
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.6	2.3	2.8
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	2.1	-0.5	-0.1
Transport	5.8	3.0	3.1	4.1	4.9	5.5	5.4	5.5	5.5	-6.2	4.9	0.9	0.1
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.4	6.9	5.2	4.1	-5.7	-0.6	0.7	-5.0
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	48.2	51.3	43.1	36.5	33.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: EC proposal with JI/CDM & RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3	
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8	
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	274.8	244.9	241.3	209.7	187.0	-5.1	-5.8	-1.3	-2.5	
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	1.96	1.89	1.15	0.98	0.92	-3.2	3.0	-5.2	-2.3	
Import Dependency %	72.2	63.8	60.3	58.3	83.6	80.3	55.0	53.1	52.2					
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.5	5.6	6.7	7.8	8.6		5.1	4.2	2.5	
as % of GDP			19.0	15.2	15.9	15.4	15.0	14.3	13.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.7	56.1	50.1	46.5	44.2	-9.4	-4.4	-2.4	-1.3	
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.4	47.6	42.7	38.2	35.1	0.0	-5.9	-2.4	-1.9	
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	75.8	65.1	57.5	48.6	43.0	-13.8	-2.7	-2.7	-2.9	
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.2	25.1	24.5	24.2	0.4	-2.6	-0.6	-0.4	
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.3	16.5	15.8	15.5	-7.6	-2.1	-0.6	-0.6	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.22	0.22	0.07	0.04	0.03	-2.7	3.1	-11.1	-6.6	
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.50	1.45	1.29	1.24	1.20	-3.5	1.0	-1.5	-0.7	
Industry	1.83	1.70	1.38	1.35	1.39	1.25	0.89	0.82	0.80	-2.8	0.1	-4.4	-1.1	
Residential	1.26	0.47	0.41	0.46	0.39	0.39	0.41	0.44	0.46	-10.8	-0.3	0.3	1.2	
Tertiary	1.80	1.66	0.85	0.83	0.78	0.69	0.62	0.60	0.56	-7.2	-0.8	-2.2	-1.0	
Transport	2.93	2.91	2.93	2.92	2.91	2.87	2.72	2.68	2.66	0.0	-0.1	-0.7	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	18.4	23.4	36.8	44.2	46.8					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.9	3.1	9.0	10.1	10.6					
Gross Electricity generation by source (in GWh)														
			11118	14410	11485	14519	21237	22809	24814		0.3	6.3	1.6	
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3	
Solids			0	0	255	255	6	2	15				9.3	
Oil (including refinery gas)			603	379	4	1	0	0	0		-40.2	-30.7		
Gas (including derived gases)			1759	3226	9833	11699	3383	1719	2006		18.8	-10.1	-5.1	
Biomass-waste			0	19	309	1146	3810	6459	7330				6.8	
Hydro (pumping excluded)			339	451	416	425	426	429	431		2.1	0.2	0.1	
Wind			0	0	669	993	1213	1599	2225			6.1	6.3	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			4839	3827	3962	4360	6473	6604	6721		-2.0	5.0	0.4	
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0	
<u>Renewable energy</u>			98	115	711	993	1134	1429	2056		22.0	4.8	6.1	
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7	
Wind			0	6	594	872	986	1268	1888			5.2	6.7	
Solar			0	0	1	4	7	13	16			21.3	8.6	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2451	2512	3251	3367	3823	3661	3150		2.9	1.6	-1.9	
of which cogeneration units			2442	2498	2458	2234	2734	2901	2711		0.1	1.1	-0.1	
Solids fired			0	0	29	29	29	29	29				0.0	
Gas fired			1838	1877	2573	2564	2564	2249	1843		3.4	0.0	-3.2	
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-64.8	
Biomass-waste fired			0	5	44	186	641	1107	1279			30.6	7.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			23.0	39.4	32.1	36.7	35.7	37.5	40.1					
Efficiency of gross thermal power generation (%)			22.3	25.6	39.9	41.1	37.7	36.9	37.9					
% of gross electricity from CHP			18.5	22.7	71.7	64.5	33.6	35.8	37.4					
Carbon free gross electricity generation (%)			78.8	75.0	12.1	17.7	84.0	92.5	91.9					
- nuclear			75.7	71.7	0.0	0.0	58.4	55.2	51.6					
- renewable energy forms			3.0	3.3	12.1	17.7	25.7	37.2	40.2					
Transport sector														
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.4	44.9	47.0	48.7	-0.8	7.0	1.5	0.8	
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.9	5.0	5.1	-10.0	4.6	1.2	0.4	
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.5	36.6	38.7	40.3	41.7	5.6	7.6	1.4	0.7	
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.8	
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.9	5.4	5.2	3.9	
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9	
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.5	45.9	52.1	56.2	56.9	-4.6	8.4	3.3	0.9	
Trucks	7.3	5.2	7.8	15.9	21.4	26.3	29.8	32.2	32.6	0.6	10.7	3.4	0.9	
Rail	19.3	7.2	8.9	12.5	16.1	19.6	22.2	24.0	24.3	-7.4	6.1	3.3	0.9	
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	1990	1037	1048	1397	1694	1908	1989	2037	2061	-6.2	4.9	1.6	0.4	
Public road transport	164	50	25	30	34	35	35	35	35	-17.1	3.0	0.4	-0.2	
Private cars and motorcycles	396	485	630	823	939	997	1001	1011	1033	4.8	4.1	0.6	0.3	
Trucks	1159	374	288	414	556	679	739	772	777	-13.0	6.8	2.9	0.5	
Rail	132	86	75	79	100	119	122	116	106	-5.5	2.9	2.1	-1.4	
Aviation	135	41	27	46	60	73	85	96	103	-14.9	8.4	3.6	2.0	
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6	

Source: PRIMES

Lithuania: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1773	4937	5882	462	612	800	35.3	14.2	15.7
Solids	42	35	39	6	5	2	-1	-1	-2	-7.4	-15.3	-41.7
Oil	12	347	239	261	259	263	-2	-20	-21	-0.7	-7.2	-7.4
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1505	1873	2724	465	633	822	44.7	51.0	43.2
Hydro	36	29	39	37	37	37	1	1	0	2.8	2.5	0.0
Biomass & Waste	285	627	735	1378	1723	2476	399	548	664	40.7	46.6	36.6
Wind	0	0	0	85	104	191	61	78	144	252.5	290.6	304.5
Solar and others	0	0	0	5	9	19	4	7	14	325.2	277.2	298.0
Geothermal	0	0	3	0	0	0	0	0	0	115.9	299.7	294.0
Net Imports	11666	4327	5096	7242	6043	6415	-567	-776	-1049	-7.3	-11.4	-14.0
Solids	758	84	190	221	164	167	-118	-144	-151	-34.8	-46.7	-47.4
Oil	7260	2299	2677	3125	3058	3081	-22	-274	-300	-0.7	-8.2	-8.9
- Crude oil and Feedstocks	9531	4827	9054	10985	10881	11044	-73	-838	-874	-0.7	-7.2	-7.3
- Oil products	-2271	-2528	-6377	-7859	-7823	-7963	52	564	574	-0.7	-6.7	-6.7
Natural gas	4678	2065	2492	3985	2516	2224	-434	-1112	-2007	-9.8	-30.6	-47.4
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8824	10775	12083	-104	-164	-249	-1.2	-1.5	-2.0
Solids	831	121	215	228	168	169	-118	-145	-152	-34.2	-46.2	-47.3
Oil	6878	2190	2746	3196	3113	3132	-24	-294	-320	-0.7	-8.6	-9.3
Natural gas	4678	2064	2476	3985	2516	2224	-434	-1112	-2007	-9.8	-30.6	-47.4
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1486	2596	4085	471	1386	2231	46.4	114.6	120.3
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	2.6	1.6	1.4	-1.3	-1.3	-1.2			
Oil	42.8	30.9	31.9	36.2	28.9	25.9	0.2	-2.3	-2.1			
Natural gas	29.1	29.1	28.8	45.2	23.4	18.4	-4.3	-9.8	-15.9			
Nuclear	27.3	30.7	31.0	0.0	26.0	23.9	0.0	0.4	0.5			
Renewable energy forms	2.0	9.2	8.8	16.8	24.1	33.8	5.5	13.0	18.8			
Gross Electricity Generation in GWh_e	28400	11118	14410	14519	21237	24814	-609	-436	-443	-4.0	-2.0	-1.8
Self consumption and grid losses	3486	1906	1788	1101	1737	2153	-53	14	49	-4.6	0.8	2.3
Fuel Inputs to Thermal Power Generation	2610	911	1218	2743	1644	2122	-225	-171	-212	-7.6	-9.4	-9.1
Solids	0	0	0	53	1	3	-115	-136	-140	-68.3	-99.0	-97.8
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-8.2	188.8	35806.8
Gas (including derived gases)	1543	716	1044	2424	776	443	-339	-859	-1583	-12.3	-52.5	-78.1
Biomass & Waste	0	0	5	266	866	1676	229	825	1511	611.4	1991.9	913.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11646	11756	11704	-48	-938	-1064	-0.4	-7.4	-8.3
Refineries	9561	5086	9418	11208	11119	11302	-75	-858	-895	-0.7	-7.2	-7.3
Biofuels and hydrogen production	0	0	3	57	173	206	9	45	37	18.1	35.1	21.6
District heating	1823	657	522	378	463	195	19	-124	-205	5.1	-21.1	-51.3
Derived gases, cokeries etc.	24	12	8	2	1	1	0	0	-1	-6.7	-19.4	-32.8
Energy Branch Consumption	991	655	915	871	974	1060	-7	2	-5	-0.8	0.2	-0.4
Non-Energy Uses	852	648	775	1112	1239	1509	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5776	6267	7141	-29	-30	-74	-0.5	-0.5	-1.0
by sector												
Industry	3334	782	996	1319	1483	1888	-18	-25	-29	-1.4	-1.7	-1.5
- energy intensive industries	1678	362	436	619	696	878	-8	-7	-1	-1.3	-1.0	-0.1
- other industrial sectors	1656	420	560	701	787	1010	-10	-18	-28	-1.4	-2.2	-2.7
Residential	1854	1402	1437	1687	1854	2166	13	34	45	0.7	1.9	2.1
Tertiary	2518	589	697	861	940	1025	-11	-6	-33	-1.3	-0.7	-3.1
Transport	1990	1048	1397	1908	1989	2061	-12	-33	-58	-0.6	-1.6	-2.7
by fuel												
Solids	760	96	197	165	160	163	-3	-7	-9	-1.5	-4.1	-5.4
Oil	4055	1348	1599	2159	2162	2247	-16	-81	-99	-0.7	-3.6	-4.2
Gas	1483	363	503	578	453	558	-13	-234	-71	-2.3	-34.0	-11.3
Electricity	1048	606	749	1003	1153	1418	-48	-38	-41	-4.5	-3.2	-2.8
Heat (from CHP and District Heating)	2078	828	905	1005	1018	1040	-27	-49	-75	-2.7	-4.6	-6.8
Renewable energy forms	272	579	574	867	1321	1713	79	378	221	10.0	40.1	14.8
Other	0	0	0	0	1	1	0	0	0	1.6	2.5	0.7
RES in Gross Final Energy Consumption ^(A)		671	726	1408	2408	3464	420	1242	1741	42.5	106.5	101.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	23.0	19.3	15.2	-1.6	-4.1	-6.3	-6.7	-17.6	-29.4
CO₂ Emissions (energy related)	32.5	10.4	12.6	16.7	12.4	11.1	-1.5	-4.0	-6.2	-8.5	-24.4	-36.0
Power generation/District heating	12.0	3.9	4.0	6.3	2.4	1.3	-1.4	-3.0	-4.9	-18.7	-55.8	-78.9
Energy Branch	1.7	1.2	2.0	2.0	2.0	1.2	0.0	-0.2	-0.8	-0.9	-7.2	-40.2
Industry	6.1	1.1	1.3	1.6	1.3	1.5	0.0	-0.6	-0.2	-2.2	-31.4	-11.3
Residential	2.3	0.6	0.7	0.7	0.8	1.0	0.0	0.0	0.0	-1.4	-1.7	-3.0
Tertiary	4.5	0.5	0.6	0.6	0.6	0.6	0.0	0.0	0.0	1.8	0.8	-1.7
Transport	5.8	3.1	4.1	5.5	5.4	5.5	-0.1	-0.2	-0.3	-1.0	-3.9	-4.9
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-2.5	-4.6
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	6.4	6.9	4.1	-0.1	-0.1	-0.1	-1.5	-1.9	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	51.3	43.1	33.9	-3.7	-9.2	-14.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Lithuania: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	244.9	241.3	187.0	-2.9	-3.7	-3.8	-1.2	-1.5	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.89	1.15	0.92	-0.15	-0.35	-0.49	-7.4	-23.2	-34.7
Import Dependency %	72.2	60.3	58.3	80.3	55.0	52.2	-5.3	-6.2	-7.3			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.6	6.7	8.6	0.0	0.2	0.5	0.8	3.7	6.0
as % of GDP		19.0	15.2	15.4	15.0	13.3	0.1	0.5	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.2	0.5						
as % of GDP				0.13	0.55	0.76						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	56.1	50.1	44.2	-0.8	-0.8	-0.7	-1.4	-1.7	-1.5
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	47.6	42.7	35.1	0.4	0.8	0.7	0.7	1.9	2.1
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	65.1	57.5	43.0	-0.8	-0.4	-1.4	-1.3	-0.7	-3.1
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	26.2	25.1	24.2	-0.1	-0.1	-0.3	-0.3	-0.5	-1.2
Freight transport (toe/Mtkm)	47.8	21.6	17.3	17.3	16.5	15.5	-0.1	-0.2	-0.4	-0.5	-1.5	-2.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.22	0.07	0.03	-0.04	-0.08	-0.12	-15.9	-54.4	-78.1
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.45	1.29	1.20	-0.01	-0.13	-0.06	-0.6	-8.9	-4.7
Industry	1.83	1.38	1.35	1.25	0.89	0.80	-0.01	-0.38	-0.09	-0.8	-30.2	-9.9
Residential	1.26	0.41	0.46	0.39	0.41	0.46	-0.01	-0.02	-0.02	-2.2	-3.6	-5.0
Tertiary	1.80	0.85	0.83	0.69	0.62	0.56	0.02	0.01	0.01	3.1	1.5	1.5
Transport	2.93	2.93	2.92	2.87	2.72	2.66	-0.01	-0.06	-0.06	-0.4	-2.3	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	23.4	36.8	46.8	7.1	19.1	23.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.1	9.0	10.6	0.5	2.5	2.2			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	14519	21237	24814	24814	-609	-436	-443	-4.0	-2.0	-1.8
Nuclear energy	8417	10335	0	12399	12808		0	0	0		0.0	0.0
Solids	0	0	255	6	15		-631	-735	-753	-71.2	-99.2	-98.1
Oil (including refinery gas)	603	379	1	0	0		0	0	0	-4.3	179.5	30060.5
Gas (including derived gases)	1759	3226	11699	3383	2006		-1674	-4230	-7881	-12.5	-55.6	-79.7
Biomass-waste	0	19	1146	3810	7330		973	3616	6516	561.5	1872.1	800.2
Hydro (pumping excluded)	339	451	425	426	431		12	10	0	2.8	2.5	0.0
Wind	0	0	993	1213	2225		711	903	1675	252.5	290.6	304.5
Solar	0	0	0	0	0		0	0	0			
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	4839	3827	4360	6473	6721		617	1162	2417	16.5	21.9	56.2
<u>Nuclear energy</u>	2291	1200	0	1515	1515		0	0	0		0.0	0.0
<u>Renewable energy</u>	98	115	993	1134	2056		668	761	1561	205.7	204.0	315.9
Hydro (pumping excluded)	98	108	117	141	152		0	0	0	0.0	0.0	0.0
Wind	0	6	872	986	1888		668	761	1561	327.2	338.8	478.4
Solar	0	0	4	7	16		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2451	2512	3367	3823	3150		-51	401	856	-1.5	11.7	37.3
of which cogeneration units	2442	2498	2234	2734	2711		15	258	731	0.7	10.4	36.9
Solids fired	0	0	29	29	29		-74	-74	-74	-71.7	-71.7	-71.7
Gas fired	1838	1877	2564	2564	1843		-138	-138	-235	-5.1	-5.1	-11.3
Oil fired	613	631	588	589	0		0	0	0	0.0	0.0	141.8
Biomass-waste fired	0	5	186	641	1279		161	613	1165	640.1	2158.1	1020.3
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	23.0	39.4	36.7	35.7	40.1		-7.9	-8.8	-24.0			
Efficiency of gross thermal power generation (%)	22.3	25.6	41.1	37.7	37.9		-0.7	-2.8	-4.4			
% of gross electricity from CHP	18.5	22.7	64.5	33.6	37.4		-2.1	-1.1	-1.0			
Carbon free gross electricity generation (%)	78.8	75.0	17.7	84.0	91.9		11.9	22.6	34.0			
- nuclear	75.7	71.7	0.0	58.4	51.6		0.0	1.2	0.9			
- renewable energy forms	3.0	3.3	17.7	25.7	40.2		11.9	21.4	33.1			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	42.4	44.9	48.7	-0.1	-0.4	-0.5	-0.3	-0.8	-1.1
Public road transport	7.9	2.8	3.8	4.7	4.9	5.1	0.0	0.0	0.1	0.3	0.8	1.0
Private cars and motorcycles	9.3	16.1	29.3	36.6	38.7	41.7	-0.1	-0.4	-0.5	-0.3	-1.0	-1.3
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	0.3	0.9	1.2
Aviation	0.2	0.2	0.3	0.5	0.6	1.0	0.0	0.0	0.0	-2.1	-3.1	-3.5
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.6
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.9	52.1	56.9	-0.1	-0.3	-0.5	-0.2	-0.7	-0.9
Trucks	7.3	7.8	15.9	26.3	29.8	32.6	-0.2	-0.5	-0.8	-0.7	-1.7	-2.3
Rail	19.3	8.9	12.5	19.6	22.2	24.3	0.1	0.2	0.2	0.3	0.7	1.0
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1
Energy demand in transport (ktoe)												
	1990	1048	1397	1908	1989	2061	-12	-33	-58	-0.6	-1.6	-2.7
Public road transport	164	25	30	35	35	35	0	0	0	0.1	0.2	-0.9
Private cars and motorcycles	396	630	823	997	1001	1033	-4	-10	-16	-0.4	-1.0	-1.5
Trucks	1159	288	414	679	739	777	-6	-19	-32	-0.9	-2.6	-4.0
Rail	132	75	79	119	122	106	0	1	1	0.2	0.6	0.8
Aviation	135	27	46	73	85	103	-2	-4	-11	-2.9	-4.9	-9.4
Inland navigation	5	3	5	6	6	7	0	0	0	0.0	0.3	0.4

Source: PRIMES

Luxembourg: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	47	47	57	74	162	214	260	278	289	1.9	11.1	4.8	1.0	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	162	214	260	278	289	1.9	11.1	4.8	1.0	
Hydro	6	7	10	8	9	9	10	10	10	5.8	-0.9	0.1	0.1	
Biomass & Waste	41	39	44	59	89	111	139	154	167	0.7	7.3	4.6	1.8	
Wind	0	0	2	5	14	15	21	21	17		19.7	4.0	-1.9	
Solar and others	0	0	0	2	50	79	91	94	95			6.2	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			4.3	0.9	
Net Imports	3520	3257	3620	4606	4820	4966	4899	4898	4979	0.3	2.9	0.2	0.2	
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8	
Oil	1620	1756	2332	3066	3268	3237	3024	2899	2858	3.7	3.4	-0.8	-0.6	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3268	3237	3024	2899	2858	3.7	3.4	-0.8	-0.6	
Natural gas	430	557	670	1179	1098	1204	1252	1329	1397	4.6	5.1	1.3	1.1	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	4982	5180	5159	5177	5267	0.2	3.2	0.3	0.2	
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8	
Oil	1609	1788	2283	3084	3268	3237	3024	2899	2858	3.6	3.7	-0.8	-0.6	
Natural gas	430	557	670	1179	1098	1204	1252	1329	1397	4.6	5.1	1.3	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	210	348	507	551	585	1.9	14.0	9.2	1.4	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.9	0.7	0.5					
Oil	45.2	53.6	62.9	65.6	65.6	62.5	58.6	56.0	54.3					
Natural gas	12.1	16.7	18.5	25.1	22.0	23.2	24.3	25.7	26.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	4.2	6.7	9.8	10.7	11.1					
Gross Electricity Generation in GWh_e	627	498	433	3344	2602	3181	3773	4584	5256	-3.6	19.6	3.8	3.4	
Self consumption and grid losses	410	497	439	448	181	207	234	297	360	0.7	-8.5	2.6	4.4	
Fuel Inputs to Thermal Power Generation	190	132	75	568	433	522	590	703	805	-8.8	19.1	3.1	3.2	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	383	468	511	606	692	-11.6	23.3	2.9	3.1	
Biomass & Waste	25	24	28	43	50	55	79	98	113	1.0	5.9	4.7	3.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	70	173	289	314	340			15.3	1.6	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	70	173	289	314	340			15.3	1.6	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	6	7	9	10	12	-1.8	-13.2	3.4	3.2	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4766	4905	4839	4805	4845	0.6	3.0	0.2	0.0	
by sector														
Industry	1729	1196	958	937	980	1050	1098	1149	1201	-5.7	0.2	1.1	0.9	
- energy intensive industries	1525	900	501	470	477	500	499	503	501	-10.5	-0.5	0.4	0.0	
- other industrial sectors	204	296	457	467	502	551	599	646	700	8.4	1.0	1.8	1.6	
Residential	519	563	596	649	673	672	668	649	618	1.4	1.2	-0.1	-0.8	
Tertiary	74	99	118	130	133	140	127	130	131	4.7	1.2	-0.5	0.4	
Transport	1007	1307	1877	2708	2980	3042	2947	2877	2894	6.4	4.7	-0.1	-0.2	
by fuel														
Solids	756	369	125	82	53	49	45	34	27	-16.5	-8.1	-1.7	-4.8	
Oil	1581	1752	2266	3065	3242	3208	2993	2867	2823	3.7	3.6	-0.8	-0.6	
Gas	622	585	623	678	715	736	740	722	704	0.0	1.4	0.3	-0.5	
Electricity	355	430	491	529	561	599	635	732	821	3.3	1.3	1.3	2.6	
Heat (from CHP and District Heating)	0	14	27	55	72	77	81	85	86		10.4	1.1	0.7	
Renewable energy forms	15	15	16	16	122	236	344	364	381	0.4	22.6	10.9	1.0	
Other	0	0	0	0	0	1	1	2	3			14.9	7.2	
RES in Gross Final Energy Consumption ^(A)			34	48	190	309	444	480	507		18.7	8.9	1.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.1	14.2	13.6	13.3	13.3	-2.1	3.1	-0.4	-0.2	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.6	12.7	12.1	11.9	11.9	-1.8	3.6	-0.3	-0.2	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.1	1.2	1.4	1.6	-17.0	23.3	2.9	3.1	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.7	0.1	
Residential	1.3	1.3	1.4	1.4	1.3	1.2	1.2	1.0	0.8	1.1	-0.6	-1.4	-3.5	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.8	0.2	-1.2	
Transport	3.0	3.9	5.6	8.1	8.8	8.7	8.1	7.8	7.8	6.5	4.7	-0.8	-0.4	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-7.6	-0.6	0.0	-0.3	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.8	0.8	0.8	2.4	0.6	-0.8	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	109.7	110.5	105.9	104.0	104.0					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)									Luxembourg: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.2	118.3	100.7	87.9	79.6	-5.9	-0.5	-3.0	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.52	2.45	2.35	2.30	2.26	-2.0	0.3	-0.7	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	96.7	95.9	95.0	94.6	94.5				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.2	4.7	5.2	5.5	5.8		4.9	2.0	1.2
as % of GDP			10.4	11.4	11.6	10.8	10.1	9.3	8.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	79.1	71.7	65.9	62.0	-9.0	-1.4	-1.9	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.8	70.5	61.3	52.9	45.5	-2.2	-2.0	-2.8	-2.9
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.4	68.3	52.7	47.0	42.5	-0.5	-2.5	-3.8	-2.1
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	157.7	143.3	127.1	119.9	1.8	1.0	-1.5	-1.8
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	132.6	121.6	115.1	110.5	0.0	4.3	-1.5	-1.0
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.25	0.26	0.25	0.25	0.26	-18.4	5.6	-0.2	0.3
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.45	2.36	2.26	2.18	2.12	-1.9	-0.1	-0.8	-0.6
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.46	1.39	1.35	-6.1	-1.4	-0.4	-0.8
Residential	2.45	2.39	2.37	2.21	1.97	1.84	1.73	1.53	1.32	-0.3	-1.8	-1.3	-2.7
Tertiary	0.21	0.34	0.65	0.48	0.48	0.47	0.51	0.46	0.44	12.0	-3.0	0.7	-1.6
Transport	2.95	2.96	2.97	3.00	2.95	2.87	2.76	2.72	2.69	0.1	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	4.0	6.3	9.1	9.9	10.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	5.6	9.8	10.8	11.6				
Gross Electricity generation by source (in GWh)													
			433	3344	2602	3181	3773	4584	5256		19.6	3.8	3.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	2	0	0	0	0		7.7		
Gas (including derived gases)			222	3083	2109	2660	3070	3798	4444		25.2	3.8	3.8
Biomass-waste			63	97	199	220	329	406	477		12.2	5.2	3.8
Hydro (pumping excluded)			120	93	110	110	111	111	112		-0.9	0.1	0.1
Wind			27	53	163	169	240	244	198		19.7	4.0	-1.9
Solar			0	18	20	21	23	25	26			1.7	1.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	896	962	1090	1256	1334		12.5	2.0	2.0
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	281	289	321	327	306		5.3	1.3	-0.5
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	101	106	136	139	118		26.0	3.0	-1.4
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	614	673	769	929	1028		19.0	2.3	2.9
of which cogeneration units			61	112	226	235	247	235	244		13.9	0.9	-0.1
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	507	564	662	810	902		19.3	2.7	3.1
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	100	103	103	115	122		21.1	0.2	1.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	32.3	36.8	38.5	40.6	43.8				
Efficiency of gross thermal power generation (%)			32.7	48.1	45.8	47.4	49.6	51.4	52.6				
% of gross electricity from CHP			53.7	11.8	30.3	27.6	28.2	23.8	20.2				
Carbon free gross electricity generation (%)			48.5	7.8	18.9	16.4	18.6	17.2	15.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	18.9	16.4	18.6	17.2	15.5				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.6	10.0	10.4	10.8	3.5	2.0	1.0	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.7	0.9
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.2	7.4	7.7	8.0	3.4	1.8	0.8	0.7
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	0.8	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.3	1.4	5.8	3.7	2.6	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.5	12.5	13.5	14.5	8.0	2.4	1.8	1.5
Trucks	3.2	5.5	7.6	8.8	10.1	11.2	12.2	13.3	14.2	9.0	2.8	2.0	1.5
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-2.8	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	3042	2947	2877	2894	6.4	4.7	-0.1	-0.2
Public road transport	18	18	24	29	32	30	28	27	26	2.9	2.9	-1.1	-0.8
Private cars and motorcycles	500	609	760	916	968	951	870	805	786	4.3	2.4	-1.1	-1.0
Trucks	345	482	757	1323	1474	1524	1515	1555	1599	8.2	6.9	0.3	0.5
Rail	13	9	15	9	8	7	6	6	5	2.0	-5.9	-3.1	-1.6
Aviation	131	189	320	431	498	529	528	484	478	9.3	4.5	0.6	-1.0
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Luxembourg: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	214	260	289	35	38	16	19.7	17.3	5.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	214	260	289	35	38	16	19.7	17.3	5.8
Hydro	6	10	8	9	10	10	0	0	0	2.4	1.6	0.0
Biomass & Waste	41	44	59	111	139	167	0	0	-17	0.0	0.0	-9.1
Wind	0	2	5	15	21	17	3	3	3	25.2	16.7	21.9
Solar and others	0	0	2	79	91	95	32	35	29	68.9	63.3	44.8
Geothermal	0	0	0	0	0	0	0	0	0	48.9	62.0	72.7
Net Imports	3520	3620	4606	4966	4899	4979	-315	-513	-528	-6.0	-9.5	-9.6
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1620	2332	3066	3237	3024	2858	-238	-452	-590	-6.9	-13.0	-17.1
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	3237	3024	2858	-238	-452	-590	-6.9	-13.0	-17.1
Natural gas	430	670	1179	1204	1252	1397	-108	-154	-31	-8.3	-10.9	-2.1
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	5180	5159	5267	-280	-474	-512	-5.1	-8.4	-8.9
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1609	2283	3084	3237	3024	2858	-238	-452	-590	-6.9	-13.0	-17.1
Natural gas	430	670	1179	1204	1252	1397	-108	-154	-31	-8.3	-10.9	-2.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	348	507	585	68	133	111	24.4	35.6	23.5
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	0.9	0.9	0.5	0.0	0.0	0.0			
Oil	45.2	62.9	65.6	62.5	58.6	54.3	-1.2	-3.1	-5.4			
Natural gas	12.1	18.5	25.1	23.2	24.3	26.5	-0.8	-0.7	1.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	6.7	9.8	11.1	1.6	3.2	2.9			
Gross Electricity Generation in GWh_e	627	433	3344	3181	3773	5256	-383	-337	1319	-10.7	-8.2	33.5
Self consumption and grid losses	410	439	448	207	234	360	-31	-12	92	-13.0	-4.9	34.3
Fuel Inputs to Thermal Power Generation	190	75	568	522	590	805	-65	-63	177	-11.1	-9.7	28.2
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	6106.3		
Gas (including derived gases)	162	47	525	468	511	692	-75	-97	126	-13.8	-16.0	22.3
Biomass & Waste	25	28	43	55	79	113	9	34	51	20.9	75.9	80.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	173	289	340	21	57	29	13.5	24.5	9.4
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	173	289	340	21	57	29	13.5	24.5	9.4
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	9	12	-2	0	3	-19.9	-2.4	37.0
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4905	4839	4845	-256	-460	-611	-5.0	-8.7	-11.2
by sector												
Industry	1729	958	937	1050	1098	1201	-20	-29	-44	-1.9	-2.6	-3.5
- energy intensive industries	1525	501	470	500	499	501	-5	-8	-7	-0.9	-1.5	-1.3
- other industrial sectors	204	457	467	551	599	700	-16	-22	-37	-2.8	-3.5	-5.1
Residential	519	596	649	672	668	618	-34	-45	-103	-4.8	-6.4	-14.3
Tertiary	74	118	130	140	127	131	-15	-38	-40	-9.5	-23.0	-23.4
Transport	1007	1877	2708	3042	2947	2894	-187	-347	-424	-5.8	-10.5	-12.8
by fuel												
Solids	756	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1581	2266	3065	3208	2993	2823	-239	-452	-590	-6.9	-13.1	-17.3
Gas	622	623	678	736	740	704	-34	-56	-157	-4.4	-7.1	-18.2
Electricity	355	491	529	599	635	821	-30	-28	106	-4.8	-4.2	14.7
Heat (from CHP and District Heating)	0	27	55	77	81	86	-4	-7	-19	-4.9	-7.9	-18.4
Renewable energy forms	15	16	16	236	344	381	52	86	52	28.1	33.2	15.8
Other	0	0	0	1	1	3	0	0	0	13.8	6.8	1.3
RES in Gross Final Energy Consumption ^(A)	34	48	309	444	507	64	119	99	26.1	36.5	24.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	14.2	13.6	13.3	-1.0	-1.8	-2.0	-6.8	-11.8	-12.8
CO₂ Emissions (energy related)	10.6	8.8	12.4	12.7	12.1	11.9	-1.0	-1.7	-1.9	-7.2	-12.5	-13.6
Power generation/District heating	0.7	0.1	1.2	1.1	1.2	1.6	-0.2	-0.2	0.3	-13.7	-16.0	22.3
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	0.0	-0.1	-1.1	-2.4	-7.7
Residential	1.3	1.4	1.4	1.2	1.2	0.8	-0.2	-0.2	-0.6	-11.2	-16.5	-40.8
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-8.3	-21.5	-30.7
Transport	3.0	5.6	8.1	8.7	8.1	7.8	-0.6	-1.2	-1.5	-6.7	-13.1	-15.7
CO ₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	-0.4	-1.3	-1.9
Non-CO₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.8	0.8	-0.1	-0.1	-0.1	-6.3	-8.7	-8.5
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	110.5	105.9	104.0	-8.1	-14.2	-15.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: EC proposal with JI/CDM & RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	118.3	100.7	79.6	-6.4	-9.3	-7.7	-5.1	-8.4	-8.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.45	2.35	2.26	-0.05	-0.11	-0.13	-2.2	-4.5	-5.2
Import Dependency %	99.0	99.8	98.0	95.9	95.0	94.5	-0.9	-1.1	-0.8			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	4.7	5.2	5.8	0.2	0.2	0.4	4.6	4.9	6.9
as % of GDP		10.4	11.4	10.8	10.1	8.8	0.5	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.2	0.4						
as % of GDP				0.48	0.48	0.57						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	79.1	71.7	62.0	-1.5	-1.9	-2.3	-1.9	-2.6	-3.5
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	70.5	61.3	45.5	-3.6	-4.2	-7.6	-4.8	-6.4	-14.3
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	68.3	52.7	42.5	-7.1	-15.8	-13.0	-9.5	-23.0	-23.4
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	157.7	143.3	119.9	-3.4	-9.2	-9.7	-2.1	-6.0	-7.5
Freight transport (toe/Mtkm)	93.1	93.3	144.6	132.6	121.6	110.5	-8.6	-13.1	-14.0	-6.1	-9.7	-11.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.25	0.26	-0.01	-0.02	0.00	-4.9	-8.5	1.4
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.36	2.26	2.12	-0.04	-0.09	-0.16	-1.7	-3.8	-7.0
Industry	3.28	1.74	1.63	1.50	1.46	1.35	0.01	0.00	-0.06	0.8	0.3	-4.3
Residential	2.45	2.37	2.21	1.84	1.73	1.32	-0.13	-0.21	-0.59	-6.8	-10.8	-31.0
Tertiary	0.21	0.65	0.48	0.47	0.51	0.44	0.01	0.01	-0.05	1.2	2.0	-9.5
Transport	2.95	2.97	3.00	2.87	2.76	2.69	-0.03	-0.08	-0.09	-1.0	-2.9	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	6.3	9.1	10.4	1.5	3.0	3.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	9.8	11.6	1.0	2.9	2.5			
Gross Electricity generation by source (in GWh_e)												
	433	3344	3181	3773	5256	5256	-383	-337	1319	-10.7	-8.2	33.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2660	3070	4444	4444	-453	-514	1067	-14.6	-14.4	31.6
Biomass-waste	63	97	220	329	477	477	34	142	216	18.0	75.6	83.0
Hydro (pumping excluded)	120	93	110	111	112	112	3	2	0	2.4	1.6	0.0
Wind	27	53	169	240	198	198	34	34	36	25.2	16.7	21.9
Solar	0	18	21	23	26	26	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	962	1090	1334	1334	-2	6	242	-0.2	0.5	22.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	289	321	306	306	31	32	33	12.2	11.0	12.2
Hydro (pumping excluded)	155	155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind	10	35	106	136	118	118	31	32	33	42.2	30.5	39.3
Solar	2	23	28	30	33	33	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	673	769	1028	1028	-34	-26	208	-4.8	-3.3	25.4
of which cogeneration units	61	112	235	247	244	244	-19	-42	-50	-7.3	-14.5	-17.0
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	564	662	902	902	-52	-61	160	-8.4	-8.4	21.5
Oil fired	6	7	6	4	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	103	103	122	122	18	35	49	21.8	51.7	66.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	36.8	38.5	43.8	43.8	-4.4	-3.8	3.7			
Efficiency of gross thermal power generation (%)	32.7	48.1	47.4	49.6	52.6	52.6	-0.9	-0.1	2.8			
% of gross electricity from CHP	53.7	11.8	27.6	28.2	20.2	20.2	-2.0	-0.8	-14.9			
Carbon free gross electricity generation (%)	48.5	7.8	16.4	18.6	15.5	15.5	3.7	5.8	1.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	16.4	18.6	15.5	15.5	3.7	5.8	1.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	5.2	7.4	8.3	9.6	10.0	10.8	-0.1	-0.2	-0.3	-1.4	-2.4	-2.9
Private cars and motorcycles	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.3	2.1	2.4
Rail	4.2	5.8	6.4	7.2	7.4	8.0	-0.1	-0.2	-0.3	-1.8	-3.0	-3.8
Aviation	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	1.8	2.7	3.8
Inland navigation	0.4	0.7	0.8	1.1	1.3	1.4	0.0	0.0	0.0	-2.1	-2.9	-3.1
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	3.8	8.2	9.2	11.5	12.5	14.5	-0.2	-0.4	-0.6	-1.9	-3.2	-4.0
Rail	3.2	7.6	8.8	11.2	12.2	14.2	-0.2	-0.4	-0.6	-2.1	-3.4	-4.2
Inland navigation	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	5.4	7.4	8.9
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1007	1877	2708	3042	2947	2894	-187	-347	-424	-5.8	-10.5	-12.8
Private cars and motorcycles	18	24	29	30	28	26	-1	-2	-2	-1.9	-6.0	-7.8
Trucks	500	760	916	951	870	786	-35	-83	-77	-3.5	-8.7	-8.9
Rail	345	757	1323	1524	1515	1599	-131	-219	-278	-7.9	-12.6	-14.8
Aviation	13	15	9	7	6	5	0	0	0	1.1	4.0	10.5
Inland navigation	131	320	431	529	528	478	-20	-43	-67	-3.7	-7.6	-12.3
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	0	0	0	0	5	22	37	46	51			23.3	3.1
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	0	0	0	0	5	22	37	46	51			23.3	3.1
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	0	0	0	0	0	0	0	0	0				
Wind	0	0	0	0	0	3	10	15	17				6.0
Solar and others	0	0	0	0	5	19	28	31	33			19.7	1.8
Geothermal	0	0	0	0	0	0	0	0	0			5.4	-1.1
Net Imports	611	890	818	953	925	802	823	760	772	3.0	1.2	-1.2	-0.6
Solids	0	0	0	0	0	0	0	0	0				
Oil	611	890	818	953	868	667	667	463	451	3.0	0.6	-2.6	-3.8
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	611	890	818	953	868	667	667	463	451	3.0	0.6	-2.6	-3.8
Natural gas	0	0	0	0	57	58	64	194	202			1.2	12.2
Electricity	0	0	0	0	0	73	85	95	108				2.4
Gross Inland Consumption	581	808	769	953	930	824	861	806	822	2.8	1.9	-0.8	-0.5
Solids	0	0	0	0	0	0	0	0	0				
Oil	581	808	769	953	868	667	667	463	451	2.8	1.2	-2.6	-3.8
Natural gas	0	0	0	0	57	58	64	194	202			1.2	12.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	73	85	95	108				2.4
Renewable energy forms	0	0	0	0	5	26	45	55	61			23.9	3.2
as % in Gross Inland Consumption													
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Oil	100.0	100.0	100.0	100.0	93.3	81.0	77.5	57.4	54.9				
Natural gas	0.0	0.0	0.0	0.0	6.1	7.0	7.5	24.0	24.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.0	0.0	0.0	0.0	0.6	3.2	5.2	6.8	7.4				
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	1995	1277	1388	1616	1703	5.7	0.4	-3.6	2.1
Self consumption and grid losses	190	373	350	438	167	117	129	141	154	6.3	-7.1	-2.5	1.8
Fuel Inputs to Thermal Power Generation	321	463	494	580	495	273	274	217	225	4.4	0.0	-5.7	-2.0
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	321	463	494	580	438	215	208	21	19	4.4	-1.2	-7.2	-21.1
Gas (including derived gases)	0	0	0	0	57	58	64	194	202			1.2	12.2
Biomass & Waste	0	0	0	0	0	0	2	3	3				5.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	0	0	0	0	1	3	5	6	8			25.0	3.6
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	0	1	3	5	6	8			26.4	3.6
District heating	0	0	0	0	0	0	0	0	0			-9.8	4.4
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	8	19	10	12	8	3	3	2	3	2.5	-2.1	-9.5	-1.5
Non-Energy Uses	6	0	0	0	0	0	0	0	0				
Final Energy Demand	332	451	408	528	592	647	684	699	712	2.1	3.8	1.5	0.4
by sector													
Industry	0	42	43	46	49	53	59	66	72		1.3	1.9	2.0
- energy intensive industries	0	0	0	0	0	0	0	0	0				
- other industrial sectors	0	42	43	46	49	53	59	66	72		1.3	1.9	2.0
Residential	55	73	76	89	101	114	120	122	124	3.2	2.9	1.7	0.3
Tertiary	56	32	52	66	68	77	81	86	88	-0.7	2.7	1.8	0.8
Transport	221	304	237	328	374	402	423	425	427	0.7	4.6	1.3	0.1
by fuel													
Solids	0	0	0	0	0	0	0	0	0				
Oil	254	342	274	373	429	452	459	442	432	0.8	4.6	0.7	-0.6
Gas	0	0	0	0	0	0	0	0	0			2.1	2.5
Electricity	78	108	135	155	157	173	193	221	241	5.6	1.6	2.1	2.2
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-9.7	4.4
Renewable energy forms	0	0	0	0	5	22	32	35	39			20.2	2.1
Other	0	0	0	0	0	0	0	0	0			14.5	2.1
RES in Gross Final Energy Consumption ^(A)			0	0	5	25	42	52	58			23.6	3.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.3	2.6	2.6	2.3	2.3	2.9	1.7	-2.1	-1.2
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.8	2.2	2.2	1.8	1.8	3.0	1.7	-2.5	-1.8
Power generation/District heating	1.0	1.5	1.6	1.9	1.5	0.8	0.8	0.5	0.5	4.4	-0.2	-6.1	-4.2
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-1.8	4.2	-2.6	-10.4
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		5.9	-4.5	
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.3	1.3	1.3	0.7	4.7	1.1	0.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	-0.1	1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	156.3	126.4	126.0	110.9	111.3				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: EC proposal with JI/CDM & RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5	
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8	
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	180.3	135.1	116.1	93.2	84.3	-1.9	0.5	-4.3	-3.2	
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.03	2.64	2.54	2.28	2.22	0.1	-0.2	-1.7	-1.4	
Import Dependency %	100.0	104.5	100.8	100.0	99.5	97.3	95.7	94.3	93.9					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.8	0.9	1.0		6.3	1.9	1.6	
as % of GDP			8.3	12.2	13.3	11.9	11.2	10.6	9.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.3	81.9	77.0	73.4	71.0		-1.4	-1.2	-0.8	
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	114.2	108.7	93.5	81.0	72.9	-1.6	1.3	-2.0	-2.5	
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	119.8	113.7	96.6	87.4	79.3	-5.9	1.8	-2.1	-2.0	
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.0	56.9	55.9	52.5	50.1	-3.8	2.2	-0.4	-1.1	
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	166.9	162.4	152.7	144.5	138.6	2.5	4.8	-0.9	-1.0	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.77	0.65	0.59	0.32	0.31	-1.3	-0.6	-2.6	-6.1	
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.08	2.00	1.89	1.82	-1.3	0.9	-0.8	-1.0	
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.14	0.98	0.74	0.42	0.24	-4.9	1.3	-4.3	-10.7	
Tertiary	0.00	0.00	0.50	0.49	0.68	0.53	0.36	0.19	0.11		3.1	-6.2	-11.1	
Transport	2.97	2.96	2.98	3.00	2.99	2.98	2.96	2.95	2.93	0.0	0.1	-0.1	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.8	3.8	6.1	7.3	8.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.4	1.6	2.1					
Gross Electricity generation by source (in GWh)														
			1917	2240	1995	1277	1388	1616	1703		0.4	-3.6	2.1	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1621	859	832	115	108		-1.7	-6.4	-18.4	
Gas (including derived gases)			0	0	375	380	432	1308	1375			1.4	12.3	
Biomass-waste			0	0	0	2	10	17	17				5.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	36	113	177	203				6.0	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	538	559	536	639	702		1.3	0.0	2.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	15	46	72	83				6.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	15	46	72	83				6.1	
Solar			0	0	0	0	0	0	0					
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	538	544	490	567	620		1.3	-0.9	2.4	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	50	51	223	273	326			16.1	3.9	
Oil fired			472	483	488	493	266	292	292		0.3	-5.9	0.9	
Biomass-waste fired			0	0	0	0	1	2	2				5.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	40.4	25.4	28.8	28.4	27.2					
Efficiency of gross thermal power generation (%)			33.4	33.2	34.7	39.1	40.0	57.0	57.4					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	3.0	8.9	12.0	12.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	3.0	8.9	12.0	12.9					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.2	6.7	7.1	5.2	2.3	2.1	1.4	
Public road transport	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	5.9	1.8	1.5	1.3	
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	2.0	2.0	2.1	2.2	4.4	2.4	1.2	0.6	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.5	3.9	4.2	5.6	2.4	2.8	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.3	0.0	
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.3	0.0	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	374	402	423	425	427	0.7	4.6	1.3	0.1	
Public road transport	5	11	10	12	14	15	16	16	16	5.8	4.0	1.2	-0.2	
Private cars and motorcycles	87	160	89	142	174	188	204	206	209	0.2	6.9	1.6	0.3	
Trucks	57	59	52	84	83	82	78	74	71	-0.8	4.7	-0.6	-1.0	
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	103	117	126	129	132	1.8	1.8	2.0	0.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	22	37	51	15	21	25	199.9	128.8	101.6
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	22	37	51	15	21	25	199.9	128.8	101.6
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	3	10	17	3	7	13		331.7	272.7
Solar and others	0	0	0	19	28	33	12	14	13	158.3	96.2	62.1
Geothermal	0	0	0	0	0	0	0	0	0	177.7	145.4	161.3
Net Imports	611	818	953	802	823	772	-108	-81	-87	-11.9	-9.0	-10.1
Solids	0	0	0	0	0	0	0	0	0	-9.2	-35.7	-76.1
Oil	611	818	953	667	667	451	-109	-36	-62	-14.0	-5.1	-12.0
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	667	667	451	-109	-36	-62	-14.0	-5.1	-12.0
Natural gas	0	0	0	58	64	202	1	-42	-18	1.5	-39.6	-8.1
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	824	861	822	-93	-60	-61	-10.2	-6.6	-6.9
Solids	0	0	0	0	0	0	0	0	0	-9.2	-35.7	-76.1
Oil	581	769	953	667	667	451	-109	-36	-62	-14.0	-5.1	-12.0
Natural gas	0	0	0	58	64	202	1	-42	-18	1.5	-39.6	-8.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	26	45	61	15	17	18	129.3	63.4	42.8
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	81.0	77.5	54.9	-3.6	1.2	-3.2			
Natural gas	0.0	0.0	0.0	7.0	7.5	24.6	0.8	-4.1	-0.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	3.2	5.2	7.4	1.9	2.2	2.6			
Gross Electricity Generation in GWh_e	1100	1917	2240	1277	1388	1703	-296	-250	-11	-18.8	-15.3	-0.6
Self consumption and grid losses	190	350	438	117	129	154	-32	-19	-6	-21.4	-13.0	-3.7
Fuel Inputs to Thermal Power Generation	321	494	580	273	274	225	-100	-54	-26	-26.8	-16.4	-10.4
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	215	208	19	-100	-7	0	-31.7	-3.1	-0.3
Gas (including derived gases)	0	0	0	58	64	202	1	-42	-18	1.5	-39.6	-8.1
Biomass & Waste	0	0	0	0	2	3	-1	-5	-8	-68.4	-73.1	-72.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	3	5	8	0	1	1	16.5	31.9	17.0
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	3	5	8	0	1	1	16.8	32.6	17.0
District heating	0	0	0	0	0	0	0	0	0	4.9	-41.0	23.2
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	3	3	-2	-1	-1	-37.6	-21.0	-17.9
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	647	684	712	-19	-34	-49	-2.9	-4.8	-6.4
by sector												
Industry	0	43	46	53	59	72	-2	-2	-2	-2.8	-3.7	-2.7
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	53	59	72	-2	-2	-2	-2.8	-3.7	-2.7
Residential	55	76	89	114	120	124	0	-4	-10	0.0	-3.4	-7.3
Tertiary	56	52	66	77	81	88	-10	-12	-13	-11.5	-13.3	-12.5
Transport	221	237	328	402	423	427	-8	-15	-24	-1.9	-3.5	-5.4
by fuel												
Solids	0	0	0	0	0	0	0	0	0	-9.2	-35.7	-76.1
Oil	254	274	373	452	459	432	-9	-29	-62	-1.9	-5.9	-12.5
Gas	0	0	0	0	0	0	0	0	0	16.5	-1.8	-3.5
Electricity	78	135	155	173	193	241	-23	-20	0	-11.6	-9.3	-0.2
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	4.9	-41.0	23.1
Renewable energy forms	0	0	0	22	32	39	12	15	14	125.4	84.6	52.9
Other	0	0	0	0	0	0	0	0	0	4.0	4.4	-4.7
RES in Gross Final Energy Consumption ^(A)	0	0	0	25	42	58	15	20	23	147.0	88.7	65.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.6	2.3	-0.4	-0.2	-0.3	-12.0	-7.9	-9.7
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.2	2.2	1.8	-0.3	-0.2	-0.2	-13.7	-8.6	-11.0
Power generation/District heating	1.0	1.6	1.9	0.8	0.8	0.5	-0.3	-0.1	0.0	-27.9	-12.7	-7.3
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-21.5	-21.5	-17.1
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	-21.1	-69.6
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.3	-25.8	-75.8
Transport	0.7	0.7	1.0	1.2	1.3	1.3	0.0	-0.1	-0.1	-2.1	-4.0	-6.4
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-3.1	-4.5	-4.8
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	126.4	126.0	111.3	-17.2	-10.8	-12.0			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Malta: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	135.1	116.1	84.3	-15.3	-8.1	-6.3	-10.2	-6.6	-6.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.64	2.54	2.22	-0.11	-0.06	-0.10	-4.0	-2.2	-4.3
Import Dependency %	100.0	100.8	100.0	97.3	95.7	93.9	-1.9	-2.6	-3.3			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.8	1.0	0.0	0.0	0.0	0.7	0.8	1.0
as % of GDP		8.3	12.2	11.9	11.2	9.9	0.1	0.1	0.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.09	0.10	0.10						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	81.9	77.0	71.0	-2.3	-2.9	-2.0	-2.8	-3.7	-2.7
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	108.7	93.5	72.9	0.0	-3.3	-5.8	0.0	-3.4	-7.3
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	113.7	96.6	79.3	-14.7	-14.8	-11.3	-11.5	-13.3	-12.5
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	56.9	55.9	50.1	-0.4	-0.8	-1.4	-0.8	-1.5	-2.8
Freight transport (toe/Mtkm)	81.8	104.3	167.6	162.4	152.7	138.6	-3.8	-8.3	-12.5	-2.3	-5.1	-8.2
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.65	0.59	0.31	-0.08	0.02	-0.02	-11.2	3.0	-6.7
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.08	2.00	1.82	0.02	-0.02	-0.12	1.0	-1.2	-6.4
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-19.3	-18.5	-14.8
Residential	1.66	1.01	1.10	0.98	0.74	0.24	0.00	-0.17	-0.49	0.1	-18.3	-67.2
Tertiary	0.00	0.50	0.49	0.53	0.36	0.11	0.04	-0.06	-0.29	9.2	-14.4	-72.3
Transport	2.97	2.98	3.00	2.98	2.96	2.93	-0.01	-0.02	-0.03	-0.2	-0.5	-1.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		0.0	0.0	3.8	6.1	8.0	2.3	3.0	3.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	0.9	1.4	2.1	0.1	0.4	0.4			
Gross Electricity generation by source (in GWh_e)												
	1917	2240	1277	1388	1703	1703	-296	-250	-11	-18.8	-15.3	-0.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	859	832	108	108	-334	-26	0	-28.0	-3.1	-0.3
Gas (including derived gases)	0	0	380	432	1375	1375	6	-284	-115	1.5	-39.6	-7.7
Biomass-waste	0	0	2	10	17	17	-4	-28	-45	-68.4	-73.2	-72.9
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	36	113	203	203	36	87	149		331.7	272.7
Solar	0	0	0	0	0	0	0	0	0			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	472	483	559	536	702	702	16	-18	63	2.9	-3.3	9.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	0	0	15	46	83	83	15	36	62		358.6	297.6
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	15	46	83	83	15	36	62		358.6	297.6
Solar	0	0	0	0	0	0	0	0	0			
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	472	483	544	490	620	620	0	-54	1	0.1	-10.0	0.2
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	51	223	326	326	-1	-51	8	-1.2	-18.6	2.5
Oil fired	472	483	493	266	292	292	1	0	-1	0.3	0.0	-0.5
Biomass-waste fired	0	0	0	1	2	2	0	-3	-5	-68.4	-73.2	-72.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	43.6	49.5	25.4	28.8	27.2	27.2	-6.5	-4.0	-2.8			
Efficiency of gross thermal power generation (%)	33.4	33.2	39.1	40.0	57.4	57.4	2.8	-2.3	0.5			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.0	8.9	12.9	12.9	2.6	5.0	6.1			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.0	8.9	12.9	12.9	2.6	5.0	6.1			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	2.4	4.0	4.4	5.6	6.2	7.1	0.0	-0.1	-0.1	-0.7	-1.2	-1.6
Private cars and motorcycles	0.3	0.5	0.5	0.6	0.6	0.7	0.0	0.0	0.0	2.1	2.8	3.2
Rail	0.9	1.4	1.6	2.0	2.0	2.2	0.0	0.0	0.0	-0.2	-0.5	-0.7
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	1.2	2.1	2.3	3.1	3.5	4.2	0.0	-0.1	-0.1	-1.6	-2.4	-2.8
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.2
Rail	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-1.3	-1.9	-2.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	221	237	328	402	423	427	-8	-15	-24	-1.9	-3.5	-5.4
Private cars and motorcycles	5	10	12	15	16	16	0	0	-1	-0.6	-2.2	-5.3
Trucks	87	89	142	188	204	209	-3	-5	-9	-1.5	-2.4	-4.0
Rail	57	52	84	82	78	71	-3	-6	-8	-3.5	-6.9	-10.3
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	72	86	90	117	126	132	-2	-4	-7	-1.7	-3.3	-4.7
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	60478	65988	57172	61834	57107	57520	56278	48960	42437	-0.6	0.0	-0.1	-2.8	
Solids	0	0	0	0	0	0	0	0	0					
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0				
Natural gas	54613	60456	51904	56265	53300	51928	48624	40100	32670	-0.5	0.3	-0.9	-3.9	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Renewable energy sources	956	933	1831	2242	2785	4569	6629	7825	8722	6.7	4.3	9.1	2.8	
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0	
Biomass & Waste	942	894	1739	2035	2202	3157	4492	5162	5632	6.3	2.4	7.4	2.3	
Wind	5	27	71	178	440	706	1014	1451	1704	30.9	20.0	8.7	5.3	
Solar and others	2	4	9	22	134	697	1114	1203	1378	15.5	31.0	23.6	2.1	
Geothermal	0	0	0	0	0	0	0	0	0			4.9	2.2	
Net Imports	17443	16359	34331	36912	40015	42900	44287	52166	59617	7.0	1.5	1.0	3.0	
Solids	9574	8921	8222	8313	4775	7153	7112	5636	5548	-1.5	-5.3	4.1	-2.5	
Oil	30876	32829	41673	47392	49911	50319	50484	51027	51675	3.0	1.8	0.1	0.2	
- Crude oil and Feedstocks	47956	59277	60955	61302	65878	66307	66623	67206	67891	2.4	0.8	0.1	0.2	
- Oil products	-17080	-26448	-19282	-13910	-15966	-15988	-16139	-16179	-16216					
Natural gas	-23799	-26370	-17191	-20941	-16631	-16203	-15172	-6711	225					
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Gross Inland Consumption	67059	73374	75712	80963	79516	82094	81513	81392	81771	1.2	0.5	0.2	0.0	
Solids	9206	9098	8035	8190	4775	7153	7112	5636	5548	-1.4	-5.1	4.1	-2.5	
Oil	24415	27242	28496	32027	32307	31993	31432	31293	31393	1.6	1.3	-0.3	0.0	
Natural gas	30810	34085	34711	35324	36669	35725	33452	33389	32895	1.2	0.6	-0.9	-0.2	
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2	
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Renewable energy forms	956	933	1831	2817	3407	5460	7898	9283	10313	6.7	6.4	8.8	2.7	
as % in Gross Inland Consumption														
Solids	13.7	12.4	10.6	10.1	6.0	8.7	8.7	6.9	6.8					
Oil	36.4	37.1	37.6	39.6	40.6	39.0	38.6	38.4	38.4					
Natural gas	45.9	46.5	45.8	43.6	46.1	43.5	41.0	41.0	40.2					
Nuclear	1.3	1.4	1.3	1.3	1.3	1.2	1.3	1.3	1.3					
Renewable energy forms	1.4	1.3	2.4	3.5	4.3	6.7	9.7	11.4	12.6					
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	105954	121115	121722	129734	139833	2.2	1.7	1.4	1.4	
Self consumption and grid losses	5554	6853	7752	8521	8578	10121	10018	10791	11411	3.4	1.0	1.6	1.3	
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16556	18597	18193	17896	18652	2.2	-1.0	0.9	0.2	
Solids	5698	5900	5114	4958	1509	3888	3990	2640	2639	-1.1	-11.5	10.2	-4.0	
Oil (including refinery gas)	702	876	618	640	0	1	0	2	0	-1.3			-0.7	
Gas (including derived gases)	7651	9466	11071	11913	13225	12150	10558	10865	11126	3.8	1.8	-2.2	0.5	
Biomass & Waste	570	601	1430	2052	1822	2559	3646	4389	4888	9.6	2.5	7.2	3.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	72281	83698	85058	89914	88105	88636	88791	88995	89258	1.6	0.4	0.1	0.1	
Refineries	68767	80009	82188	86416	84181	84328	84081	84344	84590	1.8	0.2	0.0	0.1	
Biofuels and hydrogen production	0	0	0	0	327	812	1428	1543	1653			15.9	1.5	
District heating	0	0	0	436	545	488	458	429	401			-1.7	-1.3	
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3008	2824	2679	2613	-2.0	0.6	-0.8	-0.8	
Energy Branch Consumption	5410	6247	5484	6580	6450	6529	6466	6434	6441	0.1	1.6	0.0	0.0	
Non-Energy Uses	9495	9406	9579	12301	13233	13705	13786	13830	13805	0.1	3.3	0.4	0.0	
Final Energy Demand	42924	47670	50125	51588	52181	53298	53121	53404	53957	1.6	0.4	0.2	0.2	
by sector														
Industry	12643	12714	13812	14597	15382	16067	16195	16348	16478	0.9	1.1	0.5	0.2	
- energy intensive industries	9577	8701	9885	10367	10965	11529	11616	11722	11775	0.3	1.0	0.6	0.1	
- other industrial sectors	3066	4012	3927	4231	4417	4538	4580	4627	4704	2.5	1.2	0.4	0.3	
Residential	9932	11124	10286	10335	9920	10061	9734	9827	10039	0.4	-0.4	-0.2	0.3	
Tertiary	9993	11429	12207	11587	11093	10905	10744	10552	10296	2.0	-1.0	-0.3	-0.4	
Transport	10356	12404	13820	15068	15786	16265	16448	16678	17143	2.9	1.3	0.4	0.4	
by fuel														
Solids	1755	1461	1352	1515	1516	1556	1536	1500	1448	-2.6	1.1	0.1	-0.6	
Oil	12790	14685	16469	17366	17860	17897	17538	17597	17858	2.6	0.8	-0.2	0.2	
Gas	21244	22515	21008	20335	19918	19267	18283	17662	16760	-0.1	-0.5	-0.9	-0.9	
Electricity	6322	7143	8421	8986	9232	9799	9714	10497	11134	2.9	0.9	0.5	1.4	
Heat (from CHP and District Heating)	439	1568	2558	2981	2847	3038	3390	3317	3689	19.3	1.1	1.8	0.8	
Renewable energy forms	374	298	317	405	807	1739	2657	2827	3063	-1.6	9.8	12.7	1.4	
Other	0	0	0	0	1	2	4	5	5			13.6	2.4	
RES in Gross Final Energy Consumption (A)			940	1828	2972	4955	7170	8437	9376		12.2	9.2	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.2	207.6	200.5	190.2	187.1	0.1	-0.2	-0.6	-0.7	
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.7	165.0	157.9	151.6	150.6	0.9	-0.4	-0.1	-0.5	
Power generation/District heating	43.3	49.1	48.9	51.1	38.9	45.6	42.2	37.6	38.1	1.2	-2.3	0.8	-1.0	
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.3	14.1	14.0	14.0	-0.4	1.0	-0.2	-0.1	
Industry	27.0	25.1	24.8	25.4	26.9	27.6	26.4	25.9	24.8	-0.8	0.8	-0.2	-0.6	
Residential	19.2	20.6	18.9	17.8	16.4	15.6	15.0	14.8	14.5	-0.2	-1.4	-0.9	-0.3	
Tertiary	18.9	20.7	19.5	18.1	17.3	16.0	15.3	14.1	13.0	0.3	-1.2	-1.3	-1.6	
Transport	30.1	36.2	40.5	44.4	45.7	46.0	44.9	45.2	46.2	3.0	1.2	-0.2	0.3	
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.8	11.9	12.1	12.2	-1.5	2.1	0.5	0.3	
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	42.1	30.8	30.7	26.5	24.3	24.3	-2.2	-0.2	-3.1	-2.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.5	95.9	92.6	87.9	86.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Netherlands: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.1	127.4	116.0	107.0	100.8	-2.0	-1.4	-1.7	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	2.01	1.94	1.86	1.84	-0.4	-0.9	-0.4	-0.5
Import Dependency %	22.4	19.3	38.6	37.8	41.2	42.7	44.0	51.6	58.4				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	67.0	72.9	77.5	81.3		3.3	1.8	1.1
as % of GDP			9.2	10.4	10.5	10.4	10.4	10.2	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	96.6	91.5	87.0	83.6	-1.1	0.1	-0.9	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.4	74.8	66.8	62.8	60.6	-2.9	-2.0	-2.0	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	63.6	57.6	52.3	47.8	-1.5	-3.2	-2.2	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.7	43.0	40.3	38.8	1.7	0.3	-1.2	-1.0
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	36.2	34.0	32.7	31.5	0.8	-0.3	-1.2	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.28	0.25	0.21	0.20	-3.4	-3.9	-0.5	-2.1
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	1.97	1.91	1.87	1.83	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.71	1.63	1.59	1.51	-1.7	-0.3	-0.7	-0.8
Residential	1.93	1.85	1.84	1.72	1.66	1.55	1.54	1.50	1.44	-0.5	-1.0	-0.7	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.47	1.42	1.34	1.26	-1.7	-0.2	-0.9	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.6	9.1	13.2	15.4	17.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.3	11.1	11.8				
Gross Electricity generation by source (in GWh)													
			89599	100202	105954	121115	121722	129734	139833		1.7	1.4	1.4
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5267	19072	19523	15123	15120		-13.4	14.0	-2.5
Oil (including refinery gas)			3769	1651	1231	371	375	167	110		-10.6	-11.2	-11.6
Gas (including derived gases)			55039	64687	83200	77705	68878	72339	77059		4.2	-1.9	1.1
Biomass-waste			3772	6720	6907	11153	16368	19564	21786		6.2	9.0	2.9
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8209	11793	16870	19816		20.0	8.7	5.3
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	78	343	374	374	374				17.0
Net Generation Capacity in MW_e			20113	19871	25599	27537	27990	31879	34764		2.4	0.9	2.2
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3354	3649	5135	7273	8602		21.1	4.4	5.3
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3134	4381	6254	7240		21.5	3.4	5.2
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	40	178	194	194	194				17.0
<u>Thermal power</u>			19116	17718	21739	23376	22341	24065	25615		1.3	0.3	1.4
of which cogeneration units			9089	9231	9606	10273	10796	11179	12025		0.6	1.2	1.1
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15286	14502	13312	15431	17944		1.2	-1.4	3.0
Oil fired			839	825	809	633	618	475	453		-0.4	-2.6	-3.1
Biomass-waste fired			533	1022	1470	2315	3083	3593	4023		10.7	7.7	2.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.5	48.2	47.6	44.6	44.2				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.2	50.1	49.7	51.5	52.6				
% of gross electricity from CHP			32.0	37.6	43.3	40.2	45.0	44.3	47.7				
Carbon free gross electricity generation (%)			9.7	12.9	15.3	19.8	27.1	32.5	34.0				
- nuclear			4.4	4.0	3.7	3.3	3.3	3.6	3.4				
- renewable energy forms			5.3	8.9	11.6	16.5	23.8	28.8	30.6				
Transport sector													
Passenger transport activity (Gpkm)	175.3	177.6	189.5	198.2	213.9	232.4	249.5	268.8	288.6	0.8	1.2	1.6	1.5
Public road transport	13.0	12.0	11.3	11.7	12.3	12.6	13.0	13.2	13.4	-1.4	0.9	0.6	0.3
Private cars and motorcycles	138.7	133.2	143.4	149.5	160.2	171.7	181.8	193.1	204.0	0.3	1.1	1.3	1.2
Rail	12.3	17.7	16.1	16.3	17.5	19.4	21.7	24.2	26.9	2.7	0.8	2.2	2.2
Aviation	9.8	13.5	17.8	19.7	23.1	27.7	32.0	37.2	43.2	6.2	2.6	3.3	3.0
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.1	1.1
Freight transport activity (Gtkm)	94.8	105.7	125.4	131.6	142.1	155.6	168.0	178.7	188.7	2.8	1.3	1.7	1.2
Trucks	56.1	67.1	79.6	84.2	90.8	99.0	106.7	114.7	121.3	3.6	1.3	1.6	1.3
Rail	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.7	3.9	3.0	2.2	1.4
Inland navigation	35.7	35.5	41.3	42.2	45.2	49.7	53.7	55.9	58.7	1.5	0.9	1.7	0.9
Energy demand in transport (ktoe)	10356	12404	13820	15068	15786	16265	16448	16678	17143	2.9	1.3	0.4	0.4
Public road transport	104	105	95	91	90	87	84	82	80	-0.9	-0.5	-0.7	-0.5
Private cars and motorcycles	5043	5525	5286	5999	6179	6178	6108	6007	6085	0.5	1.6	-0.1	0.0
Trucks	2899	3325	4254	4933	5140	5307	5378	5513	5617	3.9	1.9	0.5	0.4
Rail	147	162	176	172	183	190	183	166	149	1.8	0.4	0.0	-2.0
Aviation	1608	2589	3343	3670	3976	4269	4445	4654	4945	7.6	1.8	1.1	1.1
Inland navigation	556	697	667	204	217	235	250	256	266	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	57520	56278	42437	1314	2310	3774	2.3	4.3	9.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	51928	48624	32670	-52	-556	0	-0.1	-1.1	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4569	6629	8722	1366	2866	3774	42.7	76.2	76.3
Hydro	7	12	8	9	9	9	0	0	0	0.2	0.1	0.0
Biomass & Waste	942	1739	2035	3157	4492	5632	772	1647	1892	32.4	57.9	50.6
Wind	5	71	178	706	1014	1704	80	373	892	12.9	58.2	109.8
Solar and others	2	9	22	697	1114	1378	513	846	990	279.0	315.6	255.8
Geothermal	0	0	0	0	0	0	0	0	0	43.9	88.6	132.6
Net Imports	17443	34331	36912	42900	44287	59617	-6580	-10365	-13700	-13.3	-19.0	-18.7
Solids	9574	8222	8313	7153	7112	5548	-3101	-4518	-7088	-30.2	-38.8	-56.1
Oil	30876	41673	47392	50319	50484	51675	-898	-1692	-2352	-1.8	-3.2	-4.4
- Crude oil and Feedstocks	47956	60955	61302	66307	66623	67891	-858	-1567	-2335	-1.3	-2.3	-3.3
- Oil products	-17080	-19282	-13910	-15988	-16139	-16216	-41	-125	-17	0.3	0.8	0.1
Natural gas	-23799	-17191	-20941	-16203	-15172	225	-2799	-4621	-4794	20.9	43.8	-95.5
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	82094	81513	81771	-5257	-8027	-9880	-6.0	-9.0	-10.8
Solids	9206	8035	8190	7153	7112	5548	-3101	-4518	-7088	-30.2	-38.8	-56.1
Oil	24415	28496	32027	31993	31432	31393	-890	-1664	-2307	-2.7	-5.0	-6.8
Natural gas	30810	34711	35324	35725	33452	32895	-2850	-5177	-4794	-7.4	-13.4	-12.7
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5460	7898	10313	1584	3331	4309	40.9	72.9	71.8
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	8.7	8.7	6.8	-3.0	-4.3	-7.0			
Oil	36.4	37.6	39.6	39.0	38.6	38.4	1.3	1.6	1.6			
Natural gas	45.9	45.8	43.6	43.5	41.0	40.2	-0.6	-2.1	-0.9			
Nuclear	1.3	1.3	1.3	1.2	1.3	1.3	0.1	0.1	0.1			
Renewable energy forms	1.4	2.4	3.5	6.7	9.7	12.6	2.2	4.6	6.1			
Gross Electricity Generation in GWh_e	71824	89599	100202	121115	121722	139833	-17356	-29814	-28277	-12.5	-19.7	-16.8
Self consumption and grid losses	5554	7752	8521	10121	10018	11411	-1429	-2511	-4024	-12.4	-20.0	-26.1
Fuel Inputs to Thermal Power Generation	14621	18233	19563	18597	18193	18652	-3587	-6215	-6665	-16.2	-25.5	-26.3
Solids	5698	5114	4958	3888	3990	2639	-3134	-4517	-7087	-44.6	-53.1	-72.9
Oil (including refinery gas)	702	618	640	1	0	0	1	0	0	11839.8	102.3	107.3
Gas (including derived gases)	7651	11071	11913	12150	10558	11126	-1331	-3342	-1696	-9.9	-24.0	-13.2
Biomass & Waste	570	1430	2052	2559	3646	4888	877	1644	2118	52.2	82.1	76.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88636	88791	89258	-762	-1236	-2153	-0.9	-1.4	-2.4
Refineries	68767	82188	86416	84328	84081	84590	-875	-1586	-2354	-1.0	-1.9	-2.7
Biofuels and hydrogen production	0	0	0	812	1428	1653	97	299	173	13.5	26.5	11.7
District heating	0	0	436	488	458	401	-31	-4	-33	-6.0	-0.8	-7.7
Derived gases, cokeries etc.	3514	2870	3062	3008	2824	2613	47	55	61	1.6	2.0	2.4
Energy Branch Consumption	5410	5484	6580	6529	6466	6441	-173	-296	-459	-2.6	-4.4	-6.7
Non-Energy Uses	9495	9579	12301	13705	13786	13805	-11	-13	-14	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	52398	53121	53957	-2992	-4501	-5706	-5.3	-7.8	-9.6
by sector												
Industry	12643	13812	14597	16067	16195	16478	-348	-522	-793	-2.1	-3.1	-4.6
- energy intensive industries	9577	9885	10367	11529	11616	11775	-194	-332	-514	-1.7	-2.8	-4.2
- other industrial sectors	3066	3927	4231	4538	4580	4704	-155	-190	-279	-3.3	-4.0	-5.6
Residential	9932	10286	10335	10061	9734	10039	-562	-1061	-1022	-5.3	-9.8	-9.2
Tertiary	9993	12207	11587	10905	10744	10296	-1389	-1685	-2225	-11.3	-13.6	-17.8
Transport	10356	13820	15068	16265	16448	17143	-692	-1232	-1666	-4.1	-7.0	-8.9
by fuel												
Solids	1755	1352	1515	1556	1536	1448	5	-44	-47	0.3	-2.8	-3.2
Oil	12790	16469	17366	17897	17538	17858	-843	-1557	-2178	-4.5	-8.2	-10.9
Gas	21244	21008	20335	19267	18283	16760	-1377	-1528	-2790	-6.7	-7.7	-14.3
Electricity	6322	8421	8986	9799	9714	11134	-1367	-2339	-2074	-12.2	-19.4	-15.7
Heat (from CHP and District Heating)	439	2558	2981	3038	3390	3689	17	-115	256	0.6	-3.3	7.5
Renewable energy forms	374	317	405	1739	2657	3063	574	1082	1130	49.2	68.8	58.4
Other	0	0	0	2	4	5	0	0	-2	7.1	6.0	-30.4
RES in Gross Final Energy Consumption ^(A)		940	1828	4955	7170	9376	1504	3070	4005	43.6	74.9	74.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	207.6	200.5	187.1	-25.8	-41.0	-51.8	-11.0	-17.0	-21.7
CO₂ Emissions (energy related)	152.2	165.8	171.6	165.0	157.9	150.6	-21.5	-34.9	-46.0	-11.5	-18.1	-23.4
Power generation/District heating	43.3	48.9	51.1	45.6	42.2	38.1	-15.5	-26.0	-32.2	-25.4	-38.1	-45.8
Energy Branch	13.7	13.1	14.8	14.3	14.1	14.0	-0.3	-0.5	-0.6	-1.9	-3.5	-3.9
Industry	27.0	24.8	25.4	27.6	26.4	24.8	0.0	0.1	-1.7	0.0	0.3	-6.3
Residential	19.2	18.9	17.8	15.6	15.0	14.5	-1.7	-1.9	-2.1	-9.6	-11.3	-12.5
Tertiary	18.9	19.5	18.1	16.0	15.3	13.0	-1.7	-2.0	-3.7	-9.7	-11.8	-22.2
Transport	30.1	40.5	44.4	46.0	44.9	46.2	-2.3	-4.5	-5.8	-4.9	-9.2	-11.1
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.8	11.9	12.2	0.1	0.0	-0.1	0.6	-0.2	-1.1
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	30.8	30.7	24.3	-4.3	-6.1	-5.6	-12.2	-16.5	-18.9
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	95.9	92.6	86.4	-11.9	-18.9	-23.9			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Netherlands: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	127.4	116.0	100.8	-8.2	-11.4	-12.2	-6.0	-9.0	-10.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.01	1.94	1.84	-0.13	-0.22	-0.30	-5.9	-10.0	-14.1
Import Dependency %	22.4	38.6	37.8	42.7	44.0	58.4	-4.1	-6.3	-7.1			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	67.0	72.9	81.3	1.3	1.1	1.6	2.0	1.6	2.1
as % of GDP		9.2	10.4	10.4	10.4	10.0	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				1.4	1.2	1.7						
as % of GDP				0.21	0.17	0.21						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	96.6	91.5	83.6	-2.1	-2.9	-4.0	-2.1	-3.1	-4.6
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	74.8	66.8	60.6	-4.2	-7.3	-6.2	-5.3	-9.8	-9.2
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	63.6	57.6	47.8	-8.1	-9.0	-10.3	-11.3	-13.6	-17.8
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.7	43.0	38.8	-0.9	-1.6	-2.3	-2.0	-3.5	-5.5
Freight transport (toe/Mtkm)	36.4	39.5	39.6	36.2	34.0	31.5	-1.5	-2.7	-2.7	-4.1	-7.4	-7.9
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.28	0.25	0.20	-0.06	-0.09	-0.13	-17.9	-26.6	-38.7
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	1.97	1.91	1.83	0.00	0.00	-0.05	0.2	0.2	-2.5
Industry	2.14	1.80	1.74	1.71	1.63	1.51	0.04	0.06	-0.03	2.2	3.6	-1.8
Residential	1.93	1.84	1.72	1.55	1.54	1.44	-0.07	-0.03	-0.05	-4.5	-1.6	-3.6
Tertiary	1.89	1.60	1.56	1.47	1.42	1.26	0.03	0.03	-0.07	1.8	2.0	-5.4
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.07	-0.07	-0.8	-2.4	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	9.1	13.2	17.0	3.1	6.2	8.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.3	11.8	0.9	2.8	2.3			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	121115	121722	139833	159833	-17356	-29814	-28277	-12.5	-19.7	-16.8
Nuclear energy	3925	3996	3967	3971	4733	4733	0	0	0	0.0	0.0	0.0
Solids	22115	20959	19072	19523	15120	15120	-13851	-19961	-40832	-42.1	-50.6	-73.0
Oil (including refinery gas)	3769	1651	371	375	110	110	-18	0	-1	-4.5	0.0	-1.2
Gas (including derived gases)	55039	64687	77705	68878	77059	77059	-8978	-22046	-8047	-10.4	-24.2	-9.5
Biomass-waste	3772	6720	11153	16368	21786	21786	4211	7483	9858	60.7	84.2	82.6
Hydro (pumping excluded)	142	88	99	99	99	99	0	0	0	0.2	0.1	0.0
Wind	829	2067	8209	11793	19816	19816	935	4336	10371	12.9	58.2	109.8
Solar	8	34	195	340	735	735	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	343	374	374	374	343	374	374			
Net Generation Capacity in MW_e												
	20113	19871	27537	27990	34764	34764	-2097	-4043	-1164	-7.1	-12.6	-3.2
<u>Nuclear energy</u>	501	501	512	514	547	547	11	13	0	2.2	2.7	0.0
<u>Renewable energy</u>	495	1653	3649	5135	8602	8602	452	1703	3996	14.1	49.6	86.7
Hydro (pumping excluded)	37	37	37	37	37	37	0	0	0	0.0	0.0	0.0
Wind	446	1565	3134	4381	7240	7240	274	1509	3802	9.6	52.5	110.6
Solar	12	51	300	523	1131	1131	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	178	194	194	194	178	194	194			
<u>Thermal power</u>	19116	17718	23376	22341	25615	25615	-2560	-5759	-5160	-9.9	-20.5	-16.8
of which cogeneration units	9089	9231	10273	10796	12025	12025	-525	-1355	187	-4.9	-11.2	1.6
Solids fired	4171	4171	5926	5327	3194	3194	3	3	-4279	0.1	0.0	-57.3
Gas fired	13574	11700	14502	13312	17944	17944	-3312	-6993	-2671	-18.6	-34.4	-13.0
Oil fired	839	825	633	618	453	453	-62	-44	-228	-8.9	-6.7	-33.5
Biomass-waste fired	533	1022	2315	3083	4023	4023	812	1275	2018	54.0	70.5	100.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	48.2	47.6	44.2	44.2	-3.0	-4.3	-6.7			
Efficiency of gross thermal power generation (%)	39.9	41.3	50.1	49.7	52.6	52.6	0.9	0.5	0.6			
% of gross electricity from CHP	32.0	37.6	40.2	45.0	47.7	47.7	4.0	4.4	9.9			
Carbon free gross electricity generation (%)	9.7	12.9	19.8	27.1	34.0	34.0	6.4	13.4	18.0			
- nuclear	4.4	4.0	3.3	3.3	3.4	3.4	0.4	0.6	0.6			
- renewable energy forms	5.3	8.9	16.5	23.8	30.6	30.6	6.0	12.7	17.4			
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	232.4	249.5	288.6	-3.0	-5.3	-7.5	-1.3	-2.1	-2.5
Public road transport	13.0	11.3	11.7	12.6	13.0	13.4	0.2	0.3	0.4	1.7	2.6	3.1
Private cars and motorcycles	138.7	143.4	149.5	171.7	181.8	204.0	-2.8	-4.9	-6.8	-1.6	-2.6	-3.2
Rail	12.3	16.1	16.3	19.4	21.7	26.9	0.2	0.2	0.4	1.1	1.1	1.5
Aviation	9.8	17.8	19.7	27.7	32.0	43.2	-0.6	-1.0	-1.5	-2.1	-2.9	-3.4
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.6	-0.3	-0.2
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	155.6	168.0	188.7	-2.6	-4.2	-5.7	-1.7	-2.4	-2.9
Trucks	56.1	79.6	84.2	99.0	106.7	121.3	-3.2	-5.0	-6.8	-3.1	-4.5	-5.3
Rail	3.1	4.5	5.2	6.9	7.6	8.7	0.2	0.2	0.3	2.9	3.3	3.8
Inland navigation	35.7	41.3	42.2	49.7	53.7	58.7	0.3	0.6	0.7	0.7	1.1	1.3
Energy demand in transport (ktoe)												
	10356	13820	15068	16265	16448	17143	-692	-1232	-1666	-4.1	-7.0	-8.9
Public road transport	104	95	91	87	84	80	-1	-1	-4	-0.6	-1.7	-4.9
Private cars and motorcycles	5043	5286	5999	6178	6108	6085	-193	-301	-426	-3.0	-4.7	-6.5
Trucks	2899	4254	4933	5307	5378	5617	-339	-608	-701	-6.0	-10.2	-11.1
Rail	147	176	172	190	183	149	-2	-5	-9	-1.1	-2.9	-5.8
Aviation	1608	3343	3670	4269	4445	4945	-157	-316	-523	-3.6	-6.6	-9.6
Inland navigation	556	667	204	235	250	266	0	-1	-3	-0.1	-0.3	-1.0

Source: PRIMES

Poland: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68560	67441	68587	70263	71065	-2.1	-1.6	0.0	0.4	
Solids	94459	91104	71298	68876	56953	53686	51362	46778	41589	-2.8	-2.2	-1.0	-2.1	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	4448	8647					
Renewable energy sources	2369	4763	4256	5016	7657	9955	13526	15587	17529	6.0	6.0	5.9	2.6	
Hydro	139	162	181	189	269	277	286	291	299	2.7	4.0	0.6	0.4	
Biomass & Waste	2230	4600	4072	4806	6865	9011	11264	12558	13760	6.2	5.4	5.1	2.0	
Wind	0	0	0	12	501	538	1468	2038	2625		102.6	11.4	6.0	
Solar and others	0	0	0	0	8	106	479	667	813			50.1	5.4	
Geothermal	0	0	3	9	14	24	29	33	33		17.0	7.4	1.2	
Net Imports	2238	-152	10131	16954	29719	38659	44132	48545	51273	16.3	11.4	4.0	1.5	
Solids	-18913	-21202	-16309	-12482	-6926	-5878	-6893	-6617	-7262					
Oil	14468	15481	20381	21929	26370	30120	32105	33982	35065	3.5	2.6	2.0	0.9	
- Crude oil and Feedstocks	13085	13984	18827	18169	21869	24802	26316	27749	28557	3.7	1.5	1.9	0.8	
- Oil products	1383	1498	1554	3760	4501	5318	5788	6233	6508	1.2	11.2	2.5	1.2	
Natural gas	6773	5810	6607	8531	11223	13588	15696	17808	19772	-0.2	5.4	3.4	2.3	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	97910	105690	112279	118343	121860	-1.0	0.8	1.4	0.8	
Solids	75405	70500	56358	55184	50027	47808	44469	40161	34327	-2.9	-1.2	-1.2	-2.6	
Oil	13399	16003	20759	22525	26751	30409	32364	34168	35186	4.5	2.6	1.9	0.8	
Natural gas	8938	8995	9960	12235	14423	16688	18696	20608	22472	1.1	3.8	2.6	1.9	
Nuclear	0	0	0	0	0	0	0	4448	8647					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7568	11351	17259	19749	22090	6.0	5.9	8.6	2.5	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	51.1	45.2	39.6	33.9	28.2					
Oil	13.4	16.0	22.9	24.0	27.3	28.8	28.8	28.9	28.9					
Natural gas	8.9	9.0	11.0	13.0	14.7	15.8	16.7	17.4	18.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	7.1					
Renewable energy forms	2.4	4.8	4.7	5.3	7.7	10.7	15.4	16.7	18.1					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	155342	166470	178999	195266	217959	0.6	0.8	1.4	2.0	
Self consumption and grid losses	21063	28189	27977	28574	26663	28550	29406	29831	36393	2.9	-0.5	1.0	2.2	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	34355	34617	34726	31408	27487	-1.9	-0.5	0.1	-2.3	
Solids	41138	35842	34793	35942	32599	30880	28320	24486	19692	-1.7	-0.6	-1.4	-3.6	
Oil (including refinery gas)	1236	405	228	179	25	21	309	156	88	-15.6	-19.9	28.8	-11.8	
Gas (including derived gases)	673	488	783	1483	1069	1263	1213	1238	1278	1.5	3.2	1.3	0.5	
Biomass & Waste	372	114	157	546	662	2454	4884	5528	6429	-8.3	15.5	22.1	2.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32911	35812	37845	39531	40324	-1.1	-0.3	1.4	0.6	
Refineries	13160	14929	19949	19591	22880	25803	27337	28731	29488	4.2	1.4	1.8	0.8	
Biofuels and hydrogen production	0	0	0	55	457	990	1925	2318	2476			15.5	2.5	
District heating	9949	5985	4320	3639	3225	3318	3495	3609	3956	-8.0	-2.9	0.8	1.2	
Derived gases, cokeries etc.	14746	12045	9635	8541	6349	5699	5087	4873	4404	-4.2	-4.1	-2.2	-1.4	
Energy Branch Consumption	6809	7655	7401	7680	9514	10134	10382	10747	11304	0.8	2.5	0.9	0.9	
Non-Energy Uses	4193	3646	4218	4354	5145	6272	7257	8185	8944	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	63670	71165	77239	81944	85404	-0.7	1.3	2.0	1.0	
by sector														
Industry	25252	22720	18883	16373	17689	20022	22075	23819	25149	-2.9	-0.7	2.2	1.3	
- energy intensive industries	16252	15428	13374	11149	11572	12695	13655	14575	15372	-1.9	-1.4	1.7	1.2	
- other industrial sectors	9000	7292	5509	5225	6117	7327	8420	9244	9777	-4.8	1.1	3.2	1.5	
Residential	18126	23284	17516	18375	19579	20737	21877	22396	22960	-0.3	1.1	1.1	0.5	
Tertiary	8867	9229	10136	10334	11512	12790	13844	14849	15863	1.3	1.3	1.9	1.4	
Transport	7338	8256	9185	12087	14890	17616	19442	20880	21433	2.3	4.9	2.7	1.0	
by fuel														
Solids	17066	23299	13728	11262	11003	10944	10229	9770	9702	-2.2	-2.2	-0.7	-0.5	
Oil	9104	11582	15452	17798	21135	24168	25429	26970	27180	5.4	3.2	1.9	0.7	
Gas	7987	7735	7447	8400	11006	12415	13794	15058	16251	-0.7	4.0	2.3	1.7	
Electricity	8233	7703	8317	8498	8770	9888	10997	12108	13456	0.1	0.5	2.3	2.0	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6447	7117	7823	7941	8225	-7.8	-0.7	2.0	0.5	
Renewable energy forms	1631	4408	3889	4156	5308	6630	8961	10091	10584	9.1	3.2	5.4	1.7	
Other	0	0	0	0	1	3	5	7	7			16.6	2.9	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6987	10068	14753	17751	20180		5.3	7.8	3.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	368.7	377.6	377.2	363.7	320.0	-1.4	-0.2	0.2	-1.6	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	291.2	296.2	291.7	282.2	240.4	-1.3	0.0	0.0	-1.9	
Power generation/District heating	209.3	169.9	158.8	162.1	146.6	139.7	131.5	116.1	71.3	-2.7	-0.8	-1.1	-5.9	
Energy Branch	5.8	12.7	11.4	10.6	11.8	11.7	11.4	11.8	11.8	6.9	0.4	-0.3	0.3	
Industry	44.0	59.9	46.3	33.2	36.8	41.1	42.5	45.2	47.3	0.5	-2.3	1.5	1.1	
Residential	33.1	44.4	27.9	30.2	32.2	31.6	30.8	30.0	29.2	-1.7	1.4	-0.4	-0.5	
Tertiary	19.4	20.7	20.1	20.4	22.4	24.0	24.4	25.0	25.6	0.4	1.1	0.8	0.5	
Transport	20.5	23.1	25.8	34.3	41.4	48.0	51.0	54.1	55.2	2.3	4.9	2.1	0.8	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.5	17.7	20.3	22.7	4.2	-1.0	4.4	2.5	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	85.8	87.8	87.7	84.6	74.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	325.0	274.3	237.8	209.2	186.2	-4.6	-2.8	-3.1	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.97	2.80	2.60	2.38	1.97	-0.4	-0.7	-1.3	-2.7
Import Dependency %	2.2	-0.2	11.1	18.0	30.2	36.4	39.2	40.9	41.9				
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	48.6	60.6	72.5	82.6	91.1		3.7	4.1	2.3
as % of GDP			16.1	15.8	16.1	15.7	15.4	14.6	13.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.5	51.1	45.3	41.3	39.1	-6.9	-5.1	-2.7	-1.5
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.7	54.8	47.7	40.9	36.1	-5.8	-4.3	-3.0	-2.8
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	81.5	71.6	63.5	56.3	51.1	-2.1	-2.0	-2.5	-2.1
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.9	20.9	2.9	-0.2	-0.5	-1.4
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.4	40.1	38.5	37.0	35.6	0.3	3.9	-0.5	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.58	0.51	0.44	0.37	0.21	0.8	-1.4	-2.7	-7.3
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.09	2.03	1.93	1.88	1.84	0.9	-0.3	-0.8	-0.4
Industry	1.74	2.64	2.45	2.02	2.08	2.05	1.93	1.90	1.88	3.5	-1.6	-0.8	-0.2
Residential	1.83	1.90	1.59	1.64	1.64	1.52	1.41	1.34	1.27	-1.4	0.3	-1.5	-1.0
Tertiary	2.19	2.25	1.98	1.97	1.95	1.88	1.76	1.69	1.61	-1.0	-0.2	-1.0	-0.9
Transport	2.80	2.80	2.81	2.84	2.78	2.73	2.62	2.59	2.57	0.0	-0.1	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.6	13.7	18.5	21.0	22.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.2	5.8	10.4	11.7	12.3				
Gross Electricity generation by source (in GWh)													
			143147	155331	155342	166470	178999	195266	217959		0.8	1.4	2.0
Nuclear energy			0	0	0	0	0	20141	39257				
Solids			134042	141361	131872	130687	117041	103823	97769		-0.2	-1.2	-1.8
Oil (including refinery gas)			2936	2964	987	615	1148	1211	1221		-10.3	1.5	0.6
Gas (including derived gases)			2979	5603	8107	9553	9607	10824	12284		10.5	1.7	2.5
Biomass-waste			1080	3068	5428	16142	30809	32166	33393		17.5	19.0	0.8
Hydro (pumping excluded)			2105	2201	3129	3222	3326	3385	3478		4.0	0.6	0.4
Wind			5	135	5820	6251	17065	23702	30519		102.6	11.4	6.0
Solar			0	0	0	0	3	14	37			25.7	29.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			30194	31711	34977	40374	44971	50244	55170		1.5	2.5	2.1
<u>Nuclear energy</u>			0	0	0	0	0	2325	4531				
<u>Renewable energy</u>			640	1038	3884	4172	9239	12007	14826		19.8	9.1	4.8
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7
Wind			5	124	2906	3099	8079	10756	13550		88.2	10.8	5.3
Solar			0	0	0	0	3	15	40			25.7	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			29554	30673	31093	36202	35731	35912	35813		0.5	1.4	0.0
of which cogeneration units			6632	6800	6898	8365	8948	10408	10926		0.4	2.6	2.0
Solids fired			28139	28775	28755	29745	26850	22406	16944		0.2	-0.7	-4.5
Gas fired			820	1263	1664	1527	1527	2081	2690		7.3	-0.9	5.8
Oil fired			472	474	461	466	466	352	296		-0.2	0.1	-4.5
Biomass-waste fired			122	160	213	4464	6888	11074	15883		5.8	41.6	8.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.2	51.1	47.0	43.5	42.2	41.4	41.1				
Efficiency of gross thermal power generation (%)			33.7	34.5	36.6	39.0	39.3	40.5	45.3				
% of gross electricity from CHP			12.2	12.9	24.1	28.1	25.7	27.8	27.1				
Carbon free gross electricity generation (%)			2.2	3.5	9.3	15.4	28.6	40.7	48.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	10.3	18.0				
- renewable energy forms			2.2	3.5	9.3	15.4	28.6	30.4	30.9				
Transport sector													
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.3	330.0	381.0	435.8	488.1	0.5	2.7	3.1	2.5
Public road transport	46.3	34.0	31.7	29.9	28.8	29.1	31.9	34.4	36.5	-3.7	-1.0	1.0	1.4
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.2	315.4	360.7	403.8	4.1	4.0	3.3	2.5
Rail	55.4	31.6	28.8	22.3	20.6	22.6	25.6	30.1	34.6	-6.3	-3.3	2.2	3.1
Aviation	2.0	2.3	2.6	3.1	4.0	5.8	7.7	10.2	12.8	3.1	4.3	6.7	5.1
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	233.9	267.2	294.9	314.7	0.6	4.0	3.3	1.7
Trucks	40.3	51.2	75.0	111.8	143.3	173.5	197.6	217.9	232.4	6.4	6.7	3.3	1.6
Rail	81.6	68.2	54.0	43.8	49.7	60.0	69.2	76.5	81.8	-4.0	-0.8	3.4	1.7
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7
Energy demand in transport (ktoe)	7338	8256	9185	12087	14890	17616	19442	20880	21433	2.3	4.9	2.7	1.0
Public road transport	314	229	217	190	183	180	188	191	184	-3.6	-1.7	0.3	-0.2
Private cars and motorcycles	3299	4112	4876	5324	6442	7501	8286	8987	9116	4.0	2.8	2.6	1.0
Trucks	2335	2847	3178	5748	7356	8843	9742	10340	10752	3.1	8.8	2.8	1.0
Rail	1095	667	539	502	534	613	638	646	555	-6.8	-0.1	1.8	-1.4
Aviation	196	371	369	319	374	477	586	713	823	6.5	0.1	4.6	3.5
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.3

Source: PRIMES

Poland: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	67441	68587	71065	818	2972	2337	1.2	4.5	3.4
Solids	94459	71298	68876	53686	51362	41589	-192	-165	-2327	-0.4	-0.3	-5.9
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	8647	0	0	280			3.3
Renewable energy sources	2369	4256	5016	9955	13526	17529	1010	3137	4384	11.3	30.2	33.4
Hydro	139	181	189	277	286	299	43	25	0	18.2	9.7	0.0
Biomass & Waste	2230	4072	4806	9011	11264	13760	571	1560	1518	6.8	16.1	12.4
Wind	0	0	12	538	1468	2625	301	1168	2233	127.1	389.5	569.6
Solar and others	0	0	0	106	479	813	82	366	615	343.7	325.3	310.2
Geothermal	0	3	9	24	29	33	13	18	20	125.5	154.9	150.3
Net Imports	2238	10131	16954	38659	44132	51273	-6221	-7802	-8027	-13.9	-15.0	-13.5
Solids	-18913	-16309	-12482	-5878	-6893	-7262	-7725	-10596	-11156	-418.1	-286.1	-286.5
Oil	14468	20381	21929	30120	32105	35065	49	-667	-755	0.2	-2.0	-2.1
- Crude oil and Feedstocks	13085	18827	18169	24802	26316	28557	39	-523	-587	0.2	-1.9	-2.0
- Oil products	1383	1554	3760	5318	5788	6508	10	-144	-168	0.2	-2.4	-2.5
Natural gas	6773	6607	8531	13588	15696	19772	-49	-397	-835	-0.4	-2.5	-4.1
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	105690	112279	121860	-5403	-4829	-5688	-4.9	-4.1	-4.5
Solids	75405	56358	55184	47808	44469	34327	-7917	-10761	-13483	-14.2	-19.5	-28.2
Oil	13399	20759	22525	30409	32364	35186	50	-666	-753	0.2	-2.0	-2.1
Natural gas	8938	9960	12235	16688	18696	22472	-49	-397	-835	-0.3	-2.1	-3.6
Nuclear	0	0	0	0	0	8647	0	0	280			3.3
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	11351	17259	22090	2514	6996	9103	28.5	68.2	70.1
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	45.2	39.6	28.2	-4.9	-7.6	-9.3			
Oil	13.4	22.9	24.0	28.8	28.8	28.9	1.4	0.6	0.7			
Natural gas	8.9	11.0	13.0	15.8	16.7	18.4	0.7	0.3	0.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.5			
Renewable energy forms	2.4	4.7	5.3	10.7	15.4	18.1	2.8	6.6	7.9			
Gross Electricity Generation in GWh_e	134591	143147	155331	166470	178999	217959	-18612	-25193	-18508	-10.1	-12.3	-7.8
Self consumption and grid losses	21063	27977	28574	28550	29406	36393	-3850	-5166	-1160	-11.9	-14.9	-3.1
Fuel Inputs to Thermal Power Generation	43419	35960	38149	34617	34726	27487	-7062	-7325	-9298	-16.9	-17.4	-25.3
Solids	41138	34793	35942	30880	28320	19692	-7939	-10820	-13310	-20.5	-27.6	-40.3
Oil (including refinery gas)	1236	228	179	21	309	88	-10	278	63	-32.1	898.0	253.4
Gas (including derived gases)	673	783	1483	1263	1213	1278	-304	-427	-934	-19.4	-26.0	-42.2
Biomass & Waste	372	157	546	2454	4884	6429	1190	3643	4883	94.2	293.7	315.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	35812	37845	40324	611	402	152	1.7	1.1	0.4
Refineries	13160	19949	19591	25803	27337	29488	38	-524	-588	0.1	-1.9	-2.0
Biofuels and hydrogen production	0	0	55	990	1925	2476	150	514	494	17.8	36.4	24.9
District heating	9949	4320	3639	3318	3495	3956	-99	-78	-248	-2.9	-2.2	-5.9
Derived gases, cokeries etc.	14746	9635	8541	5699	5087	4404	522	490	494	10.1	10.7	12.6
Energy Branch Consumption	6809	7401	7680	10134	10382	11304	-69	-247	16	-0.7	-2.3	0.1
Non-Energy Uses	4193	4218	4354	6272	7257	8944	-16	-22	-20	-0.3	-0.3	-0.2
Final Energy Demand	59583	55720	57169	71165	77239	85404	-81	-209	-63	-0.1	-0.3	-0.1
by sector												
Industry	25252	18883	16373	20022	22075	25149	-96	-312	-337	-0.5	-1.4	-1.3
- energy intensive industries	16252	13374	11149	12695	13655	15372	-127	-341	-370	-1.0	-2.4	-2.3
- other industrial sectors	9000	5509	5225	7327	8420	9777	31	29	32	0.4	0.4	0.3
Residential	18126	17516	18375	20737	21877	22960	226	562	774	1.1	2.6	3.5
Tertiary	8867	10136	10334	12790	13844	15863	-178	-323	-285	-1.4	-2.3	-1.8
Transport	7338	9185	12087	17616	19442	21433	-33	-136	-214	-0.2	-0.7	-1.0
by fuel												
Solids	17066	13728	11262	10944	10229	9702	-437	-634	-726	-3.8	-5.8	-7.0
Oil	9104	15452	17798	24168	25429	27180	681	-171	-154	2.9	-0.7	-0.6
Gas	7987	7447	8400	12415	13794	16251	-17	-248	-142	-0.1	-1.8	-0.9
Electricity	8233	8317	8498	9888	10997	13456	-1279	-1722	-1491	-11.5	-13.5	-10.0
Heat (from CHP and District Heating)	15563	6886	7056	7117	7823	8225	-87	213	144	-1.2	2.8	1.8
Renewable energy forms	1631	3889	4156	6630	8961	10584	1058	2353	2306	19.0	35.6	27.9
Other	0	0	0	3	5	7	0	0	0	1.5	-0.7	-1.7
RES in Gross Final Energy Consumption ^(A)		4153	4481	10068	14753	20180	2469	5839	8145	32.5	65.5	67.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	377.6	377.2	320.0	-31.7	-46.0	-83.1	-7.8	-10.9	-20.6
CO₂ Emissions (energy related)	332.2	290.3	290.7	296.2	291.7	240.4	-31.7	-45.8	-82.9	-9.7	-13.6	-25.6
Power generation/District heating	209.3	158.8	162.1	139.7	131.5	71.3	-31.2	-40.7	-78.8	-18.2	-23.7	-52.5
Energy Branch	5.8	11.4	10.6	11.7	11.4	11.8	-0.9	-1.5	-0.5	-7.4	-11.9	-4.3
Industry	44.0	46.3	33.2	41.1	42.5	47.3	0.8	-1.0	-0.4	1.9	-2.3	-0.9
Residential	33.1	27.9	30.2	31.6	30.8	29.2	-0.1	-0.6	-0.8	-0.5	-1.9	-2.6
Tertiary	19.4	20.1	20.4	24.0	24.4	25.6	0.3	-0.2	-0.4	1.3	-0.7	-1.7
Transport	20.5	25.8	34.3	48.0	51.0	55.2	-0.5	-1.7	-1.9	-1.0	-3.3	-3.3
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.5	17.7	22.7	0.1	-0.2	-0.2	-0.5	-1.2	-1.0
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	66.9	67.8	56.9	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	87.8	87.7	74.4	-7.4	-10.7	-19.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Poland: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	274.3	237.8	186.2	-14.0	-10.2	-8.7	-4.9	-4.1	-4.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.80	2.60	1.97	-0.15	-0.28	-0.56	-5.0	-9.9	-22.2
Import Dependency %	2.2	11.1	18.0	36.4	39.2	41.9	-3.8	-5.0	-4.4			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	60.6	72.5	91.1	1.0	2.0	4.7	1.6	2.8	5.4
as % of GDP		16.1	15.8	15.7	15.4	13.9	0.2	0.4	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.0	2.0	4.7						
as % of GDP				0.25	0.42	0.71						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	51.1	45.3	39.1	-0.2	-0.6	-0.5	-0.5	-1.4	-1.3
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	54.8	47.7	36.1	0.6	1.2	1.2	1.1	2.6	3.5
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	71.6	63.5	51.1	-1.0	-1.5	-0.9	-1.4	-2.3	-1.8
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	25.0	24.0	20.9	0.0	0.0	0.0	0.0	0.0	-0.2
Freight transport (toe/Mtkm)	26.9	27.6	39.4	40.1	38.5	35.6	0.0	-0.1	-0.1	0.0	-0.3	-0.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.51	0.44	0.21	-0.07	-0.10	-0.21	-12.5	-17.8	-50.1
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.03	1.93	1.84	0.01	-0.04	-0.04	0.4	-2.0	-2.1
Industry	1.74	2.45	2.02	2.05	1.93	1.88	0.05	-0.02	0.01	2.3	-0.9	0.4
Residential	1.83	1.59	1.64	1.52	1.41	1.27	-0.02	-0.07	-0.08	-1.5	-4.4	-5.9
Tertiary	2.19	1.98	1.97	1.88	1.76	1.61	0.05	0.03	0.00	2.7	1.6	0.1
Transport	2.80	2.81	2.84	2.73	2.62	2.57	-0.02	-0.07	-0.06	-0.8	-2.6	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	13.7	18.5	22.8	3.4	7.4	9.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.8	10.4	12.3	0.9	2.9	2.6			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	39257	0	0	1263			3.3
Solids	134042	141361	130687	117041	97769	97769	-27608	-58488	-64149	-17.4	-33.3	-39.6
Oil (including refinery gas)	2936	2964	615	1148	1221	1221	-1369	-1020	-451	-69.0	-47.0	-27.0
Gas (including derived gases)	2979	5603	9553	9607	12284	12284	-861	-1331	-3824	-8.3	-12.2	-23.7
Biomass-waste	1080	3068	16142	30809	33393	33393	7231	21773	22692	81.2	241.0	212.1
Hydro (pumping excluded)	2105	2201	3222	3326	3478	3478	497	294	0	18.2	9.7	0.0
Wind	5	135	6251	17065	30519	30519	3498	13579	25961	127.1	389.5	569.6
Solar	0	0	0	3	37	37	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
Nuclear energy		0	0	0	0	4531	0	0	146			3.3
Renewable energy	640	1038	4172	9239	14826	14826	1786	6451	11473	74.9	231.4	342.2
Hydro (pumping excluded)	635	914	1072	1156	1235	1235	0	0	0	0.0	0.0	0.0
Wind	5	124	3099	8079	13550	13550	1786	6451	11473	136.1	396.1	552.4
Solar	0	0	0	3	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Thermal power	29554	30673	36202	35731	35813	35813	3868	-554	188	12.0	-1.5	0.5
of which cogeneration units	6632	6800	8365	8948	10926	10926	1055	954	1830	14.4	11.9	20.1
Solids fired	28139	28775	29745	26850	16944	16944	0	-6846	-11357	0.0	-20.3	-40.1
Gas fired	820	1263	1527	1527	2690	2690	-280	-280	-688	-15.5	-15.5	-20.4
Oil fired	472	474	466	466	296	296	-5	-5	0	-1.2	-1.2	0.0
Biomass-waste fired	122	160	4464	6888	15883	15883	4154	6578	12233	1340.0	2122.0	335.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.2	51.1	43.5	42.2	41.1	41.1	-12.6	-13.0	-16.3			
Efficiency of gross thermal power generation (%)	33.7	34.5	39.0	39.3	45.3	45.3	1.9	-1.1	0.7			
% of gross electricity from CHP	12.2	12.9	28.1	25.7	27.1	27.1	9.7	6.3	9.7			
Carbon free gross electricity generation (%)	2.2	3.5	15.4	28.6	48.9	48.9	7.6	21.0	24.9			
- nuclear	0.0	0.0	0.0	0.0	18.0	18.0	0.0	0.0	1.9			
- renewable energy forms	2.2	3.5	15.4	28.6	30.9	30.9	7.6	21.0	23.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	46.3	31.7	29.9	29.1	31.9	36.5	0.0	0.1	0.2	0.1	0.5	0.6
Private cars and motorcycles	102.8	153.1	188.3	272.2	315.4	403.8	-0.6	-2.2	-4.1	-0.2	-0.7	-1.0
Rail	55.4	28.8	22.3	22.6	25.6	34.6	0.0	0.0	0.2	0.0	0.0	0.6
Aviation	2.0	2.6	3.1	5.8	7.7	12.8	-0.1	-0.3	-0.5	-2.2	-3.2	-3.7
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	0.2	0.5	0.7
Freight transport activity (Gtkm)												
Trucks	40.3	75.0	111.8	173.5	197.6	232.4	-0.4	-1.3	-2.4	-0.2	-0.7	-1.0
Rail	81.6	54.0	43.8	60.0	69.2	81.8	0.0	0.1	0.4	0.1	0.2	0.5
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.5	0.0	0.0	0.0	0.1	0.4	0.6
Energy demand in transport (ktoe)												
Public road transport	314	217	190	180	188	184	0	1	1	0.1	0.5	0.6
Private cars and motorcycles	3299	4876	5324	7501	8286	9116	-8	-33	-49	-0.1	-0.4	-0.5
Trucks	2335	3178	5748	8843	9742	10752	-17	-66	-110	-0.2	-0.7	-1.0
Rail	1095	539	502	613	638	555	4	-12	2	0.7	-1.8	0.4
Aviation	196	369	319	477	586	823	-12	-26	-58	-2.6	-4.2	-6.6
Inland navigation	99	6	2	2	3	3	0	0	0	0.1	0.5	0.6

Source: PRIMES

Portugal: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2808	2602	3109	3583	5492	6449	8220	9491	10889	1.0	5.9	4.1	2.9	
Solids	115	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	2692	2602	3109	3583	5492	6449	8220	9491	10889	1.4	5.9	4.1	2.9	
Hydro	787	717	974	407	871	872	872	872	872	2.1	-1.1	0.0	0.0	
Biomass & Waste	1891	1831	2053	2936	3443	3980	5148	5897	6349	0.8	5.3	4.1	2.1	
Wind	0	1	14	152	984	1093	1378	1569	1778	66.9	52.5	3.4	2.6	
Solar and others	11	15	18	23	108	373	675	995	1709	5.4	19.3	20.1	9.7	
Geothermal	3	37	49	66	85	131	147	158	181	31.4	5.6	5.6	2.1	
Net Imports	15160	17876	21588	24040	23219	24029	23529	23588	21963	3.6	0.7	0.1	-0.7	
Solids	2789	3797	3913	3223	3395	3307	3307	2765	842	3.4	-1.4	-0.3	-12.8	
Oil	12367	14001	15556	16338	16075	16483	15933	16150	16727	2.3	0.3	-0.1	0.5	
- Crude oil and Feedstocks	11360	13547	12022	13459	13460	13786	13555	13732	14200	0.6	1.1	0.1	0.5	
- Oil products	1007	454	3534	2878	2615	2697	2378	2418	2527	13.4	-3.0	-0.9	0.6	
Natural gas	0	0	2039	3893	3643	4088	4204	4596	4325		6.0	1.4	0.3	
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Gross Inland Consumption	16890	19611	24108	26677	28105	29837	31078	32380	32129	3.6	1.5	1.0	0.3	
Solids	2580	3493	3803	3347	3395	3307	3307	2765	842	4.0	-1.1	-0.3	-12.8	
Oil	11614	13437	15083	15410	15470	15842	15262	15451	16004	2.6	0.3	-0.1	0.5	
Natural gas	0	0	2034	3751	3643	4088	4204	4596	4325		6.0	1.4	0.3	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Renewable energy forms	2692	2602	3109	3583	5492	6449	8220	9491	10889	1.4	5.9	4.1	2.9	
as % in Gross Inland Consumption														
Solids	15.3	17.8	15.8	12.5	12.1	11.1	10.6	8.5	2.6					
Oil	68.8	68.5	62.6	57.8	55.0	53.1	49.1	47.7	49.8					
Natural gas	0.0	0.0	8.4	14.1	13.0	13.7	13.5	14.2	13.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	15.9	13.3	12.9	13.4	19.5	21.6	26.4	29.3	33.9					
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	58621	63966	70807	78648	85619	4.3	3.1	1.9	1.9	
Self consumption and grid losses	4441	4776	5435	6125	6462	7086	7911	9669	9945	2.0	1.7	2.0	2.3	
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	7393	7787	7692	7772	6304	4.2	1.3	0.4	-2.0	
Solids	2027	2919	3198	3319	3390	3302	3302	2760	837	4.7	0.6	-0.3	-12.8	
Oil (including refinery gas)	2105	2371	1670	1884	1160	1110	352	376	802	-2.3	-3.6	-11.2	8.6	
Gas (including derived gases)	19	18	1234	2309	1811	2177	2208	2483	2201	51.6	3.9	2.0	0.0	
Biomass & Waste	149	148	356	430	950	1071	1688	2001	2290	9.1	10.3	5.9	3.1	
Geothermal heat	3	37	49	65	82	127	141	152	174	31.4	5.2	5.6	2.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11484	14055	12700	13608	13935	14444	14481	14814	15355	1.0	0.9	0.4	0.6	
Refineries	11152	13579	12251	13608	13746	14070	13835	14005	14468	0.9	1.2	0.1	0.4	
Biofuels and hydrogen production	0	0	0	0	189	374	646	809	887			13.1	3.2	
District heating	0	16	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1				
Energy Branch Consumption	658	870	881	900	850	855	828	902	861	3.0	-0.4	-0.3	0.4	
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2840	2986	3113	1.0	1.0	1.0	0.9	
Final Energy Demand	11208	13042	16937	16654	20203	21615	22831	23984	24784	4.2	1.8	1.2	0.8	
by sector														
Industry	4139	4247	5518	5656	5876	6143	6387	6674	6872	2.9	0.6	0.8	0.7	
- energy intensive industries	2497	2646	3437	3757	3844	3974	4103	4274	4400	3.2	1.1	0.7	0.7	
- other industrial sectors	1642	1601	2081	1899	2032	2169	2284	2400	2471	2.4	-0.2	1.2	0.8	
Residential	2290	2569	2804	3206	3659	4120	4549	4887	5182	2.0	2.7	2.2	1.3	
Tertiary	1052	1373	2098	2766	3097	3237	3348	3514	3685	7.2	4.0	0.8	1.0	
Transport	3728	4853	6517	7026	7572	8115	8547	8910	9045	5.7	1.5	1.2	0.6	
by fuel														
Solids	617	546	465	16	5	5	5	5	5	-2.8	-36.0	-1.3	-0.5	
Oil	6683	8187	10469	10492	10994	11309	11381	11420	11421	4.6	0.5	0.3	0.0	
Gas	103	97	853	1307	1779	1854	1940	2055	2072	23.6	7.6	0.9	0.7	
Electricity	2024	2477	3299	3983	4541	4991	5441	5955	6522	5.0	3.2	1.8	1.8	
Heat (from CHP and District Heating)	28	36	134	328	324	316	366	412	451	16.8	9.2	1.3	2.1	
Renewable energy forms	1752	1698	1716	2529	2559	3139	3694	4134	4310	-0.2	4.1	3.7	1.6	
Other	0	0	0	0	1	1	2	3	3			15.0	2.7	
RES in Gross Final Energy Consumption ^(A)			2907	3266	5216	6090	7712	8902	10234		6.0	4.0	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	84.3	85.4	83.9	82.7	75.9	3.5	-0.1	0.0	-1.0	
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	61.0	62.4	60.3	59.2	52.3	4.1	0.4	-0.1	-1.4	
Power generation/District heating	14.8	19.2	20.9	24.5	21.3	21.7	19.3	17.9	11.0	3.5	0.2	-1.0	-5.5	
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.3	2.1	2.1	2.1	4.3	0.2	-0.8	-0.4	
Industry	8.2	8.4	10.8	7.3	8.5	8.6	8.3	7.9	7.8	2.8	-2.4	-0.2	-0.7	
Residential	1.6	1.9	2.0	2.3	2.4	2.6	2.8	2.9	3.0	2.0	2.0	1.3	0.8	
Tertiary	1.9	2.2	3.2	4.2	4.3	4.0	3.8	3.7	3.6	5.4	3.2	-1.3	-0.6	
Transport	11.0	14.4	19.4	21.0	22.1	23.3	23.9	24.6	24.9	5.8	1.3	0.8	0.4	
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.4	6.6	6.9	7.0	4.7	-1.4	0.6	0.6	
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	139.8	141.6	139.1	137.2	125.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: EC proposal with JI/CDM & RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	172.7	161.1	146.1	132.9	117.8	0.2	0.2	-1.7	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.17	2.09	1.94	1.83	1.63	0.5	-1.1	-1.1	-1.7	
Import Dependency %	86.7	89.0	87.2	88.2	80.9	78.8	74.1	71.3	66.9					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.4	24.6	28.9	32.8	35.2		3.3	3.1	2.0	
as % of GDP			10.8	12.3	13.1	13.3	13.6	13.5	12.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.3	97.3	89.9	83.9	80.5	1.7	0.3	-1.4	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	110.6	110.6	107.5	102.0	97.3	-2.0	1.0	-0.3	-1.0	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	123.1	112.2	101.5	93.5	88.1	3.9	2.1	-1.9	-1.4	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.4	37.8	35.8	33.8	31.0	0.2	-1.1	-0.9	-1.4	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.0	57.0	56.2	1.3	-0.3	-0.5	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.32	0.26	0.21	0.12	-1.0	-3.0	-2.8	-7.2	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.85	1.78	1.70	1.63	1.58	0.3	-1.2	-0.8	-0.7	
Industry	1.99	1.97	1.96	1.30	1.44	1.40	1.31	1.19	1.14	-0.1	-3.0	-1.0	-1.4	
Residential	0.71	0.74	0.71	0.70	0.66	0.63	0.61	0.60	0.58	0.0	-0.7	-0.9	-0.5	
Tertiary	1.77	1.61	1.50	1.53	1.39	1.23	1.13	1.06	0.97	-1.6	-0.8	-2.0	-1.6	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.80	2.77	2.75	0.1	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.1	27.4	32.8	35.9	40.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.4	7.3	8.9	9.7					
Gross Electricity generation by source (in GWh)														
			43364	46180	58621	63966	70807	78648	85619		3.1	1.9	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15472	15072	15072	12608	5012		0.5	-0.3	-10.4	
Oil (including refinery gas)			9483	9244	7385	6979	2976	3176	5321		-2.5	-8.7	6.0	
Gas (including derived gases)			5745	11580	10444	12844	12921	15332	15072		6.2	2.2	1.6	
Biomass-waste			1802	3434	3496	5120	9639	11768	13990		6.9	10.7	3.8	
Hydro (pumping excluded)			11321	4730	10132	10135	10138	10138	10142		-1.1	0.0	0.0	
Wind			168	1773	11445	12706	16025	18240	20669		52.5	3.4	2.6	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	934	1174	1343	1414		5.2	24.3	1.9	
Net Generation Capacity in MW_e			10643	13440	21887	22629	26197	29771	37814		7.5	1.8	3.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10272	11496	15084	18528	26063		9.7	3.9	5.6	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5883	6535	8200	9298	10979		50.3	3.4	3.0	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	389	498	579	603				1.9	
<u>Thermal power</u>			6585	8156	11614	11133	11113	11244	11751		5.8	-0.4	0.6	
of which cogeneration units			1372	1373	1765	2021	2410	2757	3059		2.6	3.2	2.4	
Solids fired			1903	1914	1866	1818	1818	1426	581		-0.2	-0.3	-10.8	
Gas fired			1868	3724	5989	5505	5184	5483	6226		12.4	-1.4	1.8	
Oil fired			2338	2008	1981	1919	1448	1231	1314		-1.6	-3.1	-1.0	
Biomass-waste fired			463	493	1762	1861	2630	3069	3591		14.3	4.1	3.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	29	34	34	41		2.1	7.9	1.7	
Avg. Load factor of net power capacity (%)			44.8	37.8	29.8	31.5	30.1	29.1	25.2					
Efficiency of gross thermal power generation (%)			42.1	42.6	43.0	44.4	45.6	47.7	54.1					
% of gross electricity from CHP			11.3	10.1	10.8	12.8	17.6	19.2	19.6					
Carbon free gross electricity generation (%)			30.8	21.8	43.2	45.4	56.3	60.4	70.3					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	43.2	45.4	56.3	60.4	70.3					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.7	124.5	135.8	147.5	158.2	5.3	2.4	1.9	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.9	12.2	12.5	1.4	-0.5	0.6	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.4	96.5	103.7	110.0	7.7	3.0	1.8	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.1	5.5	6.2	7.0	-3.2	0.4	1.5	2.5	
Aviation	7.1	9.1	11.7	13.2	15.3	18.1	21.3	24.9	28.1	5.1	2.7	3.4	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.5	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.9	63.5	68.8	73.6	4.7	2.1	2.1	1.5	
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	58.8	63.8	68.3	5.4	2.1	2.1	1.5	
Rail	1.5	2.0	2.2	2.4	2.7	3.1	3.3	3.5	3.8	4.1	2.2	2.0	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.4	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7572	8115	8547	8910	9045	5.7	1.5	1.2	0.6	
Public road transport	67	90	100	108	103	100	100	97	91	4.2	0.2	-0.3	-1.0	
Private cars and motorcycles	1575	2299	2945	3058	3288	3421	3479	3491	3335	6.5	1.1	0.6	-0.4	
Trucks	1387	1717	2551	2872	3062	3336	3603	3847	4068	6.3	1.8	1.6	1.2	
Rail	82	80	88	66	67	65	60	57	48	0.6	-2.6	-1.1	-2.2	
Aviation	574	620	790	881	1005	1140	1248	1359	1442	3.2	2.4	2.2	1.5	
Inland navigation	43	46	43	41	47	52	56	59	61	0.0	0.8	1.9	0.7	

Source: PRIMES

Portugal: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6449	8220	10889	961	2160	3346	17.5	35.6	44.4
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	1.5	0.0	-470.1
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6449	8220	10889	961	2160	3346	17.5	35.6	44.4
Hydro	787	974	407	872	872	872	1	1	0	0.1	0.1	0.0
Biomass & Waste	1891	2053	2936	3980	5148	6349	392	1231	1472	10.9	31.4	30.2
Wind	0	14	152	1093	1378	1778	250	370	377	29.6	36.7	26.9
Solar and others	11	18	23	373	675	1709	272	503	1492	268.0	292.0	688.9
Geothermal	3	49	66	131	147	181	47	55	5	55.4	60.8	3.0
Net Imports	15160	21588	24040	24029	23529	21963	-1822	-3934	-6212	-7.0	-14.3	-22.0
Solids	2789	3913	3223	3307	3307	842	-989	-1838	-3906	-23.0	-35.7	-82.3
Oil	12367	15556	16338	16483	15933	16727	-440	-1550	-882	-2.6	-8.9	-5.0
- Crude oil and Feedstocks	11360	12022	13459	13786	13555	14200	-350	-1028	-539	-2.5	-7.0	-3.7
- Oil products	1007	3534	2878	2697	2378	2527	-89	-522	-343	-3.2	-18.0	-11.9
Natural gas	0	2039	3893	4088	4204	4325	-393	-546	-1425	-8.8	-11.5	-24.8
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	29837	31078	32129	-860	-1773	-2864	-2.8	-5.4	-8.2
Solids	2580	3803	3347	3307	3307	842	-989	-1838	-3906	-23.0	-35.7	-82.3
Oil	11614	15083	15410	15842	15262	16004	-440	-1549	-880	-2.7	-9.2	-5.2
Natural gas	0	2034	3751	4088	4204	4325	-393	-546	-1425	-8.8	-11.5	-24.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6449	8220	10889	961	2160	3346	17.5	35.6	44.4
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.1	10.6	2.6	-2.9	-5.0	-10.9			
Oil	68.8	62.6	57.8	53.1	49.1	49.8	0.1	-2.1	1.6			
Natural gas	0.0	8.4	14.1	13.7	13.5	13.5	-0.9	-0.9	-3.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	21.6	26.4	33.9	3.7	8.0	12.3			
Gross Electricity Generation in GWh_e	28350	43364	46180	63966	70807	85619	-4407	-6473	-7809	-6.4	-8.4	-8.4
Self consumption and grid losses	4441	5435	6125	7086	7911	9945	-822	-1184	-1954	-10.4	-13.0	-16.4
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7787	7692	6304	-1329	-2355	-4428	-14.6	-23.4	-41.3
Solids	2027	3198	3319	3302	3302	837	-990	-1840	-3908	-23.1	-35.8	-82.4
Oil (including refinery gas)	2105	1670	1884	1110	352	802	-245	-918	-199	-18.1	-72.3	-19.9
Gas (including derived gases)	19	1234	2309	2177	2208	2201	-335	-409	-1135	-13.3	-15.6	-34.0
Biomass & Waste	149	356	430	1071	1688	2290	195	761	814	22.3	82.0	55.1
Geothermal heat	3	49	65	127	141	174	45	52	0	55.2	58.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	14444	14481	15355	-295	-857	-362	-2.0	-5.6	-2.3
Refineries	11152	12251	13608	14070	13835	14468	-351	-1028	-539	-2.4	-6.9	-3.6
Biofuels and hydrogen production	0	0	0	374	646	887	56	171	177	17.5	36.1	24.9
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	855	828	861	-56	-123	-146	-6.1	-12.9	-14.5
Non-Energy Uses	2103	2330	2405	2684	2840	3113	-2	-3	-3	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	21615	22831	24784	-143	-401	-505	-0.7	-1.7	-2.0
by sector												
Industry	4139	5518	5656	6143	6387	6872	-79	-232	-272	-1.3	-3.5	-3.8
- energy intensive industries	2497	3437	3757	3974	4103	4400	-69	-168	-175	-1.7	-3.9	-3.8
- other industrial sectors	1642	2081	1899	2169	2284	2471	-10	-65	-97	-0.5	-2.8	-3.8
Residential	2290	2804	3206	4120	4549	5182	108	156	213	2.7	3.6	4.3
Tertiary	1052	2098	2766	3237	3348	3685	-134	-238	-303	-4.0	-6.6	-7.6
Transport	3728	6517	7026	8115	8547	9045	-38	-86	-143	-0.5	-1.0	-1.6
by fuel												
Solids	617	465	16	5	5	5	1	1	2	26.2	39.4	67.6
Oil	6683	10469	10492	11309	11381	11421	-174	-554	-640	-1.5	-4.6	-5.3
Gas	103	853	1307	1854	1940	2072	-53	-130	-273	-2.8	-6.3	-11.7
Electricity	2024	3299	3983	4991	5441	6522	-308	-454	-503	-5.8	-7.7	-7.2
Heat (from CHP and District Heating)	28	134	328	316	366	451	-4	54	11	-1.4	17.2	2.5
Renewable energy forms	1752	1716	2529	3139	3694	4310	396	682	898	14.4	22.6	26.3
Other	0	0	0	1	2	3	0	0	0	1.2	3.0	2.8
RES in Gross Final Energy Consumption ^(A)		2907	3266	6090	7712	10234	881	1971	3203	16.9	34.3	45.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	85.4	83.9	75.9	-6.2	-13.4	-21.5	-6.8	-13.8	-22.0
CO₂ Emissions (energy related)	39.0	58.5	61.6	62.4	60.3	52.3	-6.2	-13.4	-21.4	-9.0	-18.2	-29.0
Power generation/District heating	14.8	20.9	24.5	21.7	19.3	11.0	-5.5	-11.2	-18.7	-20.2	-36.6	-62.9
Energy Branch	1.5	2.3	2.3	2.3	2.1	2.1	-0.1	-0.2	-0.1	-2.4	-9.8	-5.5
Industry	8.2	10.8	7.3	8.6	8.3	7.8	-0.1	-1.0	-1.3	-1.7	-10.4	-14.6
Residential	1.6	2.0	2.3	2.6	2.8	3.0	-0.1	-0.1	-0.2	-3.1	-4.8	-5.7
Tertiary	1.9	3.2	4.2	4.0	3.8	3.6	-0.2	-0.2	-0.2	-4.1	-5.3	-5.7
Transport	11.0	19.4	21.0	23.3	23.9	24.9	-0.3	-0.7	-0.9	-1.1	-2.8	-3.4
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.4	6.6	7.0	0.0	0.0	-0.1	-0.2	-0.6	-1.0
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	16.6	17.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	141.6	139.1	125.9	-10.3	-22.3	-35.6			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Portugal: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	161.1	146.1	117.8	-4.6	-8.3	-10.5	-2.8	-5.4	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.09	1.94	1.63	-0.14	-0.30	-0.48	-6.4	-13.5	-22.7
Import Dependency %	86.7	87.2	88.2	78.8	74.1	66.9	-3.6	-7.8	-12.0			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	24.6	28.9	35.2	0.2	1.1	2.4	0.9	4.0	7.2
as % of GDP		10.8	12.3	13.3	13.6	12.9	0.1	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	1.1	2.4						
as % of GDP				0.12	0.52	0.86						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	97.3	89.9	80.5	-1.2	-3.3	-3.2	-1.3	-3.5	-3.8
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	110.6	107.5	97.3	2.9	3.7	4.0	2.7	3.6	4.3
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	112.2	101.5	88.1	-4.6	-7.2	-7.2	-4.0	-6.6	-7.6
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.8	35.8	31.0	-0.1	-0.2	-0.3	-0.3	-0.6	-1.0
Freight transport (toe/Mtkm)	55.4	62.9	63.8	59.0	58.0	56.2	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.26	0.12	-0.06	-0.12	-0.18	-14.9	-31.7	-59.8
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.78	1.70	1.58	-0.02	-0.06	-0.07	-1.0	-3.2	-4.3
Industry	1.99	1.96	1.30	1.40	1.31	1.14	-0.01	-0.10	-0.14	-0.4	-7.2	-11.2
Residential	0.71	0.71	0.70	0.63	0.61	0.58	-0.04	-0.05	-0.06	-5.6	-8.1	-9.6
Tertiary	1.77	1.50	1.53	1.23	1.13	0.97	0.00	0.02	0.02	-0.1	1.5	2.0
Transport	2.95	2.97	2.98	2.87	2.80	2.75	-0.02	-0.05	-0.05	-0.6	-1.8	-1.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	27.4	32.8	40.0	40.0	4.2	8.9	13.2			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.4	7.3	9.7	9.7	0.7	2.0	2.0			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15072	15072	5012	5012	-5572	-10530	-23005	-27.0	-41.1	-82.1
Oil (including refinery gas)	9483	9244	6979	2976	5321	5321	-1498	-4769	-1024	-17.7	-61.6	-16.1
Gas (including derived gases)	5745	11580	12844	12921	15072	15072	-1417	-2730	-6515	-9.9	-17.4	-30.2
Biomass-waste	1802	3434	5120	9639	13990	13990	362	4104	4101	7.6	74.1	41.5
Hydro (pumping excluded)	11321	4730	10135	10138	10142	10142	13	7	0	0.1	0.1	0.0
Wind	168	1773	12706	16025	20669	20669	2904	4301	4379	29.6	36.7	26.9
Solar	1	3	176	2861	14000	14000	0	2643	13738	0.0	1211.1	5246.5
Geothermal and other renewables	80	105	934	1174	1414	1414	801	501	518	602.9	74.5	57.7
Net Generation Capacity in MW_e	10643	13440	22629	26197	37814	37814	628	2566	9827	2.9	10.9	35.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	4058	5284	11496	15084	26063	26063	1671	4057	12490	17.0	36.8	92.0
Hydro (pumping excluded)	3958	4234	4435	4490	4490	4490	0	0	0	0.0	0.0	0.0
Wind	100	1047	6535	8200	10979	10979	1283	2109	2465	24.4	34.6	28.9
Solar	1	3	138	1896	9990	9990	0	1724	9757	0.0	1001.6	4184.4
Other renewables (tidal etc.)	0	0	389	498	603	603	389	224	269		81.8	80.2
<u>Thermal power</u>	6585	8156	11133	11113	11751	11751	-1043	-1490	-2664	-8.6	-11.8	-18.5
of which cogeneration units	1372	1373	2021	2410	3059	3059	-185	188	-102	-8.4	8.5	-3.2
Solids fired	1903	1914	1818	1818	581	581	-647	-1222	-2665	-26.3	-40.2	-82.1
Gas fired	1868	3724	5505	5184	6226	6226	-412	-736	-871	-7.0	-12.4	-12.3
Oil fired	2338	2008	1919	1448	1314	1314	-228	-494	-234	-10.6	-25.4	-15.1
Biomass-waste fired	463	493	1861	2630	3591	3591	230	948	1106	14.1	56.4	44.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	13	16	29	34	41	41	13	13	0	83.2	63.4	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	31.5	30.1	25.2	25.2	-3.0	-6.1	-11.4			
Efficiency of gross thermal power generation (%)	42.1	42.6	44.4	45.6	54.1	54.1	-1.1	-1.2	1.1			
% of gross electricity from CHP	11.3	10.1	12.8	17.6	19.6	19.6	0.1	4.5	1.8			
Carbon free gross electricity generation (%)	30.8	21.8	45.4	56.3	70.3	70.3	8.9	19.7	30.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	30.8	21.8	45.4	56.3	70.3	70.3	8.9	19.7	30.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	52.7	88.5	100.7	124.5	135.8	158.2	-0.5	-1.2	-2.0	-0.4	-0.9	-1.3
Private cars and motorcycles	10.3	11.8	11.1	11.5	11.9	12.5	0.0	0.0	0.1	0.1	0.4	0.6
Rail	28.6	60.0	71.4	89.4	96.5	110.0	-0.2	-0.5	-1.0	-0.2	-0.5	-0.9
Aviation	6.3	4.6	4.6	5.1	5.5	7.0	0.0	-0.1	-0.1	-0.2	-1.2	-1.4
Inland navigation	7.1	11.7	13.2	18.1	21.3	28.1	-0.4	-0.7	-1.0	-2.0	-3.0	-3.5
Freight transport activity (Gtkm)	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	0.1	0.4	0.6
Freight transport activity (Gtkm)	26.4	41.9	46.0	57.9	63.5	73.6	-0.1	-0.3	-0.6	-0.1	-0.4	-0.8
Trucks	23.1	38.9	42.6	53.6	58.8	68.3	-0.1	-0.3	-0.6	-0.2	-0.5	-0.8
Rail	1.5	2.2	2.4	3.1	3.3	3.8	0.0	0.0	0.0	-0.1	-0.5	-0.5
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.5	0.0	0.0	0.0	0.0	0.2	0.4
Energy demand in transport (ktoe)												
Public road transport	3728	6517	7026	8115	8547	9045	-38	-86	-143	-0.5	-1.0	-1.6
Private cars and motorcycles	67	100	108	100	100	91	0	0	0	0.1	0.4	-0.1
Trucks	1575	2945	3058	3421	3479	3335	-5	-15	-23	-0.1	-0.4	-0.7
Rail	1387	2551	2872	3336	3603	4068	-5	-16	-32	-0.1	-0.4	-0.8
Aviation	82	88	66	65	60	48	0	-1	-1	0.1	-0.8	-2.1
Inland navigation	574	790	881	1140	1248	1442	-29	-56	-87	-2.5	-4.3	-5.7
Inland navigation	43	43	41	52	56	61	0	0	0	0.0	0.3	0.5

Source: PRIMES

Romania: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	41400	32600	28774	28181	29309	31252	33613	36394	38984	-3.6	0.2	1.4	1.5
Solids	7935	7889	5879	5793	6231	3985	3360	4197	5267	-3.0	0.6	-6.0	4.6
Oil	7947	7104	6389	6120	5634	6183	6172	6167	6164	-2.2	-1.2	0.9	0.0
Natural gas	22911	14446	10968	9701	9692	10455	11008	10383	9822	-7.1	-1.2	1.3	-1.1
Nuclear	0	0	1407	1433	1474	2869	2904	3681	3755		0.5	7.0	2.6
Renewable energy sources	2607	3162	4131	5134	6277	7759	10170	11966	13976	4.7	4.3	4.9	3.2
Hydro	1460	1435	1271	1737	1723	1735	1742	1756	1788	-1.4	3.1	0.1	0.3
Biomass & Waste	1147	1726	2854	3314	4359	5582	7745	9317	11180	9.5	4.3	5.9	3.7
Wind	0	0	0	0	50	59	98	181	209			6.9	7.9
Solar and others	0	0	0	0	14	140	248	355	424			33.4	5.5
Geothermal	0	0	7	82	131	243	337	356	374		34.5	9.9	1.1
Net Imports	20360	14542	8099	10719	12005	14553	16649	19116	21086	-8.8	4.0	3.3	2.4
Solids	2423	2870	1905	2904	3044	4738	5139	4955	4646	-2.4	4.8	5.4	-1.0
Oil	11194	6852	3542	3874	5031	5661	6724	7626	8393	-10.9	3.6	2.9	2.2
- Crude oil and Feedstocks	16094	8735	4836	8751	9794	10861	12308	13533	14570	-11.3	7.3	2.3	1.7
- Oil products	-4900	-1883	-1294	-4877	-4763	-5200	-5584	-5906	-6178				
Natural gas	5928	4794	2712	4190	4237	4570	5239	7013	8557	-7.5	4.6	2.1	5.0
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	61492	47109	37069	39147	41314	45805	50262	55510	60069	-4.9	1.1	2.0	1.8
Solids	10126	10796	7757	8769	9275	8723	8498	9152	9912	-2.6	1.8	-0.9	1.6
Oil	19106	13886	10148	10162	10666	11844	12896	13793	14557	-6.1	0.5	1.9	1.2
Natural gas	28838	19240	13680	13942	13928	15026	16247	17396	18380	-7.2	0.2	1.6	1.2
Nuclear	0	0	1407	1433	1474	2869	2904	3681	3755		0.5	7.0	2.6
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	6219	7685	10067	11842	13828	4.7	4.2	4.9	3.2
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	22.5	19.0	16.9	16.5	16.5				
Oil	31.1	29.5	27.4	26.0	25.8	25.9	25.7	24.8	24.2				
Natural gas	46.9	40.8	36.9	35.6	33.7	32.8	32.3	31.3	30.6				
Nuclear	0.0	0.0	3.8	3.7	3.6	6.3	5.8	6.6	6.3				
Renewable energy forms	4.2	6.7	11.2	13.0	15.1	16.8	20.0	21.3	23.0				
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	63315	72947	82686	95727	110244	-2.0	2.0	2.7	2.9
Self consumption and grid losses	14388	11292	8909	10341	9041	8897	9617	11101	13339	-4.7	0.1	0.6	3.3
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8214	7949	9532	11532	13876	-7.6	-2.6	1.5	3.8
Solids	8166	7352	5442	5982	6113	5245	5087	5958	7139	-4.0	1.2	-1.8	3.4
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	13	-12.2	-29.1		
Gas (including derived gases)	8984	6090	3507	3343	2047	2341	2715	2827	2762	-9.0	-5.2	2.9	0.2
Biomass & Waste	36	37	4	3	0	309	1730	2747	3961	-19.0			8.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	25764	21571	14558	17946	19486	21250	22545	23782	24764	-5.5	3.0	1.5	0.9
Refineries	23718	15646	11318	14978	15429	17044	18480	19699	20734	-7.1	3.1	1.8	1.2
Biofuels and hydrogen production	0	0	0	0	83	191	317	585	1002			14.4	12.2
District heating	496	1901	1737	823	1301	1080	973	951	878	13.4	-2.9	-2.9	-1.0
Derived gases, cokeries etc.	1551	4024	1503	2144	2673	2935	2774	2547	2150	-0.3	5.9	0.4	-2.5
Energy Branch Consumption	3594	5270	4137	4184	4321	4533	4750	5005	5312	1.4	0.4	1.0	1.1
Non-Energy Uses	908	1326	2291	2448	2425	2633	2921	3227	3524	9.7	0.6	1.9	1.9
Final Energy Demand	36548	26449	22374	24625	28115	32084	35787	39309	42768	-4.8	2.3	2.4	1.8
by sector													
Industry	25106	14528	8788	9751	10892	12561	13979	15488	17162	-10.0	2.2	2.5	2.1
- energy intensive industries	15699	10582	5962	6928	7597	8567	9324	10161	10998	-9.2	2.5	2.1	1.7
- other industrial sectors	9407	3946	2826	2823	3295	3994	4655	5327	6164	-11.3	1.5	3.5	2.8
Residential	4190	6461	8557	8093	8575	9318	10225	11050	11736	7.4	0.0	1.8	1.4
Tertiary	2845	2401	1646	2576	3283	3766	4062	4220	4270	-5.3	7.1	2.2	0.5
Transport	4407	3058	3384	4204	5365	6439	7520	8552	9620	-2.6	4.7	3.4	2.5
by fuel													
Solids	2678	1529	703	1429	1841	2023	2000	1856	1592	-12.5	10.1	0.8	-2.3
Oil	8030	5234	5292	6547	7710	8897	9960	10795	11514	-4.1	3.8	2.6	1.5
Gas	20495	10249	6885	7721	8672	9445	9981	10611	11247	-10.3	2.3	1.4	1.2
Electricity	4355	3282	3122	3481	3883	4571	5315	6276	7319	-3.3	2.2	3.2	3.3
Heat (from CHP and District Heating)	377	4679	3570	2135	1652	1707	2195	2823	3548	25.2	-7.4	2.9	4.9
Renewable energy forms	612	1476	2802	3312	4356	5440	6335	6944	7562	16.4	4.5	3.8	1.8
Other	0	0	0	0	1	1	2	4	5			13.8	9.9
RES in Gross Final Energy Consumption ^(A)			4197	5132	6192	7587	9739	11322	13055		4.0	4.6	3.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	155.3	161.7	169.4	172.7	175.6	-6.4	1.2	0.9	0.4
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	94.1	97.1	101.4	108.8	113.0	-6.7	1.2	0.7	1.1
Power generation/District heating	75.9	59.2	40.6	37.2	33.4	29.7	29.5	33.4	35.1	-6.1	-1.9	-1.2	1.7
Energy Branch	6.2	7.5	7.4	8.0	8.4	8.9	9.2	9.5	9.7	1.8	1.3	0.9	0.6
Industry	58.1	30.2	17.6	20.9	23.1	25.8	26.8	27.1	26.8	-11.3	2.7	1.5	0.0
Residential	7.5	5.2	6.5	7.2	8.0	8.2	8.5	9.3	10.1	-1.4	2.1	0.6	1.8
Tertiary	6.7	3.1	1.8	4.4	5.8	6.2	6.3	6.0	5.7	-12.1	12.1	0.8	-1.0
Transport	12.3	8.6	9.6	12.1	15.4	18.3	21.1	23.5	25.6	-2.4	4.8	3.2	1.9
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.8	21.7	24.8	27.6	30.1	-5.6	3.4	3.3	2.0
Non-CO₂ GHGs Emissions	76.1		40.9	44.3	43.3	43.0	43.2	36.4	32.4	-6.0	0.6	0.0	-2.8
TOTAL GHGs Emissions Index (1990=100)	100.0		51.7	56.2	58.4	60.9	63.8	65.0	66.1				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Romania: EC proposal with JI/CDM & RES trading			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	393.9	324.6	271.5	232.8	199.0	-3.3	-4.4	-3.7	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.28	2.12	2.02	1.96	1.88	-1.8	0.1	-1.2	-0.7
Import Dependency %	33.1	30.9	21.8	27.4	29.1	31.8	33.1	34.4	35.1				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	20.8	26.3	32.8	38.6	45.1		4.0	4.7	3.2
as % of GDP			23.4	18.7	19.8	18.6	17.7	16.2	14.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	75.0	65.8	57.6	51.1	45.8	-7.5	-2.8	-2.6	-2.3
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.4	39.8	33.2	27.8	23.3	8.2	-6.8	-3.9	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.4	93.4	75.7	60.1	47.5	-4.0	1.0	-3.7	-4.6
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.7	28.5	27.2	25.9	25.6	7.6	-2.6	-0.9	-0.6
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.3	29.6	28.9	28.1	27.4	0.5	-3.1	-0.5	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.36	0.29	0.25	0.24	0.22	-10.1	-0.7	-3.6	-1.4
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.86	1.82	1.75	1.68	1.59	-3.7	1.6	-0.6	-0.9
Industry	2.31	2.08	2.00	2.14	2.12	2.05	1.92	1.75	1.56	-1.4	0.6	-1.0	-2.0
Residential	1.78	0.81	0.76	0.89	0.93	0.88	0.83	0.84	0.86	-8.2	2.1	-1.2	0.4
Tertiary	2.37	1.30	1.12	1.69	1.76	1.66	1.54	1.43	1.33	-7.2	4.6	-1.3	-1.5
Transport	2.79	2.81	2.85	2.89	2.87	2.84	2.81	2.75	2.66	0.2	0.1	-0.2	-0.6
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	21.1	22.8	26.4	27.9	29.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.9	9.1				
Gross Electricity generation by source (in GWh)													
			51925	59402	63315	72947	82686	95727	110244		2.0	2.7	2.9
Nuclear energy			5455	5554	6207	11614	11768	15289	15624		1.3	6.6	2.9
Solids			16409	19761	22255	23138	23651	27261	35145		3.1	0.6	4.0
Oil (including refinery gas)			4145	3256	243	243	0	0	59		-24.7		
Gas (including derived gases)			11002	10316	13392	15122	17890	18055	18038		2.0	2.9	0.1
Biomass-waste			138	311	590	1959	7972	12564	18090		15.7	29.7	8.5
Hydro (pumping excluded)			14775	20203	20040	20178	20259	20418	20795		3.1	0.1	0.3
Wind			0	0	583	687	1135	2109	2435			6.9	7.9
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			19962	19838	23136	22425	22957	20710	21018		1.5	-0.1	-0.9
<u>Nuclear energy</u>			654	650	1330	1342	1365	1772	1811		7.4	0.3	2.9
<u>Renewable energy</u>			5935	6215	6790	7215	7845	8731	9023		1.4	1.5	1.4
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	422	496	843	1660	1931			7.2	8.6
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	15015	13869	13747	10208	10184		1.2	-0.9	-3.0
of which cogeneration units			5378	5459	1658	2241	3330	4551	5740		-11.1	7.2	5.6
Solids fired			7285	7139	7122	7250	7345	4629	4051		-0.2	0.3	-5.8
Gas fired			3692	3459	5354	4583	3737	2867	2608		3.8	-3.5	-3.5
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	97	334	1461	2271	3227		16.9	31.1	8.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	29.1	35.3	39.2	50.1	56.2				
Efficiency of gross thermal power generation (%)			25.6	28.6	38.2	43.8	44.7	43.2	44.2				
% of gross electricity from CHP			30.2	25.8	18.2	20.2	24.7	28.4	31.3				
Carbon free gross electricity generation (%)			39.2	43.9	43.3	47.2	49.8	52.7	51.7				
- nuclear			10.5	9.3	9.8	15.9	14.2	16.0	14.2				
- renewable energy forms			28.7	34.5	33.5	31.3	35.5	36.7	37.5				
Transport sector													
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.9	121.5	148.2	178.0	-2.7	4.1	4.7	3.9
Public road transport	24.0	12.3	7.7	9.4	11.7	14.5	16.8	18.8	20.8	-10.7	4.3	3.7	2.2
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.4	71.3	89.0	109.1	131.9	9.6	5.8	4.8	4.0
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.1	16.3	-9.2	-3.5	3.7	3.3
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.2	9.1	1.6	7.3	9.2	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.8	123.3	145.8	167.6	184.7	-8.4	11.8	3.7	2.4
Trucks	29.0	19.7	14.3	51.5	72.0	88.5	104.9	120.4	131.5	-6.8	17.6	3.8	2.3
Rail	48.9	17.9	16.4	16.6	18.2	20.5	23.7	27.3	31.1	-10.4	1.1	2.7	2.7
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.2	17.2	19.9	22.2	2.3	16.0	4.0	2.6
Energy demand in transport (ktoe)	4407	3058	3384	4204	5365	6439	7520	8552	9620	-2.6	4.7	3.4	2.5
Public road transport	329	176	117	93	109	129	144	153	160	-9.9	-0.6	2.8	1.0
Private cars and motorcycles	591	845	1681	1609	1994	2429	2861	3289	3899	11.0	1.7	3.7	3.1
Trucks	2617	1272	893	2130	2829	3368	3902	4379	4701	-10.2	12.2	3.3	1.9
Rail	282	470	449	208	217	234	232	244	249	4.8	-7.0	0.7	0.7
Aviation	275	192	128	113	147	194	280	370	483	-7.3	1.3	6.7	5.6
Inland navigation	312	103	115	51	70	85	101	116	128	-9.5	-4.9	3.8	2.4

Source: PRIMES

Romania: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	31252	33613	38984	-945	-1360	2268	-2.9	-3.9	6.2
Solids	7935	5879	5793	3985	3360	5267	-1706	-3594	-2199	-30.0	-51.7	-29.5
Oil	7947	6389	6120	6183	6172	6164	0	0	0	0.0	0.0	0.0
Natural gas	22911	10968	9701	10455	11008	9822	-469	0	0	-4.3	0.0	0.0
Nuclear	0	1407	1433	2869	2904	3755	0	-705	0	0.0	-19.5	0.0
Renewable energy sources	2607	4131	5134	7759	10170	13976	1230	2940	4467	18.8	40.7	47.0
Hydro	1460	1271	1737	1735	1742	1788	103	89	0	6.3	5.4	0.0
Biomass & Waste	1147	2854	3314	5582	7745	11180	852	2396	3767	18.0	44.8	50.8
Wind	0	0	0	59	98	209	51	83	183	636.6	591.3	707.8
Solar and others	0	0	0	140	248	424	104	177	298	294.2	251.2	236.4
Geothermal	0	7	82	243	337	374	120	195	219	97.7	137.0	141.3
Net Imports	20360	8099	10719	14553	16649	21086	-196	-1369	-4432	-1.3	-7.6	-17.4
Solids	2423	1905	2904	4738	5139	4646	92	-438	-3017	2.0	-7.9	-39.4
Oil	11194	3542	3874	5661	6724	8393	-71	-294	-392	-1.2	-4.2	-4.5
- Crude oil and Feedstocks	16094	4836	8751	10861	12308	14570	-98	-399	-530	-0.9	-3.1	-3.5
- Oil products	-4900	-1294	-4877	-5200	-5584	-6178	26	106	138	-0.5	-1.9	-2.2
Natural gas	5928	2712	4190	4570	5239	8557	-205	-606	-972	-4.3	-10.4	-10.2
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	45805	50262	60069	-1141	-2729	-2163	-2.4	-5.1	-3.5
Solids	10126	7757	8769	8723	8498	9912	-1614	-4033	-5216	-15.6	-32.2	-34.5
Oil	19106	10148	10162	11844	12896	14557	-71	-294	-392	-0.6	-2.2	-2.6
Natural gas	28838	13680	13942	15026	16247	18380	-674	-606	-972	-4.3	-3.6	-5.0
Nuclear	0	1407	1433	2869	2904	3755	0	-705	0	0.0	-19.5	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7685	10067	13828	1219	2909	4418	18.8	40.6	46.9
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	19.0	16.9	16.5	-3.0	-6.7	-7.8			
Oil	31.1	27.4	26.0	25.9	25.7	24.2	0.5	0.8	0.2			
Natural gas	46.9	36.9	35.6	32.8	32.3	30.6	-0.6	0.5	-0.5			
Nuclear	0.0	3.8	3.7	6.3	5.8	6.3	0.2	-1.0	0.2			
Renewable energy forms	4.2	11.2	13.0	16.8	20.0	23.0	3.0	6.5	7.9			
Gross Electricity Generation in GWh_e	63398	51925	59402	72947	82686	110244	-6736	-10251	-9480	-8.5	-11.0	-7.9
Self consumption and grid losses	14388	8909	10341	8897	9617	13339	-1350	-2089	-1529	-13.2	-17.8	-10.3
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7949	9532	13876	-1902	-2687	-2014	-19.3	-22.0	-12.7
Solids	8166	5442	5982	5245	5087	7139	-1826	-3963	-4704	-25.8	-43.8	-39.7
Oil (including refinery gas)	6202	1684	775	54	0	13	54	0	13			
Gas (including derived gases)	8984	3507	3343	2341	2715	2762	-411	-100	191	-14.9	-3.6	7.4
Biomass & Waste	36	4	3	309	1730	3961	283	1376	2486	1085.9	388.2	168.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	21250	22545	24764	222	-208	-405	1.1	-0.9	-1.6
Refineries	23718	11318	14978	17044	18480	20734	-98	-399	-530	-0.6	-2.1	-2.5
Biofuels and hydrogen production	0	0	0	191	317	1002	29	83	202	18.1	35.6	25.2
District heating	496	1737	823	1080	973	878	30	-93	-173	2.9	-8.7	-16.4
Derived gases, cokeries etc.	1551	1503	2144	2935	2774	2150	260	202	96	9.7	7.8	4.7
Energy Branch Consumption	3594	4137	4184	4533	4750	5312	-121	-229	-219	-2.6	-4.6	-4.0
Non-Energy Uses	908	2291	2448	2633	2921	3524	-2	-4	-4	-0.1	-0.1	-0.1
Final Energy Demand	36548	22374	24625	32084	35787	42788	65	-119	-364	0.2	-0.3	-0.8
by sector												
Industry	25106	8788	9751	12561	13979	17162	53	-137	-413	0.4	-1.0	-2.4
- energy intensive industries	15699	5962	6928	8567	9324	10998	76	-85	-234	0.9	-0.9	-2.1
- other industrial sectors	9407	2826	2823	3994	4655	6164	-23	-52	-180	-0.6	-1.1	-2.8
Residential	4190	8557	8093	9318	10225	11736	93	231	310	1.0	2.3	2.7
Tertiary	2845	1646	2576	3766	4062	4270	-45	-100	-247	-1.2	-2.4	-5.5
Transport	4407	3384	4204	6439	7520	9620	-35	-112	-14	-0.5	-1.5	-0.1
by fuel												
Solids	2678	703	1429	2023	2000	1592	172	108	21	9.3	5.7	1.3
Oil	8030	5292	6547	8897	9960	11514	-60	-239	-341	-0.7	-2.3	-2.9
Gas	20495	6885	7721	9445	9981	11247	-197	-437	-1324	-2.0	-4.2	-10.5
Electricity	4355	3122	3481	4571	5315	7319	-471	-689	-677	-9.3	-11.5	-8.5
Heat (from CHP and District Heating)	377	3570	2135	1707	2195	3548	-109	-121	320	-6.0	-5.2	9.9
Renewable energy forms	612	2802	3312	5440	6335	7562	731	1260	1638	15.5	24.8	27.7
Other	0	0	0	1	2	5	0	0	0	2.4	1.8	4.1
RES in Gross Final Energy Consumption ^(A)		4197	5132	7587	9739	13055	1178	2688	4011	18.4	38.1	44.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	161.7	169.4	175.6	-9.0	-20.4	-28.9	-5.3	-10.8	-14.1
CO₂ Emissions (energy related)	166.7	83.6	89.7	97.1	101.4	113.0	-8.5	-18.9	-27.3	-8.0	-15.7	-19.5
Power generation/District heating	75.9	40.6	37.2	29.7	29.5	35.1	-8.3	-17.2	-22.6	-21.8	-36.8	-39.2
Energy Branch	6.2	7.4	8.0	8.9	9.2	9.7	-0.4	-0.5	-0.6	-4.3	-5.5	-6.1
Industry	58.1	17.6	20.9	25.8	26.8	26.8	0.9	0.3	-1.8	3.6	1.2	-6.3
Residential	7.5	6.5	7.2	8.2	8.5	10.1	-0.4	-0.6	-0.9	-4.8	-7.0	-8.0
Tertiary	6.7	1.8	4.4	6.2	6.3	5.7	-0.1	-0.3	-0.7	-1.1	-4.3	-11.4
Transport	12.3	9.6	12.1	18.3	21.1	25.6	-0.2	-0.6	-0.6	-1.0	-2.7	-2.4
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.7	24.8	30.1	0.6	0.0	-0.5	2.7	0.0	-1.6
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.0	43.2	32.4	-1.1	-1.5	-1.2	-2.5	-3.3	-3.4
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	60.9	63.8	66.1	-3.4	-7.7	-10.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Romania: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	324.6	271.5	199.0	-8.1	-14.7	-7.2	-2.4	-5.1	-3.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.12	2.02	1.88	-0.13	-0.25	-0.37	-5.7	-11.2	-16.6
Import Dependency %	33.1	21.8	27.4	31.8	33.1	35.1	0.4	-0.9	-5.9			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	26.3	32.8	45.1	0.1	0.5	1.9	0.3	1.5	4.5
as % of GDP		23.4	18.7	18.6	17.7	14.9	0.1	0.3	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.5	2.0						
as % of GDP				0.07	0.28	0.65						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	65.8	57.6	45.8	0.3	-0.6	-1.1	0.4	-1.0	-2.4
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	39.8	33.2	23.3	0.4	0.7	0.6	1.0	2.3	2.7
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	93.4	75.7	47.5	-1.1	-1.9	-2.7	-1.2	-2.4	-5.5
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.5	27.2	25.6	-0.1	-0.2	1.1	-0.3	-0.6	4.6
Freight transport (toe/Mtkm)	39.2	41.4	30.7	29.6	28.9	27.4	-0.1	-0.4	-0.7	-0.4	-1.5	-2.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.29	0.25	0.22	-0.05	-0.11	-0.13	-15.2	-30.1	-36.8
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.82	1.75	1.59	0.00	-0.03	-0.08	0.2	-1.5	-4.8
Industry	2.31	2.00	2.14	2.05	1.92	1.56	0.06	0.04	-0.07	3.1	2.2	-4.0
Residential	1.78	0.76	0.89	0.88	0.83	0.86	-0.05	-0.08	-0.10	-5.8	-9.1	-10.4
Tertiary	2.37	1.12	1.69	1.66	1.54	1.33	0.00	-0.03	-0.09	0.1	-1.9	-6.3
Transport	2.79	2.85	2.89	2.84	2.81	2.66	-0.01	-0.04	-0.06	-0.4	-1.3	-2.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	22.8	26.4	29.6	3.6	7.5	9.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	9.1	0.4	1.0	1.9			
Gross Electricity generation by source (in GWh_e)												
Gross electricity generation	51925	59402	72947	82686	110244	110244	-6736	-10251	-9480	-8.5	-11.0	-7.9
Nuclear energy	5455	5554	11614	11768	15624	15624	0	-3124	70	0.0	-21.0	0.5
Solids	16409	19761	23138	23651	35145	35145	-6803	-15038	-24112	-22.7	-38.9	-40.7
Oil (including refinery gas)	4145	3256	243	0	59	59	243	0	59			
Gas (including derived gases)	11002	10316	15122	17890	18038	18038	-3711	-892	188	-19.7	-4.7	1.1
Biomass-waste	138	311	1959	7972	18090	18090	1745	6793	12180	815.6	576.0	206.1
Hydro (pumping excluded)	14775	20203	20178	20259	20795	20795	1196	1039	0	6.3	5.4	0.0
Wind	0	0	687	1135	2435	2435	594	971	2134	636.6	591.3	707.8
Solar	0	0	7	12	58	58	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	19962	19838	22425	22957	21018	21018	-219	863	596	-1.0	3.9	2.9
<u>Nuclear energy</u>	654	650	1342	1365	1811	1811	0	-361	8	0.0	-20.9	0.5
<u>Renewable energy</u>	5935	6215	7215	7845	9023	9023	426	723	1713	6.3	10.1	23.4
Hydro (pumping excluded)	5935	6212	6713	6993	7046	7046	0	0	0	0.0	0.0	0.0
Wind	0	0	496	843	1931	1931	426	723	1713	606.3	599.6	785.8
Solar	0	3	6	9	46	46	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	13373	12972	13869	13747	10184	10184	-644	501	-1125	-4.4	3.8	-9.9
of which cogeneration units	5378	5459	2241	3330	5740	5740	26	186	1384	1.2	5.9	31.8
Solids fired	7285	7139	7250	7345	4051	4051	-425	-521	-3114	-5.5	-6.6	-43.5
Gas fired	3692	3459	4583	3737	2608	2608	-532	-128	-101	-10.4	-3.3	-3.7
Oil fired	2375	2354	1702	1204	298	298	0	0	0	0.0	0.0	0.0
Biomass-waste fired	20	20	334	1461	3227	3227	312	1150	2090	1432.5	370.3	183.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	27.0	30.8	35.3	39.2	56.2	56.2	-2.7	-6.2	-6.5			
Efficiency of gross thermal power generation (%)	25.6	28.6	43.8	44.7	44.2	44.2	1.0	3.4	-0.7			
% of gross electricity from CHP	30.2	25.8	20.2	24.7	31.3	31.3	1.7	4.0	7.8			
Carbon free gross electricity generation (%)	39.2	43.9	47.2	49.8	51.7	51.7	8.4	11.6	16.1			
- nuclear	10.5	9.3	15.9	14.2	14.2	14.2	1.3	-1.8	1.2			
- renewable energy forms	28.7	34.5	31.3	35.5	37.5	37.5	7.1	13.4	14.9			
Transport sector												
Passenger transport activity (Gpkm)	68.0	51.7	60.9	97.9	121.5	178.0	-0.2	-0.5	-1.9	-0.2	-0.4	-1.1
Public road transport	24.0	7.7	9.4	14.5	16.8	20.8	0.1	0.1	0.3	0.4	0.7	1.2
Private cars and motorcycles	12.6	31.5	42.4	71.3	89.0	131.9	-0.2	-0.6	-2.0	-0.3	-0.6	-1.5
Rail	30.6	11.6	8.0	9.7	11.7	16.3	0.0	0.0	0.1	0.4	0.4	0.6
Aviation	0.7	0.8	1.2	2.4	4.0	9.1	0.0	-0.1	-0.2	-1.6	-2.3	-2.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
Freight transport activity (Gtkm)	80.0	33.3	76.5	123.3	145.8	184.7	-0.2	-0.5	-1.6	-0.2	-0.4	-0.9
Trucks	29.0	14.3	51.5	88.5	104.9	131.5	-0.4	-0.8	-2.3	-0.5	-0.8	-1.7
Rail	48.9	16.4	16.6	20.5	23.7	31.1	0.2	0.2	0.4	0.8	1.0	1.4
Inland navigation	2.1	2.6	8.4	14.2	17.2	22.2	0.0	0.1	0.2	0.3	0.5	0.9
Energy demand in transport (ktoe)	4407	3384	4204	6439	7520	9620	-35	-112	-14	-0.5	-1.5	-0.1
Public road transport	329	117	93	129	144	160	0	0	-2	0.2	0.0	-1.0
Private cars and motorcycles	591	1681	1609	2429	2861	3899	-11	-26	172	-0.4	-0.9	4.6
Trucks	2617	893	2130	3368	3902	4701	-23	-67	-170	-0.7	-1.7	-3.5
Rail	282	449	208	234	232	249	1	-11	1	0.6	-4.7	0.4
Aviation	275	128	113	194	280	483	-3	-7	-15	-1.7	-2.6	-3.0
Inland navigation	312	115	51	85	101	128	0	0	1	0.2	0.3	0.6

Source: PRIMES

Slovak Republic: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	5248	4808	5970	6305	5372	5555	6607	7253	7628	1.3	-1.0	2.1	1.4
Solids	1397	1017	1018	637	846	688	576	569	559	-3.1	-1.8	-3.8	-0.3
Oil	81	74	59	55	37	36	37	38	38	-3.1	-4.6	0.2	0.3
Natural gas	338	264	133	126	120	147	136	144	146	-8.9	-1.0	1.2	0.7
Nuclear	3105	2950	4255	4573	3191	3224	4052	4312	4449	3.2	-2.8	2.4	0.9
Renewable energy sources	328	503	506	914	1179	1458	1806	2190	2435	4.4	8.8	4.4	3.0
Hydro	162	427	406	399	407	434	436	437	438	9.7	0.0	0.7	0.1
Biomass & Waste	166	76	100	507	745	950	1188	1484	1677	-5.0	22.3	4.8	3.5
Wind	0	0	0	1	17	20	87	123	133			18.0	4.3
Solar and others	0	0	0	0	7	49	84	123	162			27.6	6.8
Geothermal	0	0	0	8	3	5	11	22	25			15.7	8.2
Net Imports	16086	12482	11623	13163	12955	14173	14520	14977	15697	-3.2	1.1	1.1	0.8
Solids	6055	4131	3437	3794	3585	3389	3399	3098	3534	-5.5	0.4	-0.5	0.4
Oil	4231	3704	2711	3935	3964	3899	3954	3997	4011	-4.4	3.9	0.0	0.1
- Crude oil and Feedstocks	5892	5405	5283	5768	5894	5844	5942	6020	6045	-1.1	1.1	0.1	0.2
- Oil products	-1661	-1701	-2573	-1833	-1930	-1945	-1988	-2023	-2034				
Natural gas	5353	4528	5707	5757	5510	6763	6226	6622	6682	0.6	-0.3	1.2	0.7
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Gross Inland Consumption	20967	17692	17483	19407	18327	19728	21127	22230	23325	-1.8	0.5	1.4	1.0
Solids	7771	5414	4261	4288	4431	4077	3975	3667	4093	-5.8	0.4	-1.1	0.3
Oil	4229	3487	2925	4045	4000	3935	3991	4035	4049	-3.6	3.2	0.0	0.1
Natural gas	5088	5217	5776	5925	5630	6911	6362	6766	6828	1.3	-0.3	1.2	0.7
Nuclear	3105	2950	4255	4573	3191	3224	4052	4312	4449	3.2	-2.8	2.4	0.9
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Renewable energy forms	328	504	498	858	1096	1636	2791	3708	4150	4.3	8.2	9.8	4.0
as % in Gross Inland Consumption													
Solids	37.1	30.6	24.4	22.1	24.2	20.7	18.8	16.5	17.5				
Oil	20.2	19.7	16.7	20.8	21.8	19.9	18.9	18.2	17.4				
Natural gas	24.3	29.5	33.0	30.5	30.7	35.0	30.1	30.4	29.3				
Nuclear	14.8	16.7	24.3	23.6	17.4	16.3	19.2	19.4	19.1				
Renewable energy forms	1.6	2.8	2.8	4.4	6.0	8.3	13.2	16.7	17.8				
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30515	34983	39861	47887	52912	2.6	0.0	2.7	2.9
Self consumption and grid losses	4853	5351	5235	4704	3349	3606	4293	5091	6583	0.8	-4.4	2.5	4.4
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2643	3013	3275	4091	4823	-1.9	0.0	2.2	3.9
Solids	2054	1835	1617	1638	1465	1008	852	543	1211	-2.4	-1.0	-5.3	3.6
Oil (including refinery gas)	243	119	37	99	4	25	0	5	0	-17.1	-20.3		
Gas (including derived gases)	936	1216	1002	845	1058	1734	1044	1385	1156	0.7	0.5	-0.1	1.0
Biomass & Waste	0	0	0	40	116	246	1378	2158	2456			28.1	5.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9009	7973	8020	9335	9920	10084	10263	10385	10276	-1.2	2.1	0.3	0.0
Refineries	6314	5182	5410	6374	6695	6658	6826	6964	7006	-1.5	2.2	0.2	0.3
Biofuels and hydrogen production	0	0	0	11	52	125	238	284	327			16.4	3.2
District heating	237	731	584	717	771	844	677	656	606	9.4	2.8	-1.3	-1.1
Derived gases, cokeries etc.	2458	2060	2026	2233	2401	2457	2522	2481	2337	-1.9	1.7	0.5	-0.8
Energy Branch Consumption	1154	990	905	2482	2029	2138	2125	2163	2215	-2.4	8.4	0.5	0.4
Non-Energy Uses	1203	651	1109	1239	1252	1330	1499	1665	1771	-0.8	1.2	1.8	1.7
Final Energy Demand	14893	11085	10822	10560	11636	12576	13345	14019	14538	-3.1	0.7	1.4	0.9
by sector													
Industry	6706	4339	3953	4413	4920	5303	5527	5670	5714	-5.1	2.2	1.2	0.3
- energy intensive industries	4081	3091	3145	3590	4021	4335	4470	4572	4586	-2.6	2.5	1.1	0.3
- other industrial sectors	2626	1248	808	823	899	968	1057	1099	1128	-11.1	1.1	1.6	0.7
Residential	2275	2158	2822	2533	2635	2787	3020	3264	3490	2.2	-0.7	1.4	1.5
Tertiary	4473	3078	2498	1809	1937	2151	2343	2547	2761	-5.7	-2.5	1.9	1.7
Transport	1440	1509	1549	1805	2144	2335	2455	2538	2574	0.7	3.3	1.4	0.5
by fuel													
Solids	4319	2322	1511	1455	1893	1980	2003	2021	1840	-10.0	2.3	0.6	-0.8
Oil	3294	1873	1870	2195	2464	2581	2597	2642	2625	-5.5	2.8	0.5	0.1
Gas	4319	3907	4537	3651	3631	3938	4045	4189	4487	0.5	-2.2	1.1	1.0
Electricity	2013	1868	1893	1965	2247	2574	2935	3336	3650	-0.6	1.7	2.7	2.2
Heat (from CHP and District Heating)	781	1111	1011	951	1236	1132	1237	1294	1290	2.6	2.0	0.0	0.4
Renewable energy forms	166	4	1	344	164	371	526	536	644	-42.8	74.7	12.4	2.0
Other	0	0	0	0	0	0	1	1	1			15.7	3.0
RES in Gross Final Energy Consumption ^(A)			407	761	903	1249	2382	3302	3698		8.3	10.2	4.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	52.4	54.7	53.9	53.1	50.3	-3.7	1.1	0.3	-0.7
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	38.4	39.6	37.7	37.1	34.5	-4.1	0.9	-0.2	-0.9
Power generation/District heating	12.1	12.9	10.6	10.5	9.8	9.8	7.5	6.6	4.3	-1.3	-0.7	-2.7	-5.3
Energy Branch	2.5	1.8	1.5	5.0	4.4	4.2	4.2	3.9	3.7	-4.6	11.0	-0.5	-1.2
Industry	17.8	12.2	10.3	10.4	12.2	12.7	12.8	12.6	11.9	-5.3	1.7	0.5	-0.7
Residential	4.4	2.9	4.1	3.5	3.5	3.9	4.3	4.8	5.4	-0.6	-1.6	1.9	2.4
Tertiary	12.6	5.7	4.2	2.5	2.4	2.5	2.4	2.4	2.4	-10.3	-5.5	0.0	0.1
Transport	4.0	4.2	4.4	5.2	6.1	6.5	6.6	6.7	6.7	0.8	3.5	0.7	0.2
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.2	6.0	6.4	6.7	-0.7	3.0	3.2	1.1
Non-CO₂ GHGs Emissions	12.3	8.8	8.8	9.7	9.6	9.9	10.2	9.5	9.2	-3.3	1.0	0.6	-1.1
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	75.9	79.3	78.0	76.8	72.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: EC proposal with JI/CDM & RES trading													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1	
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	366.4	314.4	272.4	240.7	220.6	-3.2	-4.4	-2.9	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	2.01	1.78	1.67	1.48	-2.3	0.4	-1.6	-1.9	
Import Dependency %	76.7	70.6	66.5	67.8	70.7	71.8	68.7	67.4	67.3					
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.3	11.2	13.1	15.3	16.6		2.7	3.5	2.4	
as % of GDP			23.3	19.5	18.6	17.8	16.9	16.5	15.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.9	46.9	40.0	35.3	32.6	-6.4	-5.8	-3.1	-2.0	
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.8	51.3	45.6	41.8	39.2	2.0	-5.0	-2.7	-1.5	
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.9	50.4	44.6	40.5	37.4	-5.6	-5.5	-2.4	-1.7	
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.3	27.3	26.1	24.6	3.6	0.6	-0.6	-1.1	
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	24.0	23.1	22.3	21.8	2.0	1.0	-0.4	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.19	0.13	0.10	0.06	-3.8	-1.5	-4.3	-7.5	
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.08	2.04	1.95	1.89	1.82	-2.0	-0.2	-0.6	-0.7	
Industry	2.65	2.82	2.61	2.37	2.47	2.40	2.31	2.23	2.08	-0.2	-0.5	-0.7	-1.0	
Residential	1.93	1.35	1.46	1.39	1.33	1.41	1.41	1.46	1.54	-2.8	-0.9	0.5	0.9	
Tertiary	2.81	1.87	1.69	1.37	1.24	1.16	1.02	0.94	0.87	-4.9	-3.1	-1.9	-1.5	
Transport	2.80	2.76	2.82	2.89	2.87	2.80	2.70	2.66	2.62	0.1	0.1	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.5	9.6	17.2	22.7	24.4					
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.6	8.4	9.7	11.1					
Gross Electricity generation by source (in GWh)														
			30431	31346	30515	34983	39861	47887	52912		0.0	2.7	2.9	
Nuclear energy			16491	17724	12371	12515	16180	18397	19023		-2.8	2.7	1.6	
Solids			4969	4825	5378	4341	3916	3486	7214		0.8	-3.1	6.3	
Oil (including refinery gas)			144	455	402	501	0	123	0		10.8			
Gas (including derived gases)			4102	3527	6879	11255	7421	9418	8438		5.3	0.8	1.3	
Biomass-waste			0	172	556	1079	6241	9913	11545			27.3	6.3	
Hydro (pumping excluded)			4725	4637	4733	5051	5068	5081	5094		0.0	0.7	0.1	
Wind			0	7	194	230	1015	1436	1548			18.0	4.3	
Solar			0	0	2	9	18	33	49			24.7	10.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			6795	7307	7816	8384	9318	10364	10914		1.4	1.8	1.6	
<u>Nuclear energy</u>			2326	2439	1652	1696	2132	2256	2329		-3.4	2.6	0.9	
<u>Renewable energy</u>			1669	1838	2050	2192	2768	3080	3175		2.1	3.1	1.4	
Hydro (pumping excluded)			1668	1832	1909	2021	2029	2029	2029		1.4	0.6	0.0	
Wind			1	5	139	164	724	1024	1106		63.8	18.0	4.3	
Solar			0	0	2	7	15	26	40			24.6	10.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2800	3031	4114	4496	4417	5028	5411		3.9	0.7	2.0	
of which cogeneration units			1220	1400	1675	1553	1777	2886	3050		3.2	0.6	5.6	
Solids fired			1598	1661	1846	1551	1082	828	818		1.5	-5.2	-2.8	
Gas fired			1184	1221	2075	2648	2060	2070	2077		5.8	-0.1	0.1	
Oil fired			18	115	115	115	115	115	115		20.7	0.0	0.0	
Biomass-waste fired			1	34	77	183	1160	2015	2401		54.7	31.2	7.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.5	44.3	42.4	45.7	46.6	50.2	51.7					
Efficiency of gross thermal power generation (%)			29.8	29.4	43.0	49.0	46.2	48.2	48.5					
% of gross electricity from CHP			26.0	15.8	32.1	26.8	25.6	30.4	28.0					
Carbon free gross electricity generation (%)			69.7	71.9	58.5	54.0	71.6	72.8	70.4					
- nuclear			54.2	56.5	40.5	35.8	40.6	38.4	36.0					
- renewable energy forms			15.5	15.4	18.0	18.2	31.0	34.4	34.5					
Transport sector														
Passenger transport activity (Gpkm)														
	41.5	34.2	35.8	36.4	39.1	42.4	47.5	52.7	57.2	-1.5	0.9	2.0	1.9	
Public road transport	19.5	11.2	8.4	8.1	7.9	7.8	7.7	7.6	7.7	-8.1	-0.6	-0.3	0.0	
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.6	31.9	36.9	41.9	46.2	4.5	1.7	2.6	2.3	
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.5	0.9	
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.4	4.6	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)														
	35.6	29.7	25.6	32.0	41.6	47.3	50.0	52.1	53.7	-3.3	5.0	1.9	0.7	
Trucks	14.2	15.9	14.3	22.6	31.6	36.2	38.3	40.0	41.5	0.1	8.2	1.9	0.8	
Rail	21.4	13.8	11.2	9.5	10.0	11.1	11.7	12.0	12.2	-6.2	-1.1	1.6	0.4	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	1440	1509	1549	1805	2144	2335	2455	2538	2574	0.7	3.3	1.4	0.5	
Public road transport	96	79	70	59	55	51	49	45	42	-3.1	-2.5	-1.2	-1.3	
Private cars and motorcycles	671	729	886	964	1017	1070	1163	1235	1256	2.8	1.4	1.4	0.8	
Trucks	572	583	510	693	969	1097	1120	1126	1134	-1.1	6.6	1.5	0.1	
Rail	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.1	-0.8	
Aviation	0	0	0	39	54	66	75	85	96			3.3	2.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovak Republic: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	5555	6607	7628	-409	117	0	-6.9	1.8	0.0
Solids	1397	1018	637	688	576	559	-156	-256	-205	-18.5	-30.8	-26.8
Oil	81	59	55	36	37	38	-2	-2	-2	-4.4	-5.5	-5.3
Natural gas	338	133	126	147	136	146	3	-21	-36	1.8	-13.5	-20.0
Nuclear	3105	4255	4573	3224	4052	4449	-630	-14	-259	-16.3	-0.3	-5.5
Renewable energy sources	328	506	914	1458	1806	2435	376	410	502	34.8	29.4	26.0
Hydro	162	406	399	434	436	438	10	4	0	2.3	1.0	0.0
Biomass & Waste	166	100	507	950	1188	1677	311	257	252	48.6	27.6	17.7
Wind	0	0	1	20	87	133	15	76	105	353.6	694.5	367.7
Solar and others	0	0	0	49	84	162	38	65	123	346.1	330.9	320.9
Geothermal	0	0	8	5	11	25	2	9	22	98.2	312.7	638.8
Net Imports	16086	11623	13163	14173	14520	15697	-183	-824	-1017	-1.3	-5.4	-6.1
Solids	6055	3437	3794	3389	3399	3534	-308	-631	-921	-8.3	-15.6	-20.7
Oil	4231	2711	3935	3899	3954	4011	-240	-308	-301	-5.8	-7.2	-7.0
- Crude oil and Feedstocks	5892	5283	5768	5844	5942	6045	-289	-380	-369	-4.7	-6.0	-5.8
- Oil products	-1661	-2573	-1833	-1945	-1988	-2034	50	71	68	-2.5	-3.5	-3.2
Natural gas	5353	5707	5757	6763	6226	6682	116	-972	-1668	1.8	-13.5	-20.0
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19728	21127	23325	-592	-706	-1017	-2.9	-3.2	-4.2
Solids	7771	4261	4288	4077	3975	4093	-464	-886	-1125	-10.2	-18.2	-21.6
Oil	4229	2925	4045	3935	3991	4049	-241	-310	-303	-5.8	-7.2	-7.0
Natural gas	5088	5776	5925	6911	6362	6828	119	-994	-1704	1.8	-13.5	-20.0
Nuclear	3105	4255	4573	3224	4052	4449	-630	-14	-259	-16.3	-0.3	-5.5
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1636	2791	4150	625	1498	2375	61.8	115.8	133.7
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	20.7	18.8	17.5	-1.7	-3.5	-3.9			
Oil	20.2	16.7	20.8	19.9	18.9	17.4	-0.6	-0.8	-0.5			
Natural gas	24.3	33.0	30.5	35.0	30.1	29.3	1.6	-3.6	-5.8			
Nuclear	14.8	24.3	23.6	16.3	19.2	19.1	-2.6	0.6	-0.3			
Renewable energy forms	1.6	2.8	4.4	8.3	13.2	17.8	3.3	7.3	10.5			
Gross Electricity Generation in GWh_e	23428	30431	31346	34983	39861	52912	-2681	-3172	-2241	-7.1	-7.4	-4.1
Self consumption and grid losses	4853	5235	4704	3606	4293	6583	-384	-312	464	-9.6	-6.8	7.6
Fuel Inputs to Thermal Power Generation	3232	2656	2622	3013	3275	4823	-304	-702	-166	-9.2	-17.6	-3.3
Solids	2054	1617	1638	1008	852	1211	-586	-949	-1064	-36.8	-52.7	-46.8
Oil (including refinery gas)	243	37	99	25	0	0	-86	-118	-10	-77.8	-100.0	-99.2
Gas (including derived gases)	936	1002	845	1734	1044	1156	294	-684	-719	20.4	-39.6	-38.4
Biomass & Waste	0	0	40	246	1378	2456	74	1050	1628	43.2	319.9	196.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	10084	10263	10276	-138	-294	-435	-1.4	-2.8	-4.1
Refineries	6314	5410	6374	6658	6826	7006	-296	-388	-378	-4.3	-5.4	-5.1
Biofuels and hydrogen production	0	0	11	125	238	327	19	63	61	17.6	35.7	23.0
District heating	237	584	717	844	677	606	25	-31	-147	3.0	-4.4	-19.5
Derived gases, cokeries etc.	2458	2026	2233	2457	2522	2337	114	62	29	4.9	2.5	1.2
Energy Branch Consumption	1154	905	2482	2138	2125	2215	0	-97	-123	0.0	-4.4	-5.2
Non-Energy Uses	1203	1109	1239	1330	1499	1771	-8	-9	-12	-0.6	-0.6	-0.7
Final Energy Demand	14893	10822	10560	12576	13345	14538	-9	-167	-312	-0.1	-1.2	-2.1
by sector												
Industry	6706	3953	4413	5303	5527	5714	35	-55	-148	0.7	-1.0	-2.5
- energy intensive industries	4081	3145	3590	4335	4470	4586	40	-37	-71	0.9	-0.8	-1.5
- other industrial sectors	2626	808	823	968	1057	1128	-4	-18	-77	-0.4	-1.7	-6.4
Residential	2275	2822	2533	2787	3020	3490	-21	-3	13	-0.8	-0.1	0.4
Tertiary	4473	2498	1809	2151	2343	2761	-9	-70	-116	-0.4	-2.9	-4.0
Transport	1440	1549	1805	2335	2455	2574	-14	-38	-62	-0.6	-1.5	-2.3
by fuel												
Solids	4319	1511	1455	1980	2003	1840	60	28	-82	3.1	1.4	-4.3
Oil	3294	1870	2195	2581	2597	2625	-15	-79	-111	-0.6	-2.9	-4.0
Gas	4319	4537	3651	3938	4045	4487	165	26	-247	4.4	0.6	-5.2
Electricity	2013	1893	1965	2574	2935	3650	-190	-246	-229	-6.9	-7.7	-5.9
Heat (from CHP and District Heating)	781	1011	951	1132	1237	1290	-102	-6	84	-8.3	-0.5	6.9
Renewable energy forms	166	1	344	371	526	644	74	109	274	24.8	26.2	74.0
Other	0	0	0	0	1	1	0	0	0	1.8	4.1	-27.5
RES in Gross Final Energy Consumption ^(A)		407	761	1249	2382	3698	411	1314	2254	49.1	123.1	156.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	54.7	53.9	50.3	-2.3	-6.9	-13.7	-4.1	-11.3	-21.4
CO₂ Emissions (energy related)	53.3	35.1	37.1	39.6	37.7	34.5	-2.3	-6.7	-13.5	-5.5	-15.2	-28.2
Power generation/District heating	12.1	10.6	10.5	9.8	7.5	4.3	-2.4	-6.0	-11.0	-19.9	-44.6	-71.9
Energy Branch	2.5	1.5	5.0	4.2	4.2	3.7	-0.5	-0.7	-1.3	-10.1	-14.1	-25.6
Industry	17.8	10.3	10.4	12.7	12.8	11.9	0.4	0.2	-0.8	3.1	1.2	-6.2
Residential	4.4	4.1	3.5	3.9	4.3	5.4	0.1	0.0	-0.1	3.0	0.5	-0.9
Tertiary	12.6	4.2	2.5	2.5	2.4	2.4	0.2	0.1	0.0	8.6	2.2	-0.3
Transport	4.0	4.4	5.2	6.5	6.6	6.7	-0.1	-0.3	-0.4	-1.3	-4.0	-5.0
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.2	6.0	6.7	0.0	-0.1	-0.1	0.5	-0.9	-1.6
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.9	10.2	9.2	-0.1	-0.1	-0.1	-0.7	-0.9	-0.9
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	79.3	78.0	72.9	-3.4	-10.0	-19.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	314.4	272.4	220.6	-9.4	-9.1	-9.6	-2.9	-3.2	-4.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	2.01	1.78	1.48	-0.05	-0.25	-0.49	-2.6	-12.3	-25.0
Import Dependency %	76.7	66.5	67.8	71.8	68.7	67.3	1.2	-1.5	-1.4			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.2	13.1	16.6	0.3	0.4	0.8	2.4	3.4	5.1
as % of GDP		23.3	19.5	17.8	16.9	15.7	0.4	0.6	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.4	0.8						
as % of GDP				0.43	0.56	0.76						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.9	40.0	32.6	0.3	-0.4	-0.8	0.7	-1.0	-2.5
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	51.3	45.6	39.2	-0.4	0.0	0.2	-0.8	-0.1	0.4
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	50.4	44.6	37.4	-0.2	-1.3	-1.6	-0.4	-2.9	-4.0
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	28.3	27.3	24.6	-0.1	-0.3	-0.3	-0.4	-0.9	-1.4
Freight transport (toe/Mtkm)	17.9	21.9	22.7	24.0	23.1	21.8	-0.1	-0.2	-0.3	-0.3	-0.9	-1.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.19	0.13	0.06	-0.03	-0.09	-0.15	-14.0	-41.7	-72.2
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.04	1.95	1.82	0.05	0.02	-0.04	2.5	1.1	-2.3
Industry	2.65	2.61	2.37	2.40	2.31	2.08	0.06	0.05	-0.08	2.5	2.2	-3.7
Residential	1.93	1.46	1.39	1.41	1.41	1.54	0.05	0.01	-0.02	3.8	0.6	-1.3
Tertiary	2.81	1.69	1.37	1.16	1.02	0.87	0.10	0.05	0.03	9.1	5.3	3.8
Transport	2.80	2.82	2.89	2.80	2.70	2.62	-0.02	-0.07	-0.07	-0.8	-2.5	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	9.6	17.2	24.4	3.2	9.6	15.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.6	8.4	11.1	0.7	2.3	2.3			
Gross Electricity generation by source (in GWh_e)												
	30431	31346	34983	39861	52912	52912	-2681	-3172	-2241	-7.1	-7.4	-4.1
Nuclear energy	16491	17724	12515	16180	19023	19023	-2729	0	-1111	-17.9	0.0	-5.5
Solids	4969	4825	4341	3916	7214	7214	-1803	-3880	-5299	-29.3	-49.8	-42.3
Oil (including refinery gas)	144	455	501	0	0	0	0	-529	-162	0.0	-100.0	-99.7
Gas (including derived gases)	4102	3527	11255	7421	8438	8438	1248	-4239	-3971	12.5	-36.4	-32.0
Biomass-waste	0	172	1079	6241	11545	11545	309	4540	7084	40.1	266.9	158.8
Hydro (pumping excluded)	4725	4637	5051	5068	5094	5094	113	50	0	2.3	1.0	0.0
Wind	0	7	230	1015	1548	1548	179	888	1217	353.6	694.5	367.7
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	6795	7307	8384	9318	10914	10914	-187	1338	1925	-2.2	16.8	21.4
<u>Nuclear energy</u>	2326	2439	1696	2132	2329	2329	-315	0	-128	-15.7	0.0	-5.2
<u>Renewable energy</u>	1669	1838	2192	2768	3175	3175	154	650	870	7.6	30.7	37.7
Hydro (pumping excluded)	1668	1832	2021	2029	2029	2029	25	16	0	1.3	0.8	0.0
Wind	1	5	164	724	1106	1106	129	634	870	367.1	704.0	368.6
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	4496	4417	5411	5411	-26	688	1184	-0.6	18.4	28.0
of which cogeneration units	1220	1400	1553	1777	3050	3050	-74	87	1230	-4.5	5.1	67.6
Solids fired	1598	1661	1551	1082	818	818	-146	-318	-857	-8.6	-22.7	-51.2
Gas fired	1184	1221	2648	2060	2077	2077	1	-23	-20	0.0	-1.1	-1.0
Oil fired	18	115	115	115	115	115	0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	183	1160	2401	2401	119	1029	2060	187.4	785.8	604.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	45.7	46.6	51.7	51.7	-2.3	-12.3	-14.9			
Efficiency of gross thermal power generation (%)	29.8	29.4	49.0	46.2	48.5	48.5	3.9	-0.7	-2.4			
% of gross electricity from CHP	26.0	15.8	26.8	25.6	28.0	28.0	3.2	1.0	6.3			
Carbon free gross electricity generation (%)	69.7	71.9	54.0	71.6	70.4	70.4	-1.8	18.0	15.9			
- nuclear	54.2	56.5	35.8	40.6	36.0	36.0	-4.7	3.0	-0.6			
- renewable energy forms	15.5	15.4	18.2	31.0	34.5	34.5	2.9	15.0	16.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	41.5	35.8	36.4	42.4	47.5	57.2	-0.1	-0.3	-0.7	-0.3	-0.7	-1.1
Private cars and motorcycles	19.5	8.4	8.1	7.8	7.7	7.7	0.0	0.0	0.1	0.2	0.5	0.8
Rail	15.6	24.1	25.6	31.9	36.9	46.2	-0.1	-0.4	-0.7	-0.4	-1.0	-1.5
Aviation	6.4	3.2	2.5	2.4	2.5	2.7	0.0	0.0	0.0	0.3	0.5	0.7
Inland navigation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-2.4	-3.5	-3.8
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Trucks	35.6	25.6	32.0	47.3	50.0	53.7	-0.1	-0.2	-0.4	-0.2	-0.5	-0.7
Rail	14.2	14.3	22.6	36.2	38.3	41.5	-0.1	-0.3	-0.5	-0.4	-0.8	-1.2
Inland navigation	21.4	11.2	9.5	11.1	11.7	12.2	0.0	0.1	0.1	0.4	0.7	0.9
Energy demand in transport (ktoe)	1440	1549	1805	2335	2455	2574	-14	-38	-62	-0.6	-1.5	-2.3
Public road transport	96	70	59	51	49	42	0	0	0	0.0	0.2	-0.6
Private cars and motorcycles	671	886	964	1070	1163	1256	-5	-13	-23	-0.4	-1.1	-1.8
Trucks	572	510	693	1097	1120	1134	-6	-16	-25	-0.5	-1.4	-2.2
Rail	100	83	49	51	49	45	0	0	0	0.2	0.2	0.1
Aviation	0	0	39	66	75	96	-3	-9	-14	-4.5	-10.9	-12.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2902	3020	3085	3492	3553	3214	3689	4113	4882	0.6	1.4	0.4	2.8	
Solids	1432	1216	1062	1184	1122	544	526	683	1280	-2.9	0.6	-7.3	9.3	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.8			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1479	0.3	1.9	0.0	0.0	
Renewable energy sources	254	542	788	787	943	1187	1680	1974	2123	12.0	1.8	5.9	2.4	
Hydro	254	279	330	298	349	351	355	363	371	2.7	0.6	0.2	0.4	
Biomass & Waste	0	263	458	489	581	728	1143	1386	1478	2.4	7.0	2.6		
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	13	107	180	222	270			29.8	4.1	
Geothermal	0	0	0	0	0	0	0	0	0			6.8	3.7	
Net Imports	2567	3056	3369	3810	4324	4825	4746	4700	4382	2.8	2.5	0.9	-0.8	
Solids	130	187	245	323	291	334	328	321	301	6.5	1.7	1.2	-0.9	
Oil	1798	2231	2418	2589	2878	3050	3063	3076	3028	3.0	1.8	0.6	-0.1	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.6	0.0	
- Oil products	1202	1644	2267	2589	2877	3049	3062	3075	3026	6.5	2.4	0.6	-0.1	
Natural gas	723	750	820	925	1103	1217	1137	1262	1140	1.3	3.0	0.3	0.0	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	7877	8039	8435	8813	9263	1.5	2.1	0.7	0.9	
Solids	1645	1402	1306	1539	1413	878	854	1004	1580	-2.3	0.8	-4.9	6.3	
Oil	1748	2281	2381	2560	2878	3050	3063	3076	3028	3.1	1.9	0.6	-0.1	
Natural gas	763	746	826	929	1107	1217	1137	1262	1140	0.8	3.0	0.3	0.0	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1479	0.3	1.9	0.0	0.0	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	943	1187	1680	1974	2123	12.0	1.8	5.9	2.4	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	17.9	10.9	10.1	11.4	17.1					
Oil	31.7	37.4	37.1	35.0	36.5	37.9	36.3	34.9	32.7					
Natural gas	13.8	12.2	12.9	12.7	14.1	15.1	13.5	14.3	12.3					
Nuclear	21.6	20.4	19.1	20.8	18.8	18.5	17.6	16.5	16.0					
Renewable energy forms	4.6	9.3	12.3	10.8	12.0	14.8	19.9	22.4	22.9					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15482	14458	16133	20696	26162	0.9	1.3	0.4	5.0	
Self consumption and grid losses	1516	1427	1625	1908	2026	1853	2020	2498	4241	0.7	2.2	0.0	7.7	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1372	915	1138	1681	2293	-1.4	0.2	-1.9	7.3	
Solids	1296	1315	1253	1411	1298	750	712	824	1385	-0.3	0.4	-5.8	6.9	
Oil (including refinery gas)	155	119	12	9	1	1	1	1	0	-22.8	-20.5	-6.8	-3.9	
Gas (including derived gases)	92	90	62	58	42	74	59	406	334	-3.8	-3.8	3.4	18.8	
Biomass & Waste	0	0	15	30	31	90	366	451	573		7.2	28.0	4.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	194	271	320	339	318	-8.2	-2.6	5.2	-0.1	
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.6	0.0	
Biofuels and hydrogen production	0	0	0	0	44	121	217	254	287			17.3	2.8	
District heating	53	76	83	89	148	149	102	84	29	4.7	5.9	-3.7	-11.7	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	116	95	102	128	258	-0.9	0.3	-1.3	9.8	
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9	
Final Energy Demand	3368	3940	4431	4880	5475	5958	6272	6465	6610	2.8	2.1	1.4	0.5	
by sector														
Industry	1468	1179	1423	1655	1829	1935	2027	2060	2116	-0.3	2.5	1.0	0.4	
- energy intensive industries	728	587	839	1036	1143	1232	1301	1328	1363	1.4	3.1	1.3	0.5	
- other industrial sectors	740	593	584	619	686	703	726	732	753	-2.3	1.6	0.6	0.4	
Residential	850	1176	1122	1183	1230	1332	1419	1466	1498	2.8	0.9	1.4	0.5	
Tertiary	122	259	578	573	576	590	597	598	593	16.9	0.0	0.4	-0.1	
Transport	928	1326	1309	1469	1839	2100	2228	2340	2403	3.5	3.5	1.9	0.8	
by fuel														
Solids	243	115	97	80	84	92	103	138	150	-8.8	-1.4	2.1	3.8	
Oil	1507	2098	2231	2392	2677	2823	2818	2819	2755	4.0	1.8	0.5	-0.2	
Gas	603	468	569	665	787	857	830	620	618	-0.6	3.3	0.5	-2.9	
Electricity	837	807	905	1096	1197	1296	1419	1593	1785	0.8	2.8	1.7	2.3	
Heat (from CHP and District Heating)	177	192	195	196	188	192	207	205	195	1.0	-0.4	1.0	-0.6	
Renewable energy forms	0	260	435	452	541	698	893	1088	1105		2.2	5.1	2.2	
Other	0	0	0	0	0	0	1	1	1			19.7	2.9	
RES in Gross Final Energy Consumption ^(A)			780	767	928	1147	1588	1865	1994		1.7	5.5	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.4	18.7	18.3	19.1	16.9	0.3	1.0	-1.1	-0.8	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.0	14.4	14.1	15.0	12.7	0.6	1.3	-1.3	-1.0	
Power generation/District heating	6.2	6.2	5.5	6.2	5.8	3.5	3.2	4.5	2.4	-1.1	0.4	-5.6	-2.8	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9				
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.1	2.1	-0.7	0.5	0.1	-1.6	
Residential	1.7	2.1	1.3	1.4	1.5	1.4	1.5	1.4	1.3	-2.5	1.0	0.2	-1.1	
Tertiary	0.0	0.0	1.0	1.0	1.0	0.9	0.8	0.7	0.5	46.9	0.2	-1.8	-4.0	
Transport	2.7	3.9	3.8	4.3	5.3	5.9	6.0	6.3	6.3	3.5	3.5	1.3	0.5	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.2	-1.2	0.3	1.6	0.8	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.2	3.0	3.0	2.9	-0.6	-0.4	-1.1	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	113.0	103.8	101.4	106.4	94.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: EC proposal with JI/CDM & RES trading										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1	
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9	
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	233.8	207.3	194.0	183.2	177.0	-0.3	-1.6	-1.8	-0.9	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.03	1.79	1.67	1.70	1.38	-0.9	-0.7	-1.9	-1.9	
Import Dependency %	46.5	50.1	52.5	52.2	54.9	60.0	56.3	53.3	47.3					
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.2	7.2	8.0	8.5		3.7	3.3	1.7	
as % of GDP			15.6	14.5	15.5	16.1	16.6	16.7	16.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.9	75.4	70.7	68.4	-0.9	-1.5	-1.3	-1.0	
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	75.3	72.0	67.5	63.5	0.2	-2.3	-1.0	-1.2	
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	69.0	61.3	55.3	49.6	44.8	14.2	-3.6	-2.2	-2.1	
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	43.2	40.2	38.2	37.1	5.3	-1.5	-1.2	-0.8	
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	46.6	46.8	45.8	43.2	2.3	-1.0	0.5	-0.8	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.31	0.20	0.17	0.19	0.08	-2.0	-0.8	-6.0	-6.8	
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.82	1.72	1.62	1.56	-0.8	-0.2	-0.8	-1.0	
Industry	1.72	1.55	1.65	1.38	1.34	1.34	1.23	1.00	1.00	-0.4	-2.0	-0.9	-2.0	
Residential	1.98	1.80	1.17	1.21	1.18	1.09	1.04	0.97	0.88	-5.2	0.1	-1.3	-1.6	
Tertiary	0.17	0.13	1.65	1.76	1.69	1.52	1.36	1.20	0.91	25.7	0.3	-2.2	-4.0	
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.71	2.68	2.64	0.0	0.0	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.3	18.6	24.5	27.8	28.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.8	8.2	9.2	10.2					
Gross Electricity generation by source (in GWh)														
			13622	15114	15482	14458	16133	20696	26162		1.3	0.4	5.0	
Nuclear energy			4760	5883	5751	5751	5751	6593	6700		1.9	0.0	1.5	
Solids			4484	5229	5233	3319	3272	4151	9288		1.6	-4.6	11.0	
Oil (including refinery gas)			106	36	5	3	3	4	3		-26.0	-4.6	-0.6	
Gas (including derived gases)			321	324	208	688	976	2759	2385		-4.3	16.7	9.3	
Biomass-waste			117	181	229	605	1980	2943	3435		7.0	24.1	5.7	
Hydro (pumping excluded)			3833	3460	4054	4086	4130	4219	4319		0.6	0.2	0.4	
Wind			0	0	2	6	19	25	30			27.1	4.4	
Solar			0	0	0	1	1	2	3			11.2	8.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2861	3188	3260	3384	3224	3729	4224		1.3	-0.1	2.7	
<u>Nuclear energy</u>			656	656	666	666	666	761	774		0.2	0.0	1.5	
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3	
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2	
Wind			0	0	2	7	22	29	34			27.1	4.4	
Solar			0	0	0	1	1	1	2			11.2	8.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			1241	1557	1611	1678	1498	1898	2358		2.6	-0.7	4.6	
of which cogeneration units			244	363	331	389	577	736	813		3.1	5.7	3.5	
Solids fired			996	1013	1029	1069	710	553	967		0.3	-3.6	3.1	
Gas fired			81	374	375	370	370	792	790		16.6	-0.1	7.9	
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.2	
Biomass-waste fired			21	71	107	166	380	553	601		17.7	13.5	4.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			51.1	50.7	50.7	46.3	54.2	59.9	63.6					
Efficiency of gross thermal power generation (%)			32.2	32.9	35.6	43.4	47.1	50.4	56.7					
% of gross electricity from CHP			3.5	3.2	5.4	14.6	21.5	18.4	16.5					
Carbon free gross electricity generation (%)			63.9	63.0	64.8	72.3	73.6	66.6	55.4					
- nuclear			34.9	38.9	37.1	39.8	35.6	31.9	25.6					
- renewable energy forms			29.0	24.1	27.7	32.5	38.0	34.7	29.8					
Transport sector														
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.1	23.3	25.3	27.6	29.7	-0.5	2.1	1.8	1.6	
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.2	1.2	
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.9	22.5	24.4	26.1	3.9	2.6	1.7	1.5	
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.4	1.6	-6.8	2.6	3.3	2.4	
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	5.2	4.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	19.9	23.5	25.9	28.1	30.2	-1.1	9.3	2.7	1.6	
Trucks	4.9	3.3	5.3	11.0	15.4	18.2	20.2	21.9	23.3	0.8	11.2	2.8	1.4	
Rail	4.2	3.1	2.9	3.2	4.5	5.3	5.7	6.2	6.9	-3.8	4.8	2.3	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	928	1326	1309	1469	1839	2100	2228	2340	2403	3.5	3.5	1.9	0.8	
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	0.0	-0.4	
Private cars and motorcycles	498	727	867	828	923	967	972	999	1040	5.7	0.6	0.5	0.7	
Trucks	330	492	368	582	845	1053	1170	1250	1273	1.1	8.7	3.3	0.9	
Rail	29	29	34	29	39	44	43	41	33	1.4	1.3	1.0	-2.7	
Aviation	27	20	25	23	24	30	36	43	50	-0.8	-0.1	3.9	3.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovenia: EC proposal with JI/CDM & RES trading						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3214	3689	4882	-265	-9	833	-7.6	-0.2	20.6
Solids	1432	1062	1184	544	526	1280	-483	-580	-14	-47.0	-52.4	-1.1
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1479	0	0	117	0.0	0.0	8.6
Renewable energy sources	254	788	787	1187	1680	2123	218	571	730	22.5	51.5	52.4
Hydro	254	330	298	351	355	371	39	32	0	12.4	9.8	0.0
Biomass & Waste	0	458	489	728	1143	1478	105	422	555	16.9	58.6	60.0
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	107	180	270	74	117	175	220.5	185.0	184.4
Geothermal	0	0	0	0	0	0	0	0	0	63.2	109.2	179.7
Net Imports	2567	3369	3810	4825	4746	4382	-382	-781	-1348	-7.3	-14.1	-23.5
Solids	130	245	323	334	328	301	-50	-131	-208	-12.9	-28.6	-40.9
Oil	1798	2418	2589	3050	3063	3028	-266	-420	-692	-8.0	-12.0	-18.6
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-7.6	-11.5	-17.2
- Oil products	1202	2267	2589	3049	3062	3026	-266	-419	-691	-8.0	-12.0	-18.6
Natural gas	723	820	925	1217	1137	1140	-66	-230	-449	-5.2	-16.9	-28.3
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	8039	8435	9263	-647	-790	-516	-7.4	-8.6	-5.3
Solids	1645	1306	1539	878	854	1580	-532	-711	-222	-37.8	-45.4	-12.3
Oil	1748	2381	2560	3050	3063	3028	-266	-420	-692	-8.0	-12.0	-18.6
Natural gas	763	826	929	1217	1137	1140	-66	-230	-449	-5.2	-16.9	-28.3
Nuclear	1192	1228	1518	1483	1483	1479	0	0	117	0.0	0.0	8.6
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1187	1680	2123	218	571	730	22.5	51.5	52.4
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	10.9	10.1	17.1	-5.3	-6.8	-1.4			
Oil	31.7	37.1	35.0	37.9	36.3	32.7	-0.2	-1.4	-5.3			
Natural gas	13.8	12.9	12.7	15.1	13.5	12.3	0.4	-1.3	-3.9			
Nuclear	21.6	19.1	20.8	18.5	17.6	16.0	1.4	1.5	2.0			
Renewable energy forms	4.6	12.3	10.8	14.8	19.9	22.9	3.6	7.9	8.7			
Gross Electricity Generation in GWh_e	12440	13622	15114	14458	16133	26162	-1616	-1859	1897	-10.1	-10.3	7.8
Self consumption and grid losses	1516	1625	1908	1853	2020	4241	-356	-454	1063	-16.1	-18.3	33.5
Fuel Inputs to Thermal Power Generation	1543	1342	1507	915	1138	2293	-521	-480	119	-36.3	-29.7	5.5
Solids	1296	1253	1411	750	712	1385	-542	-715	-274	-41.9	-50.1	-16.5
Oil (including refinery gas)	155	12	9	1	1	0	0	-1	-1	-43.2	-48.8	-65.6
Gas (including derived gases)	92	62	58	74	59	334	-37	-59	18	-33.2	-50.0	5.8
Biomass & Waste	0	15	30	90	366	573	58	295	376	181.7	416.2	190.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	271	320	318	10	9	-21	3.7	2.7	-6.1
Refineries	540	169	1	1	1	1	0	0	0	-7.6	-11.5	-17.2
Biofuels and hydrogen production	0	0	0	121	217	287	15	47	31	14.5	28.0	12.2
District heating	53	83	89	149	102	29	-5	-39	-51	-3.5	-27.5	-63.7
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	95	102	258	-20	-24	83	-17.1	-19.1	47.8
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5958	6272	6610	-289	-453	-648	-4.6	-6.7	-8.9
by sector												
Industry	1468	1423	1655	1935	2027	2116	-34	-45	-78	-1.7	-2.2	-3.5
- energy intensive industries	728	839	1036	1232	1301	1363	-9	-12	-30	-0.7	-0.9	-2.2
- other industrial sectors	740	584	619	703	726	753	-25	-33	-47	-3.4	-4.3	-5.9
Residential	850	1122	1183	1332	1419	1498	-36	-47	-64	-2.6	-3.2	-4.1
Tertiary	122	578	573	590	597	593	-97	-141	-207	-14.1	-19.1	-25.9
Transport	928	1309	1469	2100	2228	2403	-123	-221	-299	-5.5	-9.0	-11.1
by fuel												
Solids	243	97	80	92	103	150	10	4	52	11.6	4.5	53.1
Oil	1507	2231	2392	2823	2818	2755	-265	-418	-690	-8.6	-12.9	-20.0
Gas	603	569	665	857	830	618	-25	-111	-400	-2.8	-11.8	-39.3
Electricity	837	905	1096	1296	1419	1785	-108	-121	71	-7.7	-7.8	4.2
Heat (from CHP and District Heating)	177	195	196	192	207	195	-19	-22	-14	-9.2	-9.7	-6.8
Renewable energy forms	0	435	452	698	893	1105	118	215	333	20.3	31.7	43.2
Other	0	0	0	0	1	1	0	0	0	3.6	0.9	-7.8
RES in Gross Final Energy Consumption ^(A)		780	767	1147	1588	1994	207	520	676	22.0	48.7	51.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	18.7	18.3	16.9	-3.4	-5.0	-8.4	-15.2	-21.4	-33.2
CO₂ Emissions (energy related)	13.2	14.0	15.2	14.4	14.1	12.7	-3.2	-4.7	-8.1	-18.0	-25.2	-39.0
Power generation/District heating	6.2	5.5	6.2	3.5	3.2	2.4	-2.3	-3.2	-5.3	-39.8	-49.9	-68.6
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.2	-20.3	-33.5
Industry	2.5	2.3	2.3	2.6	2.5	2.1	0.0	-0.2	-0.6	-1.7	-6.7	-22.2
Residential	1.7	1.3	1.4	1.4	1.5	1.3	-0.2	-0.3	-0.6	-11.6	-15.6	-31.8
Tertiary	0.0	1.0	1.0	0.9	0.8	0.5	-0.2	-0.3	-0.6	-16.8	-24.2	-51.3
Transport	2.7	3.8	4.3	5.9	6.0	6.3	-0.4	-0.8	-1.0	-6.5	-11.7	-14.1
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.1	1.1	1.2	0.0	0.0	0.0	-0.1	0.3	-1.0
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.2	3.0	2.9	-0.2	-0.2	-0.2	-5.4	-7.5	-7.8
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	103.8	101.4	94.0	-18.6	-27.7	-46.6			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Slovenia: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	207.3	194.0	177.0	-16.7	-18.2	-9.9	-7.4	-8.6	-5.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.79	1.67	1.38	-0.23	-0.37	-0.76	-11.4	-18.2	-35.6
Import Dependency %	46.5	52.5	52.2	60.0	56.3	47.3	0.1	-3.7	-11.3			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.2	7.2	8.5	0.2	0.3	0.6	2.6	4.8	7.4
as % of GDP		15.6	14.5	16.1	16.6	16.3	0.4	0.8	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.6						
as % of GDP				0.41	0.77	1.13						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.9	75.4	68.4	-1.4	-1.7	-2.5	-1.7	-2.2	-3.5
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	75.3	72.0	63.5	-2.0	-2.4	-2.7	-2.6	-3.2	-4.1
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	61.3	55.3	44.8	-10.0	-13.1	-15.7	-14.1	-19.1	-25.9
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	43.2	40.2	37.1	-0.7	-1.1	-1.4	-1.7	-2.7	-3.6
Freight transport (toe/Mtkm)	39.1	48.9	42.6	46.6	46.8	43.2	-2.5	-4.4	-5.2	-5.0	-8.7	-10.8
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.20	0.17	0.08	-0.10	-0.13	-0.20	-33.3	-44.2	-70.5
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.82	1.72	1.56	-0.05	-0.11	-0.25	-2.6	-5.9	-13.8
Industry	1.72	1.65	1.38	1.34	1.23	1.00	0.00	-0.06	-0.24	0.0	-4.6	-19.4
Residential	1.98	1.17	1.21	1.09	1.04	0.88	-0.11	-0.15	-0.36	-9.2	-12.8	-28.9
Tertiary	0.17	1.65	1.76	1.52	1.36	0.91	-0.05	-0.09	-0.47	-3.2	-6.3	-34.2
Transport	2.88	2.89	2.94	2.81	2.71	2.64	-0.03	-0.08	-0.09	-1.0	-3.0	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.6	24.5	28.5	28.5	4.1	9.2	11.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	8.2	10.2	0.9	2.4	2.2			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14458	16133	26162	26162	-1616	-1859	1897	-10.1	-10.3	7.8
Nuclear energy	4760	5883	5751	5751	6700	6700	0	0	531	0.0	0.0	8.6
Solids	4484	5229	3319	3272	9288	9288	-2211	-3405	-447	-40.0	-51.0	-4.6
Oil (including refinery gas)	106	36	3	3	3	3	-4	-2	-4	-51.7	-34.3	-54.1
Gas (including derived gases)	321	324	688	976	2385	2385	-162	-177	-349	-19.0	-15.3	-12.8
Biomass-waste	117	181	605	1980	3435	3435	310	1358	2165	104.9	218.1	170.5
Hydro (pumping excluded)	3833	3460	4086	4130	4319	4319	451	367	0	12.4	9.8	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3384	3224	4224	4224	-129	-341	142	-3.7	-9.6	3.5
<u>Nuclear energy</u>	656	656	666	666	774	774	0	0	61	0.0	0.0	8.6
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1678	1498	2358	2358	-129	-341	81	-7.1	-18.5	3.6
of which cogeneration units	244	363	389	577	813	813	-14	-13	30	-3.5	-2.2	3.9
Solids fired	996	1013	1069	710	967	967	-48	-307	-238	-4.3	-30.2	-19.7
Gas fired	81	374	370	370	790	790	-155	-262	-93	-29.6	-41.4	-10.5
Oil fired	142	99	73	37	0	0	0	-23	0	0.0	-37.6	-49.6
Biomass-waste fired	21	71	166	380	601	601	75	250	412	82.0	192.2	218.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	46.3	54.2	63.6	63.6	-2.9	0.0	0.3			
Efficiency of gross thermal power generation (%)	32.2	32.9	43.4	47.1	56.7	56.7	3.4	2.1	2.3			
% of gross electricity from CHP	3.5	3.2	14.6	21.5	16.5	16.5	1.5	2.2	0.1			
Carbon free gross electricity generation (%)	63.9	63.0	72.3	73.6	55.4	55.4	12.0	17.2	6.8			
- nuclear	34.9	38.9	39.8	35.6	25.6	25.6	4.0	3.7	0.2			
- renewable energy forms	29.0	24.1	32.5	38.0	29.8	29.8	8.0	13.5	6.6			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.3	25.3	29.7	-0.3	-0.6	-0.9	-1.5	-2.3	-2.8
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.0	1.7	2.6	3.2
Private cars and motorcycles	10.0	14.7	16.8	20.9	22.5	26.1	-0.4	-0.7	-0.9	-1.8	-2.8	-3.5
Rail	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.0	0.1	2.3	3.8	4.4
Aviation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	0.0	-2.1	-2.9	-3.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.5	25.9	30.2	-0.7	-1.0	-1.4	-2.7	-3.8	-4.4
Trucks	4.9	5.3	11.0	18.2	20.2	23.3	-0.8	-1.2	-1.7	-4.2	-5.8	-6.7
Rail	4.2	2.9	3.2	5.3	5.7	6.9	0.1	0.2	0.3	2.6	3.9	4.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2100	2228	2403	-123	-221	-299	-5.5	-9.0	-11.1
Public road transport	43	15	7	8	8	7	0	0	-1	-0.8	-2.5	-11.1
Private cars and motorcycles	498	867	828	967	972	1040	-32	-51	-70	-3.2	-5.0	-6.3
Trucks	330	368	582	1053	1170	1273	-91	-168	-224	-8.0	-12.5	-15.0
Rail	29	34	29	44	43	33	1	0	-1	1.6	0.8	-2.5
Aviation	27	25	23	30	36	50	-1	-2	-3	-2.7	-4.4	-6.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	35451	38655	41778	40042	45599	-0.7	1.2	1.7	0.9	
Solids	11679	10170	7740	6265	5856	4664	3136	3062	2549	-4.0	-2.8	-6.1	-2.1	
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Renewable energy sources	6276	5722	7185	8710	13548	18752	23553	28162	32398	1.4	6.5	5.7	3.2	
Hydro	2184	1987	2534	1681	2486	2447	2466	2507	2552	1.5	-0.2	-0.1	0.3	
Biomass & Waste	4067	3684	4205	5129	7542	9617	12021	15026	16694	0.3	6.0	4.8	3.3	
Wind	1	23	406	1825	3032	5186	6868	8081	9347	79.0	22.3	8.5	3.1	
Solar and others	21	25	33	68	478	1490	2183	2530	3786	4.5	30.8	16.4	5.7	
Geothermal	2	3	8	8	10	13	16	18	19	12.3	2.6	5.0	1.9	
Net Imports	59857	75415	98351	122830	125324	128514	127902	128011	118872	5.1	2.5	0.2	-0.7	
Solids	7038	9146	12636	14418	15654	17105	16139	15670	10462	6.0	2.2	0.3	-4.2	
Oil	49166	58363	69866	78279	78261	78820	78557	77112	74290	3.6	1.1	0.0	-0.6	
- Crude oil and Feedstocks	53256	55362	58393	59850	60586	60936	60789	60245	59107	0.9	0.4	0.0	-0.3	
- Oil products	-4091	3001	11473	18429	17675	17884	17769	16867	15183		4.4	0.1	-1.6	
Natural gas	3690	7521	15467	30248	31145	29607	25513	25284	23044	15.4	7.3	-2.0	-1.0	
Electricity	-36	386	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Gross Inland Consumption	89401	102207	122698	143487	152259	158183	160321	158451	154852	3.2	2.2	0.5	-0.3	
Solids	18942	19515	20643	20698	21511	21769	19276	18733	13012	0.9	0.4	-1.1	-3.9	
Oil	45547	54556	63223	69507	69910	69983	69298	67510	64670	3.3	1.0	-0.1	-0.7	
Natural gas	4970	7722	15219	29844	31275	29707	25513	25284	23044	11.8	7.5	-2.0	-1.0	
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4	
Electricity	-36	385	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Renewable energy forms	6276	5723	7185	8711	13548	21401	31021	38128	43470	1.4	6.5	8.6	3.4	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	14.1	13.8	12.0	11.8	8.4					
Oil	50.9	53.4	51.5	48.4	45.9	44.2	43.2	42.6	41.8					
Natural gas	5.6	7.6	12.4	20.8	20.5	18.8	15.9	16.0	14.9					
Nuclear	15.3	14.0	13.1	10.3	10.3	9.5	9.3	5.6	6.9					
Renewable energy forms	7.0	5.6	5.9	6.1	8.9	13.5	19.3	24.1	28.1					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	307578	325451	348914	385349	406227	4.0	3.3	1.3	1.5	
Self consumption and grid losses	21388	24573	32539	40790	38939	40462	42544	50076	51729	4.3	1.8	0.9	2.0	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33439	31858	30776	35114	29738	4.7	2.4	-0.8	-0.3	
Solids	13881	13585	18249	17641	18899	18989	16445	16009	11414	2.8	0.4	-1.4	-3.6	
Oil (including refinery gas)	2170	3654	4442	5246	1591	636	779	838	827	7.4	-9.8	-6.9	0.6	
Gas (including derived gases)	486	987	3075	11140	11046	8409	8855	11176	9907	20.3	13.6	-2.2	1.1	
Biomass & Waste	145	377	694	1389	1903	3825	4697	7091	7590	16.9	10.6	9.5	4.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64757	67235	68291	67511	66136	0.9	0.3	0.5	-0.3	
Refineries	53753	56041	60048	60507	60320	60898	60825	60248	59145	1.1	0.0	0.1	-0.3	
Biofuels and hydrogen production	0	0	65	259	2196	4165	5604	5745	5767		42.2	9.8	0.3	
District heating	0	0	0	0	0	0	0	0	0			-0.2	-3.8	
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2171	1862	1519	1224	-3.0	-3.0	-1.8	-4.1	
Energy Branch Consumption	4757	5473	6118	6397	5752	5831	5841	6104	5984	2.5	-0.6	0.2	0.2	
Non-Energy Uses	5847	8006	9094	7823	8080	8581	9066	9402	9581	4.5	-1.2	1.2	0.6	
Final Energy Demand	56647	63536	79422	97170	106261	112879	115343	116136	115230	3.4	3.0	0.8	0.0	
by sector														
Industry	20014	20476	25474	31036	33979	36702	38516	38844	38871	2.4	2.9	1.3	0.1	
- energy intensive industries	13069	13620	17260	20421	22149	23882	24748	24776	24657	2.8	2.5	1.1	0.0	
- other industrial sectors	6945	6856	8213	10615	11829	12819	13768	14068	14214	1.7	3.7	1.5	0.3	
Residential	9266	9986	11871	15150	16471	17016	16711	16305	15785	2.5	3.3	0.1	-0.6	
Tertiary	5041	7007	9219	11556	11722	11935	11793	11738	11407	6.2	2.4	0.1	-0.3	
Transport	22326	26069	32858	39428	44089	47226	48324	49248	49167	3.9	3.0	0.9	0.2	
by fuel														
Solids	3524	2235	1671	1782	1613	1872	2049	2092	1092	-7.2	-0.4	2.4	-6.1	
Oil	33488	38971	45784	52776	56062	56611	55403	53520	51910	3.2	2.0	-0.1	-0.6	
Gas	4873	6841	12141	17978	20107	21041	16285	13431	12478	9.6	5.2	-2.1	-2.6	
Electricity	10817	12116	16205	20827	22807	24278	26011	28307	29968	4.1	3.5	1.3	1.4	
Heat (from CHP and District Heating)	0	39	74	0	18	21	24	29	26		-13.2	3.0	0.6	
Renewable energy forms	3945	3335	3547	3806	5650	9049	15556	18741	19739	-1.1	4.8	10.7	2.4	
Other	0	0	0	0	3	7	14	16	16			15.3	1.9	
RES in Gross Final Energy Consumption ^(A)			6709	8189	12685	20069	29351	36172	40059	6.6	8.8	3.2		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	458.0	450.7	425.8	418.3	382.9	3.1	1.7	-0.7	-1.1	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	345.3	341.4	318.1	308.9	272.1	3.4	2.0	-0.8	-1.5	
Power generation/District heating	63.6	68.2	94.1	113.2	106.0	97.1	88.2	92.2	71.3	4.0	1.2	-1.8	-2.1	
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.7	13.5	13.0	8.7	1.6	0.0	0.0	-4.3	
Industry	41.9	43.4	48.9	58.2	63.4	65.4	55.2	44.9	38.6	1.6	2.6	-1.4	-3.5	
Residential	12.9	13.6	16.4	20.4	20.7	19.5	17.0	13.5	10.7	2.5	2.3	-2.0	-4.5	
Tertiary	7.7	10.5	12.9	16.2	15.6	15.1	14.2	13.4	12.3	5.3	1.9	-0.9	-1.5	
Transport	65.6	76.9	97.3	116.7	126.1	130.6	130.0	131.8	130.6	4.0	2.6	0.3	0.0	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.8	40.7	40.4	39.6	38.7	1.6	2.9	0.4	-0.4	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	68.7	67.4	69.8	72.1	2.5	-0.2	-0.9	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	159.5	157.0	148.3	145.7	133.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.0	127.3	113.6	101.8	92.5	0.2	-1.1	-2.3	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.16	1.98	1.95	1.76	0.1	-0.2	-1.3	-1.2
Import Dependency %	64.2	71.6	76.5	81.2	77.9	76.9	75.4	76.2	72.3				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	102.1	118.5	136.1	150.5	161.5		3.6	2.9	1.7
as % of GDP			9.2	9.1	9.6	9.5	9.6	9.7	9.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	99.4	91.2	84.1	79.5	0.3	0.8	-1.7	-1.4
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	100.2	89.5	77.9	69.3	62.7	-0.4	0.0	-2.5	-2.2
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.1	81.4	70.7	64.2	58.3	3.8	-0.7	-2.7	-1.9
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.7	36.4	35.1	34.5	0.6	-0.4	-1.1	-0.5
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	58.6	54.9	52.0	49.2	-2.3	-1.3	-1.0	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.30	0.25	0.24	0.18	0.0	-2.0	-3.1	-3.6
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.12	2.04	1.88	1.75	1.67	-0.2	-0.4	-1.2	-1.2
Industry	2.10	2.12	1.92	1.87	1.87	1.78	1.43	1.16	0.99	-0.9	-0.3	-2.6	-3.6
Residential	1.39	1.36	1.39	1.34	1.26	1.15	1.02	0.83	0.68	0.0	-1.0	-2.1	-4.0
Tertiary	1.53	1.50	1.40	1.40	1.33	1.26	1.21	1.14	1.08	-0.9	-0.5	-1.0	-1.1
Transport	2.94	2.95	2.96	2.96	2.86	2.77	2.69	2.68	2.66	0.1	-0.3	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.6	17.2	24.7	30.0	33.5				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	8.7	11.7	12.0	12.4				
Gross Electricity generation by source (in GWh)													
			222776	290555	307578	325451	348914	385349	406227		3.3	1.3	1.5
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	82102	74063	83316	61662		0.3	-0.9	-1.8
Oil (including refinery gas)			19567	23770	8400	4042	5094	5322	5349		-8.1	-4.9	0.5
Gas (including derived gases)			24741	85513	83820	72734	60842	67807	59491		13.0	-3.2	-0.2
Biomass-waste			3374	5457	8298	18173	37385	64041	72155		9.4	16.2	6.8
Hydro (pumping excluded)			29465	19549	28912	28457	28671	29147	29674		-0.2	-0.1	0.3
Wind			4723	21215	35251	60299	79860	93965	108685		22.3	8.5	3.1
Solar			18	78	674	1549	4562	7186	20298		43.7	21.1	16.1
Geothermal and other renewables			0	0	0	0	340	389	424				2.2
Net Generation Capacity in MW_e			60718	80297	92107	101266	110871	119233	142076		4.3	1.9	2.5
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40537	49865	58150	80266		7.4	5.0	4.9
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25718	32944	39492	53024		22.0	7.2	4.9
Solar			14	52	435	998	2923	4634	13200		41.5	21.0	16.3
Other renewables (tidal etc.)			0	0	0	0	176	202	220				2.2
<u>Thermal power</u>			38166	50004	54058	53743	54020	56976	56210		3.5	0.0	0.4
of which cogeneration units			5017	7578	7541	9333	8958	11354	11339		4.2	1.7	2.4
Solids fired			11352	11485	11277	10503	10163	10531	9835		-0.1	-1.0	-0.3
Gas fired			19801	32257	35544	34165	32637	30874	30374		6.0	-0.8	-0.7
Oil fired			6518	5375	5589	5203	3912	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1649	3873	7308	12323	13497		12.8	16.1	6.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	36.8	35.5	34.7	35.4	31.4				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.7	47.8	49.6	54.0	57.4				
% of gross electricity from CHP			7.4	13.5	12.5	15.0	15.4	18.4	17.7				
Carbon free gross electricity generation (%)			44.8	35.7	43.6	51.2	59.9	59.4	68.9				
- nuclear			27.9	19.8	19.9	17.9	16.7	8.9	11.9				
- renewable energy forms			16.9	15.9	23.8	33.3	43.2	50.5	56.9				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	690.6	756.1	810.6	846.2	5.3	2.9	2.1	1.1
Public road transport	33.4	39.6	50.3	54.6	57.8	60.5	63.8	66.3	68.6	4.2	1.4	1.0	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	472.8	508.2	534.7	548.6	5.5	3.1	1.8	0.8
Rail	19.9	20.8	25.4	27.2	29.7	32.5	36.8	42.2	47.9	2.5	1.6	2.2	2.7
Aviation	39.5	51.4	73.6	82.2	99.3	122.5	145.0	165.0	178.8	6.4	3.0	3.9	2.1
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	350.1	379.0	399.6	405.3	4.1	5.1	1.9	0.7
Trucks	83.8	101.6	148.7	233.2	267.4	296.1	319.3	337.5	342.3	5.9	6.0	1.8	0.7
Rail	11.2	11.0	11.6	11.1	12.8	14.4	16.1	17.1	17.5	0.4	1.0	2.3	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	39.5	43.6	45.0	45.5	-0.6	1.3	2.2	0.4
Energy demand in transport (ktoe)													
	22326	26069	32858	39428	44089	47226	48324	49248	49167	3.9	3.0	0.9	0.2
Public road transport	224	221	275	284	283	278	278	269	270	2.1	0.3	-0.2	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17626	18354	18441	18464	18417	6.2	2.1	0.5	0.0
Trucks	9634	9647	11587	14854	16950	18067	18216	18240	17772	1.9	3.9	0.7	-0.2
Rail	528	626	847	1166	1233	1300	1327	1274	905	4.8	3.8	0.7	-3.8
Aviation	2456	3105	4486	5323	6324	7420	8135	9056	9867	6.2	3.5	2.6	1.9
Inland navigation	1655	1871	1378	1534	1673	1808	1926	1946	1937	-1.8	2.0	1.4	0.1

Source: PRIMES

Spain: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	38655	41778	45599	2249	1229	6351	6.2	3.0	16.2
Solids	11679	7740	6265	4664	3136	2549	0	-1115	-28	0.0	-26.2	-1.1
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	158.8
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Renewable energy sources	6276	7185	8710	18752	23553	32398	2249	2344	6379	13.6	11.1	24.5
Hydro	2184	2534	1681	2447	2466	2552	203	167	0	9.1	7.3	0.0
Biomass & Waste	4067	4205	5129	9617	12021	16694	1039	620	1764	12.1	5.4	11.8
Wind	1	406	1825	5186	6868	9347	2	145	2054	0.0	2.2	28.2
Solar and others	21	33	68	1490	2183	3786	1001	1404	2549	204.5	180.2	206.1
Geothermal	2	8	8	13	16	19	4	8	11	53.8	95.5	139.2
Net Imports	59857	98351	122830	128514	127902	118872	-11572	-12829	-23799	-8.3	-9.1	-16.7
Solids	7038	12636	14418	17105	16139	10462	301	-1254	-13243	1.8	-7.2	-55.9
Oil	49166	69866	78279	78820	78557	74290	-3316	-5865	-10955	-4.0	-6.9	-12.9
- Crude oil and Feedstocks	53256	58393	59850	60936	60789	59107	-2259	-4057	-6477	-3.6	-6.3	-9.9
- Oil products	-4091	11473	18429	17884	17769	15183	-1057	-1808	-4478	-5.6	-9.2	-22.8
Natural gas	3690	15467	30248	29607	25513	23044	-10957	-12847	-10241	-27.0	-33.5	-30.8
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	158183	160321	154852	-9316	-11585	-17427	-5.6	-6.7	-10.1
Solids	18942	20643	20698	21769	19276	13012	301	-2369	-13271	1.4	-10.9	-50.5
Oil	45547	63223	69507	69983	69298	64670	-3310	-5849	-10933	-4.5	-7.8	-14.5
Natural gas	4970	15219	29844	29707	25513	23044	-10957	-12847	-10241	-26.9	-33.5	-30.8
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	21401	31021	43470	4649	9480	17018	27.8	44.0	64.3
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	13.8	12.0	8.4	0.9	-0.6	-6.9			
Oil	50.9	51.5	48.4	44.2	43.2	41.8	0.5	-0.5	-2.1			
Natural gas	5.6	12.4	20.8	18.8	15.9	14.9	-5.5	-6.4	-4.4			
Nuclear	15.3	13.1	10.3	9.5	9.3	6.9	0.5	0.6	0.7			
Renewable energy forms	7.0	5.9	6.1	13.5	19.3	28.1	3.5	6.8	12.7			
Gross Electricity Generation in GWh_e	150944	222776	290555	325451	348914	406227	-38310	-37906	-10568	-10.5	-9.8	-2.5
Self consumption and grid losses	21388	32539	40790	40462	42544	51729	-4419	-5345	-3605	-9.8	-11.2	-6.5
Fuel Inputs to Thermal Power Generation	16682	26461	35416	31858	30776	29738	-7582	-7483	-10093	-19.2	-19.6	-25.3
Solids	13881	18249	17641	18989	16445	11414	-77	-2886	-12779	-0.4	-14.9	-52.8
Oil (including refinery gas)	2170	4442	5246	636	779	827	79	176	101	14.2	29.1	13.9
Gas (including derived gases)	486	3075	11140	8409	8855	9907	-9608	-4597	1389	-53.3	-34.2	16.3
Biomass & Waste	145	694	1389	3825	4697	7590	2023	-176	1196	112.3	-3.6	18.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	67235	68291	66136	-1442	-2642	-5862	-2.1	-3.7	-8.1
Refineries	53753	60048	60507	60898	60825	59145	-2259	-4056	-6477	-3.6	-6.3	-9.9
Biofuels and hydrogen production	0	65	259	4165	5604	5767	514	1199	596	14.1	27.2	11.5
District heating	0	0	0	0	0	0	0	0	0	-13.6	-10.1	-42.4
Derived gases, cokeries etc.	4131	3031	3077	2171	1862	1224	302	216	19	16.2	13.1	1.6
Energy Branch Consumption	4757	6118	6397	5831	5841	5984	-144	-310	-565	-2.4	-5.0	-8.6
Non-Energy Uses	5847	9094	7823	8581	9066	9581	-19	-15	-32	-0.2	-0.2	-0.3
Final Energy Demand	56647	79422	97170	112879	115343	115230	-4776	-7315	-10918	-4.1	-6.0	-8.7
by sector												
Industry	20014	25474	31036	36702	38516	38871	-676	-874	-1661	-1.8	-2.2	-4.1
- energy intensive industries	13069	17260	20421	23882	24748	24657	-269	-392	-924	-1.1	-1.6	-3.6
- other industrial sectors	6945	8213	10615	12819	13768	14214	-406	-482	-737	-3.1	-3.4	-4.9
Residential	9266	11871	15150	17016	16711	15785	-650	-1057	-1879	-3.7	-5.9	-10.6
Tertiary	5041	9219	11556	11935	11793	11407	-1519	-1958	-2565	-11.3	-14.2	-18.4
Transport	22326	32858	39428	47226	48324	49167	-1931	-3426	-4813	-3.9	-6.6	-8.9
by fuel												
Solids	3524	1671	1782	1872	2049	1092	281	447	-506	17.7	27.9	-31.6
Oil	33488	45784	52776	56611	55403	51910	-3333	-5922	-9518	-5.6	-9.7	-15.5
Gas	4873	12141	17978	21041	16285	12478	-1123	-7992	-11551	-5.1	-32.9	-48.1
Electricity	10817	16205	20827	24278	26011	29968	-2911	-2787	-568	-10.7	-9.7	-1.9
Heat (from CHP and District Heating)	0	74	0	21	24	26	1	-3	2	5.4	-11.0	6.7
Renewable energy forms	3945	3547	3806	9049	15556	19739	2307	8940	11223	34.2	135.1	131.8
Other	0	0	0	7	14	16	1	1	0	9.2	5.8	-1.8
RES in Gross Final Energy Consumption ^(A)		6709	8189	20069	29351	40059	4595	9646	15900	29.7	49.0	65.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	450.7	425.8	382.9	-40.4	-66.1	-119.6	-8.2	-13.4	-23.8
CO₂ Emissions (energy related)	203.3	283.2	339.4	341.4	318.1	272.1	-34.4	-57.2	-109.2	-9.2	-15.2	-28.6
Power generation/District heating	63.6	94.1	113.2	97.1	88.2	71.3	-22.5	-21.9	-46.8	-18.8	-19.9	-39.6
Energy Branch	11.5	13.6	14.7	13.7	13.5	8.7	-0.3	-0.5	-4.4	-2.3	-3.8	-33.4
Industry	41.9	48.9	58.2	65.4	55.2	38.6	-0.8	-14.9	-28.6	-1.2	-21.2	-42.6
Residential	12.9	16.4	20.4	19.5	17.0	10.7	-2.0	-4.0	-9.3	-9.4	-19.1	-46.5
Tertiary	7.7	12.9	16.2	15.1	14.2	12.3	-1.5	-2.1	-3.0	-9.1	-12.7	-19.8
Transport	65.6	97.3	116.7	130.6	130.0	130.6	-7.2	-13.8	-17.2	-5.2	-9.6	-11.6
CO₂ Emissions (non energy related)	24.9	29.2	36.5	40.7	40.4	38.7	0.0	-0.5	-0.9	0.0	-1.2	-2.3
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	68.7	67.4	72.1	-6.0	-8.5	-9.5	-8.0	-11.2	-11.7
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	157.0	148.3	133.4	-14.1	-23.0	-41.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Spain: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	127.3	113.6	92.5	-7.5	-8.2	-10.4	-5.6	-6.7	-10.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.16	1.98	1.76	-0.09	-0.20	-0.46	-3.8	-9.1	-20.6
Import Dependency %	64.2	76.5	81.2	76.9	75.4	72.3	-2.5	-2.3	-6.2			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	118.5	136.1	161.5	5.1	7.6	15.7	4.5	5.9	10.7
as % of GDP		9.2	9.1	9.5	9.6	9.6	0.4	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				5.1	7.7	15.8						
as % of GDP				0.41	0.55	0.95						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	99.4	91.2	79.5	-1.8	-2.1	-3.4	-1.8	-2.2	-4.1
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	89.5	77.9	62.7	-3.4	-4.9	-7.5	-3.7	-5.9	-10.6
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	81.4	70.7	58.3	-10.4	-11.7	-13.1	-11.3	-14.2	-18.4
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.7	36.4	34.5	-0.6	-0.9	-1.4	-1.5	-2.5	-3.9
Freight transport (toe/Mtkm)	87.8	69.3	61.1	58.6	54.9	49.2	-1.9	-3.6	-4.9	-3.2	-6.2	-9.1
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.30	0.25	0.18	-0.03	-0.03	-0.11	-9.3	-11.2	-38.0
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.04	1.88	1.67	-0.02	-0.17	-0.32	-0.7	-8.4	-15.9
Industry	2.10	1.92	1.87	1.78	1.43	0.99	0.01	-0.35	-0.67	0.6	-19.5	-40.1
Residential	1.39	1.39	1.34	1.15	1.02	0.68	-0.07	-0.16	-0.45	-5.9	-14.0	-40.1
Tertiary	1.53	1.40	1.40	1.26	1.21	1.08	0.03	0.02	-0.02	2.5	1.8	-1.8
Transport	2.94	2.96	2.96	2.77	2.69	2.66	-0.04	-0.09	-0.08	-1.4	-3.2	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	17.2	24.7	33.5	4.5	9.1	15.0			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	8.7	11.7	12.4	1.4	3.2	2.4			
Gross Electricity generation by source (in GWh_e)												
	222776	290555	325451	348914	406227	466227	-38310	-37906	-10568	-10.5	-9.8	-2.5
Nuclear energy	62195	57529	58096	58096	58096	48490	0	0	0	0.0	0.0	0.0
Solids	78694	77443	82102	74063	61662	61662	209	-13407	-71267	0.3	-15.3	-53.6
Oil (including refinery gas)	19567	23770	4042	5094	5349	5349	294	1227	1378	7.8	31.7	34.7
Gas (including derived gases)	24741	85513	72734	60842	59491	59491	-51215	-45863	-19109	-41.3	-43.0	-24.3
Biomass-waste	3374	5457	18173	37385	72155	72155	9811	14450	39821	117.3	63.0	123.2
Hydro (pumping excluded)	29465	19549	28457	28671	29674	29674	2362	1946	0	9.1	7.3	0.0
Wind	4723	21215	60299	79860	108685	108685	18	1683	23888	0.0	2.2	28.2
Solar	18	78	1549	4562	20298	20298	212	1719	14297	15.8	60.4	238.2
Geothermal and other renewables	0	0	0	340	424	424	0	340	424			
Net Generation Capacity in MW_e												
	60718	80297	101266	110871	142076	142076	2534	1737	24618	2.6	1.6	21.0
<u>Nuclear energy</u>	7579	7579	6986	6986	5600	5600	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	14974	22714	40537	49865	80266	80266	141	520	24077	0.3	1.1	42.8
Hydro (pumping excluded)	12725	12725	13820	13822	13822	13822	0	0	0	0.0	0.0	0.0
Wind	2235	9937	25718	32944	53024	53024	7	-749	14515	0.0	-2.2	37.7
Solar	14	52	998	2923	13200	13200	134	1093	9342	15.5	59.7	242.1
Other renewables (tidal etc.)	0	0	0	176	220	220	0	176	220			
<u>Thermal power</u>	38166	50004	53743	54020	56210	56210	2393	1217	541	4.7	2.3	1.0
of which cogeneration units	5017	7578	9333	8958	11339	11339	1280	-1498	-143	15.9	-14.3	-1.2
Solids fired	11352	11485	10503	10163	9835	9835	-68	-1179	-6543	-0.6	-10.4	-39.9
Gas fired	19801	32257	34165	32637	30374	30374	-302	-1246	-1430	-0.9	-3.7	-4.5
Oil fired	6518	5375	5203	3912	2504	2504	-14	-14	0	-0.3	-0.3	0.0
Biomass-waste fired	495	887	3873	7308	13497	13497	2776	3655	8514	253.1	100.0	170.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	35.5	34.7	31.4	31.4	-5.3	-4.4	-7.3			
Efficiency of gross thermal power generation (%)	41.1	46.7	47.8	49.6	57.4	57.4	0.3	-0.1	3.9			
% of gross electricity from CHP	7.4	13.5	15.0	15.4	17.7	17.7	3.7	0.8	3.0			
Carbon free gross electricity generation (%)	44.8	35.7	51.2	59.9	68.9	68.9	8.8	11.1	20.6			
- nuclear	27.9	19.8	17.9	16.7	11.9	11.9	1.9	1.6	0.3			
- renewable energy forms	16.9	15.9	33.3	43.2	56.9	56.9	6.9	9.4	20.3			
Transport sector												
Passenger transport activity (Gpkm)												
	276.7	461.8	535.3	690.6	756.1	846.2	-9.5	-16.4	-21.7	-1.4	-2.1	-2.5
Public road transport	33.4	50.3	54.6	60.5	63.8	68.6	1.1	1.7	2.1	1.9	2.8	3.2
Private cars and motorcycles	182.0	310.7	369.2	472.8	508.2	548.6	-8.6	-15.0	-19.4	-1.8	-2.9	-3.4
Rail	19.9	25.4	27.2	32.5	36.8	47.9	0.2	0.8	1.2	0.8	2.3	2.5
Aviation	39.5	73.6	82.2	122.5	145.0	178.8	-2.2	-3.9	-5.5	-1.8	-2.6	-3.0
Inland navigation	2.1	1.9	2.1	2.3	2.4	2.4	0.0	0.0	0.0	-0.8	-0.7	-0.7
Freight transport activity (Gtkm)												
	128.0	191.3	276.4	350.1	379.0	405.3	-7.9	-12.5	-15.7	-2.2	-3.2	-3.7
Trucks	83.8	148.7	233.2	296.1	319.3	342.3	-8.8	-14.0	-17.5	-2.9	-4.2	-4.9
Rail	11.2	11.6	11.1	14.4	16.1	17.5	0.5	0.8	1.0	3.7	5.2	5.8
Inland navigation	33.0	31.0	32.0	39.5	43.6	45.5	0.4	0.7	0.9	1.1	1.7	2.0
Energy demand in transport (ktoe)												
	22326	32858	39428	47226	48324	49167	-1931	-3426	-4813	-3.9	-6.6	-8.9
Public road transport	224	275	284	278	278	270	-1	-3	-16	-0.2	-1.0	-5.6
Private cars and motorcycles	7830	14286	16266	18354	18441	18417	-581	-942	-1132	-3.1	-4.9	-5.8
Trucks	9634	11587	14854	18067	18216	17772	-1181	-2148	-2856	-6.1	-10.5	-13.8
Rail	528	847	1166	1300	1327	905	13	20	-34	1.0	1.5	-3.6
Aviation	2456	4486	5323	7420	8135	9867	-180	-349	-805	-2.4	-4.1	-7.5
Inland navigation	1655	1378	1534	1808	1926	1937	-2	-4	29	-0.1	-0.2	1.5

Source: PRIMES

Sweden: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	29728	31514	30077	34378	35663	37456	35751	34980	33183	0.1	1.7	0.0	-0.7	
Solids	216	321	231	302	290	99	59	7	5	0.7	2.3	-14.7	-21.5	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19311	19476	15734	12540	8909	-1.8	2.7	-2.0	-5.5	
Renewable energy sources	11745	13149	15065	15406	16062	17882	19957	22433	24268	2.5	0.6	2.2	2.0	
Hydro	6234	5856	6757	6260	6262	6271	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9059	10791	12752	14640	14984	4.1	0.9	3.5	1.6	
Wind	1	9	39	80	701	703	782	1355	2832	54.2	33.4	1.1	13.7	
Solar and others	3	5	5	6	40	117	143	157	172	5.3	22.2	13.7	1.9	
Geothermal	0	0	0	0	0	0	0	0	0			5.8	0.2	
Net Imports	17923	19281	19172	19867	20453	19703	19321	18897	18061	0.7	0.6	-0.6	-0.7	
Solids	2329	2657	2340	2462	2884	3372	3511	3303	2932	0.0	2.1	2.0	-1.8	
Oil	15169	16014	15654	17198	17508	16299	15411	15183	14888	0.3	1.1	-1.3	-0.3	
- Crude oil and Feedstocks	16989	17815	20372	19825	20253	19472	18876	18687	18459	1.8	-0.1	-0.7	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2744	-3173	-3465	-3505	-3571					
Natural gas	577	755	776	843	989	1495	1810	1735	1599	3.0	2.5	6.2	-1.2	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54080	55051	52888	51610	48902	0.1	1.2	-0.2	-0.8	
Solids	2677	2893	2442	2626	3174	3470	3570	3310	2937	-0.9	2.7	1.2	-1.9	
Oil	14555	15754	14382	14646	15472	14190	13227	12915	12546	-0.1	0.7	-1.6	-0.5	
Natural gas	577	755	776	843	989	1495	1810	1735	1599	3.0	2.5	6.2	-1.2	
Nuclear	17764	18040	14781	18670	19311	19476	15734	12540	8909	-1.8	2.7	-2.0	-5.5	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16062	17882	19957	22433	24268	2.5	0.6	2.2	2.0	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.3	6.8	6.4	6.0					
Oil	30.9	31.2	30.1	28.4	28.6	25.8	25.0	25.0	25.7					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.4	3.4	3.3					
Nuclear	37.7	35.8	30.9	36.2	35.7	35.4	29.8	24.3	18.2					
Renewable energy forms	24.9	26.1	31.5	29.9	29.7	32.5	37.7	43.5	49.6					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166861	180715	178948	186716	194248	0.0	1.4	0.7	0.8	
Self consumption and grid losses	13436	14222	14818	15557	16914	17794	17655	19809	20317	1.0	1.3	0.4	1.4	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3785	4094	5238	6829	6244	8.1	1.6	3.3	1.8	
Solids	558	705	467	494	517	10	0	0	0	-1.8	1.0			
Oil (including refinery gas)	253	737	276	316	44	22	21	1	1	0.9	-16.7	-7.2	-30.1	
Gas (including derived gases)	253	406	414	490	0	18	12	0	0	5.0	-49.0	37.8	-37.2	
Biomass & Waste	427	1398	2083	3166	3223	4044	5205	6828	6243	17.2	4.5	4.9	1.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24197	23541	23114	22594	22123	2.1	-0.4	-0.5	-0.4	
Refineries	18041	19475	21618	20537	20231	19461	18871	18685	18458	1.8	-0.7	-0.7	-0.2	
Biofuels and hydrogen production	0	0	0	210	438	711	1000	1071	1165			8.6	1.5	
District heating	1123	2373	1973	1722	1581	1391	1269	895	683	5.8	-2.2	-2.2	-6.0	
Derived gases, cokeries etc.	1415	1615	1704	1835	1947	1977	1974	1943	1817	1.9	1.3	0.1	-0.8	
Energy Branch Consumption	1758	1629	1532	1424	1530	1595	1581	1650	1571	-1.4	0.0	0.3	-0.1	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2601	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34372	35822	35957	35881	36582	0.9	0.3	0.5	0.2	
by sector														
Industry	11857	11527	12047	12042	13157	14574	15260	15526	16339	0.2	0.9	1.5	0.7	
- energy intensive industries	8574	8572	9161	9204	9940	11066	11579	11758	12439	0.7	0.8	1.5	0.7	
- other industrial sectors	3283	2955	2886	2838	3217	3509	3681	3768	3900	-1.3	1.1	1.4	0.6	
Residential	6840	8032	7546	7882	7827	7559	6987	6479	6260	1.0	0.4	-1.1	-1.1	
Tertiary	4555	5378	5581	4577	4494	4583	4477	4462	4424	2.1	-2.1	0.0	-0.1	
Transport	7263	7666	8128	8643	8893	9106	9233	9413	9559	1.1	0.9	0.4	0.3	
by fuel														
Solids	1231	1192	1141	1345	1617	2392	2504	2313	2009	-0.8	3.6	4.5	-2.2	
Oil	12004	12567	12341	11087	11265	10268	9945	9852	9699	0.3	-0.9	-1.2	-0.2	
Gas	587	611	673	746	1516	1899	1968	1884	1610	1.4	8.5	2.6	-2.0	
Electricity	10348	10711	11068	11382	11697	12276	12225	12828	13435	0.7	0.6	0.4	0.9	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3725	3338	3039	2208	1895	7.6	0.5	-2.0	-4.6	
Renewable energy forms	4639	3981	4528	4410	4551	5647	6272	6792	7928	-0.2	0.1	3.3	2.4	
Other	0	0	0	0	1	2	3	4	4			14.6	2.8	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14688	16531	18129	19691	22021	0.0	2.1	2.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.2	69.1	67.5	65.3	62.6	-0.1	-0.2	-0.5	-0.8	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.6	49.4	47.9	46.1	43.6	0.0	0.0	-0.5	-0.9	
Power generation/District heating	6.3	7.9	5.1	5.5	3.5	1.3	0.5	0.0	0.0	-2.0	-3.8	-18.0		
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.4	2.1	2.0	1.9	2.3	1.3	-0.6	-1.1	
Industry	11.6	12.5	11.0	12.2	16.1	17.2	17.4	16.2	14.1	-0.5	3.8	0.8	-2.1	
Residential	4.8	4.6	3.7	1.4	1.5	1.4	1.2	0.9	0.7	-2.6	-8.4	-2.2	-6.0	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.8	2.8	2.7	2.7	0.0	-6.2	-0.6	-0.2	
Transport	20.7	21.8	23.2	24.0	24.3	24.3	23.9	24.2	24.3	1.1	0.5	-0.2	0.2	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.9	6.9	6.9	6.9	-0.3	0.7	0.0	0.0	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.8	12.8	12.3	12.1	-0.4	-1.1	-0.7	-0.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.5	94.7	92.5	89.4	85.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.0	145.4	125.6	111.2	97.3	-1.9	-1.5	-2.5	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.93	0.90	0.91	0.89	0.89	-0.1	-1.2	-0.3	-0.1
Import Dependency %	37.5	37.5	39.0	37.2	36.4	34.5	35.1	35.1	35.2				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.1	39.2	43.5	47.9	51.1		3.8	2.2	1.6
as % of GDP			9.5	10.7	10.5	10.4	10.3	10.3	10.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.7	72.2	67.2	61.9	60.3	-5.6	-2.9	-1.1	-1.1
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	83.9	73.1	61.5	52.3	47.0	-0.7	-1.7	-3.1	-2.7
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.4	57.4	50.3	45.3	41.2	0.5	-4.5	-2.3	-2.0
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	35.2	33.8	32.2	30.9	-0.6	-0.9	-0.9	-0.9
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	40.0	37.1	35.8	34.7	1.3	-0.3	-1.4	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.00	-3.1	-4.8		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.30	1.28	1.26	1.23	1.14	-0.7	0.0	-0.3	-1.0
Industry	0.97	1.08	0.91	1.01	1.22	1.18	1.14	1.04	0.86	-0.6	2.9	-0.6	-2.8
Residential	0.70	0.57	0.49	0.18	0.20	0.19	0.18	0.15	0.11	-3.5	-8.7	-1.1	-5.0
Tertiary	1.23	1.00	1.00	0.68	0.65	0.62	0.62	0.62	0.61	-2.0	-4.2	-0.6	-0.1
Transport	2.85	2.85	2.85	2.77	2.73	2.66	2.59	2.57	2.55	0.0	-0.4	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.9	44.2	48.3	52.3	57.4				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.1	10.1	10.8	11.8				
Gross Electricity generation by source (in GWh)													
			145524	158341	166861	180715	178948	186716	194248		1.4	0.7	0.8
Nuclear energy			57306	72364	74882	75630	61055	48662	34546		2.7	-2.0	-5.5
Solids			1141	1241	543	272	0	0	0		-7.2	-64.3	
Oil (including refinery gas)			1828	1004	261	190	144	3	3		-17.7	-5.8	-32.1
Gas (including derived gases)			1714	1394	120	205	73	1	1		-23.4	-4.9	-38.4
Biomass-waste			4508	8607	10082	23318	35550	49253	53730		8.4	13.4	4.2
Hydro (pumping excluded)			78570	72795	72816	72920	73026	73026	73026		-0.8	0.0	0.0
Wind			457	936	8155	8175	9094	15761	32929		33.4	1.1	13.7
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	36470	36751	36604	41720	50836		1.2	0.0	3.3
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	18786	18804	19158	21409	28451		1.7	0.2	4.0
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	3125	3132	3475	5788	12814		29.8	1.1	13.9
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8640	8500	7998	10862	12936		2.1	-0.8	4.9
of which cogeneration units			3791	4762	3218	4145	4433	4289	4652		-1.6	3.3	0.5
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	504	465	1591	3112		1.3	-2.2	20.9
Oil fired			4271	4366	4135	3022	1586	1573	1489		-0.3	-9.1	-0.6
Biomass-waste fired			1389	1842	3247	4684	5715	7484	8202		8.9	5.8	3.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	50.9	54.5	53.9	49.1	42.0				
Efficiency of gross thermal power generation (%)			24.4	23.6	25.0	50.4	58.7	62.0	74.0				
% of gross electricity from CHP			5.9	7.5	5.3	11.3	14.4	13.4	14.8				
Carbon free gross electricity generation (%)			96.8	97.7	99.4	99.6	99.9	100.0	100.0				
- nuclear			39.4	45.7	44.9	41.9	34.1	26.1	17.8				
- renewable energy forms			57.4	52.0	54.6	57.8	65.8	73.9	82.2				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	154.4	166.2	177.0	188.1	198.1	1.1	1.4	1.4	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.4	9.9	10.3	10.7	1.7	-0.3	0.7	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	113.7	119.5	126.3	131.9	0.6	1.4	1.1	1.0
Rail	8.6	8.8	10.2	11.0	12.2	13.8	15.1	15.9	17.0	1.7	1.8	2.2	1.2
Aviation	8.1	10.8	13.8	15.6	18.8	21.9	24.9	27.9	30.7	5.4	3.1	2.9	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.3	7.5	7.7	7.8	-1.3	0.0	0.4	0.4
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	74.6	81.4	87.6	93.7	99.2	1.4	1.9	1.6	1.3
Trucks	26.5	31.6	35.6	38.6	42.3	45.2	48.0	51.8	54.9	3.0	1.7	1.3	1.4
Rail	19.1	19.4	19.5	21.7	25.1	28.4	31.2	33.2	35.3	0.2	2.6	2.2	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.8	9.0	-1.8	0.6	1.4	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	8893	9106	9233	9413	9559	1.1	0.9	0.4	0.3
Public road transport	230	275	189	156	146	143	144	144	142	-2.0	-2.5	-0.1	-0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4473	4485	4422	4354	0.2	0.8	0.1	-0.3
Trucks	1872	2066	2471	2695	2863	2894	2886	2997	3086	2.8	1.5	0.1	0.7
Rail	252	273	299	332	368	384	385	374	377	1.7	2.1	0.5	-0.2
Aviation	760	849	928	846	936	1066	1182	1324	1446	2.0	0.1	2.4	2.0
Inland navigation	143	103	154	141	143	146	150	153	153	0.8	-0.8	0.5	0.2

Source: PRIMES

Sweden: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	37456	35751	33183	761	-1565	-5285	2.1	-4.2	-13.7
Solids	216	231	302	99	59	5	-207	-211	-140	-67.8	-78.1	-96.4
Oil	3	0	0	0	0	0	0	0	0	533.3	270.0	118.2
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19476	15734	8909	0	-3743	-10570	0.0	-19.2	-54.3
Renewable energy sources	11745	15065	15406	17882	19957	24268	968	2389	5426	5.7	13.6	28.8
Hydro	6234	6757	6260	6271	6280	6280	19	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	10791	12752	14984	588	1932	2982	5.8	17.9	24.8
Wind	1	39	80	703	782	2832	280	357	2326	66.3	84.0	459.9
Solar and others	3	5	6	117	143	172	82	99	117	230.2	225.3	210.0
Geothermal	0	0	0	0	0	0	0	0	0	52.9	90.5	96.7
Net Imports	17923	19172	19867	19703	19321	18061	-3238	-3926	-4826	-14.1	-16.9	-21.1
Solids	2329	2340	2462	3372	3511	2932	-1693	-1666	-1844	-33.4	-32.2	-38.6
Oil	15169	15654	17198	16299	15411	14888	-896	-1303	-1728	-5.2	-7.8	-10.4
- Crude oil and Feedstocks	16989	20372	19825	19472	18876	18459	-640	-894	-1235	-3.2	-4.5	-6.3
- Oil products	-1820	-4718	-2626	-3173	-3465	-3571	-256	-409	-493	8.8	13.4	16.0
Natural gas	577	776	843	1495	1810	1599	-649	-956	-1254	-30.3	-34.6	-43.9
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	55051	52888	48902	-2477	-5489	-10108	-4.3	-9.4	-17.1
Solids	2677	2442	2626	3470	3570	2937	-1901	-1877	-1984	-35.4	-34.5	-40.3
Oil	14555	14382	14646	14190	13227	12546	-895	-1302	-1725	-5.9	-9.0	-12.1
Natural gas	577	776	843	1495	1810	1599	-649	-956	-1254	-30.3	-34.6	-43.9
Nuclear	17764	14781	18670	19476	15734	8909	0	-3743	-10570	0.0	-19.2	-54.3
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	17882	19957	24268	968	2389	5426	5.7	13.6	28.8
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.3	6.8	6.0	-3.0	-2.6	-2.3			
Oil	30.9	30.1	28.4	25.8	25.0	25.7	-0.4	0.1	1.5			
Natural gas	1.2	1.6	1.6	2.7	3.4	3.3	-1.0	-1.3	-1.6			
Nuclear	37.7	30.9	36.2	35.4	29.8	18.2	1.5	-3.6	-14.8			
Renewable energy forms	24.9	31.5	29.9	32.5	37.7	49.6	3.1	7.6	17.7			
Gross Electricity Generation in GWh_e	145958	145524	158341	180715	178948	194248	-5206	-9798	2663	-2.8	-5.2	1.4
Self consumption and grid losses	13436	14818	15557	17794	17655	20317	-942	-1310	505	-5.0	-6.9	2.6
Fuel Inputs to Thermal Power Generation	1491	3239	4465	4094	5238	6244	-2197	-956	732	-34.9	-15.4	13.3
Solids	558	467	494	10	0	0	-990	-646	-166	-99.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	22	21	1	-31	7	0	-58.8	52.7	-18.9
Gas (including derived gases)	253	414	490	18	12	0	-382	-465	-596	-95.5	-97.5	-100.0
Biomass & Waste	427	2083	3166	4044	5205	6243	-793	148	1494	-16.4	2.9	31.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	23541	23114	22123	-878	-1208	-2101	-3.6	-5.0	-8.7
Refineries	18041	21618	20537	19461	18871	18458	-640	-894	-1235	-3.2	-4.5	-6.3
Biofuels and hydrogen production	0	0	210	711	1000	1165	80	206	112	12.7	25.9	10.7
District heating	1123	1973	1722	1391	1269	683	-358	-494	-981	-20.5	-28.0	-59.0
Derived gases, cokeries etc.	1415	1704	1835	1977	1974	1817	39	-26	2	2.0	-1.3	0.1
Energy Branch Consumption	1758	1532	1424	1595	1581	1571	-66	-100	-164	-4.0	-5.9	-9.4
Non-Energy Uses	1769	1771	2344	2550	2570	2601	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	35822	35957	36582	-1210	-2303	-3356	-3.3	-6.0	-8.4
by sector												
Industry	11857	12047	12042	14574	15260	16339	315	329	485	2.2	2.2	3.1
- energy intensive industries	8574	9161	9204	11066	11579	12439	378	436	644	3.5	3.9	5.5
- other industrial sectors	3283	2886	2838	3509	3681	3900	-63	-107	-159	-1.8	-2.8	-3.9
Residential	6840	7546	7882	7559	6987	6260	-711	-1321	-2114	-8.6	-15.9	-25.2
Tertiary	4555	5581	4577	4583	4477	4424	-392	-612	-826	-7.9	-12.0	-15.7
Transport	7263	8128	8643	9106	9233	9559	-421	-699	-901	-4.4	-7.0	-8.6
by fuel												
Solids	1231	1141	1345	2392	2504	2009	-454	-673	-1158	-16.0	-21.2	-36.6
Oil	12004	12341	11087	10268	9945	9699	-700	-1189	-1681	-6.4	-10.7	-14.8
Gas	587	673	746	1899	1968	1610	-349	-438	-492	-15.5	-18.2	-23.4
Electricity	10348	11068	11382	12276	12225	13435	-364	-688	300	-2.9	-5.3	2.3
Heat (from CHP and District Heating)	1706	3550	4174	3338	3039	1895	-642	-974	-2082	-16.1	-24.3	-52.3
Renewable energy forms	4639	4528	4410	5647	6272	7928	1299	1657	1757	29.9	35.9	28.5
Other	0	0	0	2	3	4	0	0	-1	8.5	7.5	-22.0
RES in Gross Final Energy Consumption ^(A)		14717	14682	16531	18129	22021	1323	2194	4516	8.7	13.8	25.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	69.1	67.5	62.6	-12.7	-15.1	-17.7	-15.5	-18.3	-22.1
CO₂ Emissions (energy related)	50.5	50.5	48.5	49.4	47.9	43.6	-11.7	-13.6	-16.0	-19.2	-22.1	-26.8
Power generation/District heating	6.3	5.1	5.5	1.3	0.5	0.0	-6.9	-6.2	-5.4	-83.9	-92.8	-100.0
Energy Branch	1.5	1.9	2.3	2.4	2.1	1.9	-0.2	-0.2	-0.2	-7.5	-7.3	-7.8
Industry	11.6	11.0	12.2	17.2	17.4	14.1	-2.5	-3.5	-5.1	-12.9	-16.9	-26.8
Residential	4.8	3.7	1.4	1.4	1.2	0.7	-0.3	-0.5	-1.5	-16.0	-30.0	-68.9
Tertiary	5.6	5.6	3.1	2.8	2.8	2.7	-0.4	-0.5	-0.7	-11.4	-16.0	-19.8
Transport	20.7	23.2	24.0	24.3	23.9	24.3	-1.5	-2.6	-3.1	-5.7	-9.9	-11.4
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.9	6.9	6.9	-0.1	-0.3	-0.4	-0.8	-3.7	-5.5
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.8	12.8	12.1	-0.9	-1.3	-1.3	-6.5	-9.1	-10.0
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	94.7	92.5	85.7	-17.4	-20.7	-24.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: EC proposal with JI/CDM & RES trading											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	145.4	125.6	97.3	-6.5	-13.0	-20.1	-4.3	-9.4	-17.1
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.90	0.91	0.89	-0.17	-0.15	-0.12	-15.6	-14.0	-11.7
Import Dependency %	37.5	39.0	37.2	34.5	35.1	35.2	-4.0	-3.3	-2.1			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.2	43.5	51.1	1.3	2.8	6.4	3.4	6.9	14.3
as % of GDP		9.5	10.7	10.4	10.3	10.2	0.3	0.7	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				1.3	2.8	6.4						
as % of GDP				0.35	0.67	1.28						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	72.2	67.2	60.3	1.6	1.4	1.8	2.2	2.2	3.1
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	73.1	61.5	47.0	-6.9	-11.6	-15.9	-8.6	-15.9	-25.2
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	57.4	50.3	41.2	-4.9	-6.9	-7.7	-7.9	-12.0	-15.7
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	35.2	33.8	30.9	-0.6	-0.9	-1.3	-1.7	-2.7	-4.0
Freight transport (toe/Mtkm)	38.8	44.2	44.6	40.0	37.1	34.7	-2.2	-3.6	-3.6	-5.2	-8.8	-9.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.01	0.00	0.00	-0.03	-0.03	-0.02	-82.9	-92.1	-100.0
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.28	1.26	1.14	-0.08	-0.11	-0.16	-6.1	-8.2	-12.6
Industry	0.97	0.91	1.01	1.18	1.14	0.86	-0.20	-0.26	-0.35	-14.7	-18.6	-28.9
Residential	0.70	0.49	0.18	0.19	0.18	0.11	-0.02	-0.04	-0.15	-8.1	-16.7	-58.5
Tertiary	1.23	1.00	0.68	0.62	0.62	0.61	-0.02	-0.03	-0.03	-3.9	-4.5	-4.9
Transport	2.85	2.85	2.77	2.66	2.59	2.55	-0.03	-0.08	-0.08	-1.3	-3.1	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.2	48.3	57.4	4.9	8.4	15.4			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.1	10.1	11.8	1.1	2.7	2.2			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	180715	178948	194248	194248	-5206	-9798	2663	-2.8	-5.2	1.4
Nuclear energy	57306	72364	75630	61055	34546		-252	-14831	-41347	-0.3	-19.5	-54.5
Solids	1141	1241	272	0	0		-3334	-2381	-1157	-92.5	-100.0	-100.0
Oil (including refinery gas)	1828	1004	190	144	3		-306	-54	-1	-61.7	-27.3	-17.3
Gas (including derived gases)	1714	1394	205	73	1		-3539	-3961	-3866	-94.5	-98.2	-100.0
Biomass-waste	4508	8607	23318	35550	53730		-1250	7266	21974	-5.1	25.7	69.2
Hydro (pumping excluded)	78570	72795	72920	73026	73026		216	12	12	0.3	0.0	0.0
Wind	457	936	8175	9094	32929		3258	4150	27048	66.3	84.0	459.9
Solar	0	0	5	7	14		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	32460	33376	36751	36604	50836	50836	506	-411	10683	1.4	-1.1	26.6
<u>Nuclear energy</u>	9584	9630	9446	9449	9449		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	18804	19158	28451		1260	1594	10631	7.2	9.1	59.7
Hydro (pumping excluded)	15625	15651	15651	15576	15576		0	0	0	0.0	0.0	0.0
Wind	231	493	3132	3475	12814		1260	1594	10631	67.3	84.8	486.8
Solar	0	4	22	32	61		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	8500	7998	12936		-754	-2005	53	-8.1	-20.0	0.4
of which cogeneration units	3791	4762	4145	4433	4652		-923	-1001	-1246	-18.2	-18.4	-21.1
Solids fired	847	868	290	232	133		-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	504	465	3112		-793	-2531	-2151	-61.1	-84.5	-40.9
Oil fired	4271	4366	3022	1586	1489		0	0	-430	0.0	0.0	-22.4
Biomass-waste fired	1389	1842	4684	5715	8202		474	960	2762	11.3	20.2	50.8
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.5	53.9	42.0		-2.3	-2.4	-10.5			
Efficiency of gross thermal power generation (%)	24.4	23.6	50.4	58.7	74.0		6.1	10.3	16.6			
% of gross electricity from CHP	5.9	7.5	11.3	14.4	14.8		-2.1	-0.6	-2.2			
Carbon free gross electricity generation (%)	96.8	97.7	99.6	99.9	100.0		3.9	3.4	2.6			
- nuclear	39.4	45.7	41.9	34.1	17.8		1.0	-6.1	-21.8			
- renewable energy forms	57.4	52.0	57.8	65.8	82.2		2.8	9.5	24.5			
Transport sector												
Passenger transport activity (Gpkm)												
	120.6	134.0	142.2	166.2	177.0	198.1	-2.5	-4.1	-5.7	-1.5	-2.2	-2.8
Public road transport	8.0	9.5	9.0	9.4	9.9	10.7	0.1	0.2	0.2	1.2	1.8	2.2
Private cars and motorcycles	87.6	93.3	99.4	113.7	119.5	131.9	-2.3	-3.8	-5.3	-2.0	-3.1	-3.9
Rail	8.6	10.2	11.0	13.8	15.1	17.0	0.3	0.5	0.5	1.9	3.3	3.1
Aviation	8.1	13.8	15.6	21.9	24.9	30.7	-0.5	-0.8	-1.1	-2.3	-3.2	-3.6
Inland navigation	8.3	7.2	7.2	7.3	7.5	7.8	-0.1	-0.1	0.0	-0.9	-0.7	-0.6
Freight transport activity (Gtkm)												
	53.9	62.0	67.3	81.4	87.6	99.2	-1.3	-1.9	-2.8	-1.5	-2.2	-2.7
Trucks	26.5	35.6	38.6	45.2	48.0	54.9	-2.0	-3.1	-4.1	-4.2	-6.0	-7.0
Rail	19.1	19.5	21.7	28.4	31.2	35.3	0.7	1.2	1.3	2.7	3.9	3.9
Inland navigation	8.3	6.9	7.0	7.8	8.3	9.0	0.0	0.0	0.0	-0.4	-0.4	-0.2
Energy demand in transport (ktoe)												
	7263	8128	8643	9106	9233	9559	-421	-699	-901	-4.4	-7.0	-8.6
Public road transport	230	189	156	143	144	142	-2	-5	-9	-1.2	-3.1	-6.0
Private cars and motorcycles	4004	4086	4472	4473	4485	4354	-161	-251	-345	-3.5	-5.3	-7.3
Trucks	1872	2471	2695	2894	2886	3086	-226	-386	-448	-7.3	-11.8	-12.7
Rail	252	299	332	384	385	377	-5	-5	-12	-1.2	-1.4	-3.2
Aviation	760	928	846	1066	1182	1446	-27	-49	-83	-2.4	-4.0	-5.4
Inland navigation	143	154	141	146	150	153	-2	-2	-4	-1.2	-1.6	-2.5

Source: PRIMES

United Kingdom: EC proposal with JI/CDM & RES trading										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	205508	249865	268722	202300	170651	112819	79213	76989	78192	2.7	-4.4	-7.4	-0.1	
Solids	54125	30516	18577	12172	10500	9000	5965	6516	6000	-10.1	-5.5	-5.5	0.1	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	12701	17297	2.8	-1.6	-8.7	8.7	
Renewable energy sources	1070	1996	2635	4048	8409	12900	16732	19773	21896	9.4	12.3	7.1	2.7	
Hydro	436	416	437	427	487	493	499	510	523	0.0	1.1	0.2	0.5	
Biomass & Waste	627	1539	2104	3340	4939	6263	7829	9328	10456	12.9	8.9	4.7	2.9	
Wind	1	34	81	250	2621	4512	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	361	1630	2262	2646	2939	8.1	41.5	20.2	2.7	
Geothermal	1	1	1	1	2	3	5	7	8	0.0	7.6	11.2	5.2	
Net Imports	5932	-36021	-39030	32641	49613	104578	131242	131781	133632				10.2	
Solids	9122	10493	14577	27467	24095	21784	13602	13772	15082	4.8	5.2	-5.6	1.0	
Oil	-10396	-48554	-45515	-2171	15770	41688	59620	61117	63236				14.2	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	21012	46947	65612	68592	70720				12.1	
- Oil products	-5858	-12196	-6490	-7027	-5242	-5259	-5992	-7475	-7485					
Natural gas	6178	637	-9311	5973	7929	38125	51652	49594	47503				20.6	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	218224	215320	208351	206643	209693	0.9	-0.6	-0.5	0.1	
Solids	64305	45866	36816	38186	34595	30784	19567	20288	21082	-5.4	-0.6	-5.5	0.7	
Oil	80903	82378	81357	82701	83729	84611	82515	78990	79105	0.1	0.3	-0.1	-0.4	
Natural gas	47203	65119	87399	84898	70929	68125	75652	67594	62503	6.4	-2.1	0.6	-1.9	
Nuclear	16574	21249	21942	21054	18742	15918	7517	12701	17297	2.8	-1.6	-8.7	8.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	9380	14956	22267	26369	29289	9.4	13.5	9.0	2.8	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	15.9	14.3	9.4	9.8	10.1					
Oil	38.3	37.8	35.2	35.6	38.4	39.3	39.6	38.2	37.7					
Natural gas	22.4	29.9	37.8	36.6	32.5	31.6	36.3	32.7	29.8					
Nuclear	7.9	9.7	9.5	9.1	8.6	7.4	3.6	6.1	8.2					
Renewable energy forms	0.5	0.9	1.1	2.0	4.3	6.9	10.7	12.8	14.0					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	381402	387002	410867	469383	526045	1.7	0.2	0.7	2.5	
Self consumption and grid losses	44516	46573	48246	50822	46135	44788	47069	57710	65061	0.8	-0.4	0.2	3.3	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	50545	47968	49413	48880	51133	-0.1	-0.9	-0.2	0.3	
Solids	47267	33844	27232	30920	27511	23965	13232	15063	16459	-5.4	0.1	-7.1	2.2	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	52	0	-19.6			-3.7	
Gas (including derived gases)	1668	12054	26033	26807	20391	20258	29126	24307	23560	31.6	-2.4	3.6	-2.1	
Biomass & Waste	212	620	1410	3455	2643	3745	7054	9458	11113	20.9	6.5	10.3	4.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	96642	99436	99887	97948	98180	0.1	-0.4	0.3	-0.2	
Refineries	89882	94255	89299	87320	89332	91229	90388	88632	88898	-0.1	0.0	0.1	-0.2	
Biofuels and hydrogen production	0	0	0	80	1482	2893	4802	5261	5691				12.5	
District heating	0	0	3354	1976	1027	747	529	443	310				-11.2	
Derived gases, cokeries etc.	9263	8079	7682	5436	4801	4567	4168	3612	3282	-1.9	-4.6	-1.4	-2.4	
Energy Branch Consumption	12836	14401	15039	15383	13119	12507	12611	12107	11737	1.6	-1.4	-0.4	-0.7	
Non-Energy Uses	11173	12550	11152	11510	11819	12179	12593	13004	13359	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151500	149349	150680	150337	147848	147901	1.0	-0.2	0.1	-0.2	
by sector														
Industry	34962	35132	35909	33889	33824	34537	34791	35043	35473	0.3	-0.6	0.3	0.2	
- energy intensive industries	19483	19965	19215	16289	16385	16659	16519	16304	16237	-0.1	-1.6	0.1	-0.2	
- other industrial sectors	15479	15167	16694	17600	17439	17878	18272	18738	19236	0.8	0.4	0.5	0.5	
Residential	37939	39567	43072	43284	40398	39568	38253	37316	36047	1.3	-0.6	-0.5	-0.6	
Tertiary	18596	20863	20359	19170	17848	17361	17236	17195	17096	0.9	-1.3	-0.3	-0.1	
Transport	45451	46867	52324	55236	57279	59214	60058	58294	59285	1.4	0.9	0.5	-0.1	
by fuel														
Solids	12266	8891	5683	4422	4823	4812	4523	3610	3213	-7.4	-1.6	-0.6	-3.4	
Oil	58770	60197	62437	65731	67929	68484	66141	62454	62435	0.6	0.8	-0.3	-0.6	
Gas	41893	47140	52180	49853	43790	41584	39946	37413	33394	2.2	-1.7	-0.9	-1.8	
Electricity	23597	25274	28325	29686	28851	29542	31381	35333	39241	1.8	0.2	0.8	2.3	
Heat (from CHP and District Heating)	0	0	2439	1317	1077	1208	1532	1853	1985				-7.9	
Renewable energy forms	421	926	600	572	2875	5042	6799	7167	7614	3.6	17.0	9.0	1.1	
Other	0	0	0	0	4	7	15	17	19				14.6	
RES in Gross Final Energy Consumption (A)			1537	2483	7712	13050	20042	23861	26511		17.5	10.0	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	639.1	612.6	576.4	527.5	504.2	-1.1	-0.8	-1.0	-1.3	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	513.8	494.1	459.7	432.1	422.8	-0.4	-0.6	-1.1	-0.8	
Power generation/District heating	214.2	173.6	181.2	193.8	159.3	144.1	121.9	117.8	121.2	-1.7	-1.3	-2.6	-0.1	
Energy Branch	27.9	31.9	33.1	34.6	28.6	27.7	28.0	25.5	24.0	1.7	-1.4	-0.2	-1.5	
Industry	81.8	78.8	70.5	65.5	65.8	67.1	65.0	61.3	60.2	-1.5	-0.7	-0.1	-0.8	
Residential	77.8	77.3	81.9	79.7	73.8	67.9	60.5	51.3	41.3	0.5	-1.0	-2.0	-3.8	
Tertiary	32.9	35.2	26.7	24.3	21.5	19.9	19.2	18.0	16.6	-2.1	-2.1	-1.1	-1.4	
Transport	132.4	136.5	152.7	161.8	164.7	167.3	165.0	158.2	159.5	1.4	0.8	0.0	-0.3	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.2	27.0	27.4	27.1	27.4	-1.5	1.4	0.1	0.0	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	91.5	89.3	68.3	54.0	-3.9	-2.2	-0.9	-4.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	82.4	79.0	74.3	68.0	65.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: EC proposal with JI/CDM & RES trading												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Int. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	107.3	94.1	81.4	73.1	68.4	-1.5	-3.0	-2.7	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.35	2.29	2.21	2.09	2.02	-1.3	0.0	-0.6	-0.9
Import Dependency %	2.8	-16.3	-16.7	13.9	22.5	48.1	62.4	63.1	63.1				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	150.7	169.0	189.4	204.7	215.2		0.8	2.3	1.3
as % of GDP			8.7	7.4	7.4	7.4	7.4	7.2	7.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.7	88.0	81.9	76.5	73.2	-0.6	-0.7	-1.3	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	72.3	63.3	54.9	48.7	43.5	-1.4	-3.2	-2.7	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	63.2	53.8	47.1	42.1	38.2	-2.2	-4.5	-2.9	-2.1
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.5	42.4	41.0	37.5	37.0	0.3	-0.8	-0.6	-1.0
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	57.9	57.4	55.1	53.3	51.7	-0.5	1.2	-0.5	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.40	0.36	0.28	0.24	0.22	-4.0	-1.1	-3.5	-2.5
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.18	2.14	2.06	1.95	1.88	-0.8	0.0	-0.6	-0.9
Industry	2.34	2.24	1.96	1.93	1.94	1.94	1.87	1.75	1.70	-1.7	-0.1	-0.4	-1.0
Residential	2.05	1.95	1.90	1.84	1.83	1.72	1.58	1.37	1.14	-0.7	-0.4	-1.4	-3.2
Tertiary	1.77	1.69	1.31	1.27	1.20	1.15	1.11	1.04	0.97	-3.0	-0.8	-0.8	-1.4
Transport	2.91	2.91	2.92	2.93	2.88	2.82	2.75	2.71	2.69	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	5.0	8.4	13.0	15.6	17.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.3	8.9	10.0	10.8				
Gross Electricity generation by source (in GWh)													
			374308	397522	381402	387002	410867	469383	526045		0.2	0.7	2.5
Nuclear energy			85048	81603	72657	61709	29140	53272	77209		-1.6	-8.7	10.2
Solids			118129	134618	121047	105554	58366	87231	97795		0.2	-7.0	5.3
Oil (including refinery gas)			7147	7622	104	104	106	341	1156		-34.5	0.2	26.9
Gas (including derived gases)			153298	152495	139691	142558	210585	191625	196194		-0.9	4.2	-0.7
Biomass-waste			4653	13308	11745	17528	31634	41256	48410		9.7	10.4	4.3
Hydro (pumping excluded)			5085	4960	5657	5733	5798	5929	6076		1.1	0.2	0.5
Wind			947	2907	30477	52466	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	1299	3788	4920	6299				5.2
Net Generation Capacity in MW_e			84356	90824	102001	110318	105821	121602	135409		1.9	0.4	2.5
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	7059	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	11993	20893	30199	35858	39570		21.2	9.7	2.7
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10503	18679	26640	31619	34474		38.4	9.8	2.6
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	674	1965	2553	3269				5.2
<u>Thermal power</u>			69560	75978	79285	80160	71211	78685	86637		1.3	-1.1	2.0
of which cogeneration units			6116	8041	7071	8793	11965	14333	16157		1.5	5.4	3.0
Solids fired			30684	30627	28669	23771	7478	10720	11734		-0.7	-12.6	4.6
Gas fired			27319	33944	38246	41652	43346	46995	53741		3.4	1.3	2.2
Oil fired			10540	9879	9357	9164	7715	3414	1856		-1.2	-1.9	-13.3
Biomass-waste fired			1017	1528	3013	5572	12672	17556	19306		11.5	15.4	4.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	41.0	38.7	43.0	42.4	42.7				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.4	47.6	52.3	56.4	57.8				
% of gross electricity from CHP			9.0	8.5	11.2	14.5	20.0	20.4	20.4				
Carbon free gross electricity generation (%)			25.6	25.9	31.6	35.9	34.5	40.5	43.9				
- nuclear			22.7	20.5	19.0	15.9	7.1	11.3	14.7				
- renewable energy forms			2.9	5.3	12.6	19.9	27.4	29.2	29.2				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	970.3	1032.4	1090.0	1148.1	1197.6	1.3	1.5	1.2	0.9
Public road transport	46.2	44.3	47.0	48.8	50.8	52.2	54.1	55.5	56.4	0.2	0.8	0.6	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	726.1	761.9	795.2	832.3	863.3	0.9	1.2	0.9	0.8
Rail	39.9	37.1	46.7	51.8	57.1	62.4	68.0	73.3	79.3	1.6	2.0	1.8	1.5
Aviation	49.3	66.8	94.0	110.0	129.8	149.3	166.0	180.3	191.9	6.7	3.3	2.5	1.5
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.6	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	259.4	269.8	278.6	286.0	290.0	1.1	0.6	0.7	0.4
Trucks	145.7	161.5	165.6	167.5	172.6	181.2	188.2	194.4	197.6	1.3	0.4	0.9	0.5
Rail	16.0	13.3	18.1	22.1	24.6	26.2	27.5	28.5	29.2	1.2	3.1	1.1	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.4	62.8	63.1	63.2	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57279	59214	60058	58294	59285	1.4	0.9	0.5	-0.1
Public road transport	514	493	518	490	480	482	485	486	483	0.1	-0.8	0.1	0.0
Private cars and motorcycles	25438	25836	27031	25783	25827	26123	26088	25856	26287	0.6	-0.5	0.1	0.1
Trucks	10387	10366	11277	13316	13337	13684	13663	13743	13785	0.8	1.7	0.2	0.1
Rail	1063	1233	1464	1532	1611	1461	1291	1103	836	3.2	1.0	-2.2	-4.2
Aviation	6779	7822	11115	12847	14744	16190	17279	15880	16686	5.1	2.9	1.6	-0.3
Inland navigation	1269	1117	920	1269	1280	1273	1252	1227	1208	-3.2	3.4	-0.2	-0.4

Source: PRIMES

United Kingdom: EC proposal with JI/CDM & RES trading							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	112819	79213	78192	4752	3775	7436	4.4	5.0	10.5
Solids	54125	18577	12172	9000	5965	6000	0	-2035	0	0.0	-25.4	0.0
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Renewable energy sources	1070	2635	4048	12900	16732	21896	4752	5810	6394	58.3	53.2	41.3
Hydro	436	437	427	493	499	523	57	46	0	13.1	10.3	0.0
Biomass & Waste	627	2104	3340	6263	7829	10456	289	477	771	4.8	6.5	8.0
Wind	1	81	250	4512	6138	7970	3152	3657	3611	231.9	147.4	82.8
Solar and others	5	11	30	1630	2262	2939	1252	1626	2007	331.9	255.8	215.2
Geothermal	1	1	1	3	5	8	1	3	5	86.2	162.9	216.1
Net Imports	5932	-39030	32641	104578	131242	133632	-21250	-21506	-25885	-16.9	-14.1	-16.2
Solids	9122	14577	27467	21784	13602	15082	-12062	-17735	-12451	-35.6	-56.6	-45.2
Oil	-10396	-45515	-2171	41688	59620	63236	-2066	-5617	-11607	-4.7	-8.6	-15.5
- Crude oil and Feedstocks	-4537	-39025	4856	46947	65612	70720	-2082	-4912	-9426	-4.2	-7.0	-11.8
- Oil products	-5858	-6490	-7027	-5259	-5992	-7485	16	-704	-2181	-0.3	13.3	41.1
Natural gas	6178	-9311	5973	38125	51652	47503	-8003	-2245	-7317	-17.4	-4.2	-13.3
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	215320	208351	209693	-16495	-17722	-18437	-7.1	-7.8	-8.1
Solids	64305	36816	38186	30784	19567	21082	-12062	-19770	-12451	-28.2	-50.3	-37.1
Oil	80903	81357	82701	84611	82515	79105	-2062	-5608	-11595	-2.4	-6.4	-12.8
Natural gas	47203	87399	84898	68125	75652	62503	-8003	-2245	-7317	-10.5	-2.9	-10.5
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	14956	22267	29289	5633	9900	11884	60.4	80.1	68.3
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	14.3	9.4	10.1	-4.2	-8.0	-4.6			
Oil	38.3	35.2	35.6	39.3	39.6	37.7	1.9	0.6	-2.0			
Natural gas	22.4	37.8	36.6	31.6	36.3	29.8	-1.2	1.9	-0.8			
Nuclear	7.9	9.5	9.1	7.4	3.6	8.2	0.5	0.3	1.1			
Renewable energy forms	0.5	1.1	2.0	6.9	10.7	14.0	2.9	5.2	6.3			
Gross Electricity Generation in GWh_e	316937	374308	397522	387002	410867	526045	-44514	-40629	46821	-10.3	-9.0	9.8
Self consumption and grid losses	44516	48246	50822	44788	47069	65061	-6050	-9133	4508	-11.9	-16.3	7.4
Fuel Inputs to Thermal Power Generation	56319	55481	61996	47968	49413	51133	-17271	-15513	-3664	-26.5	-23.9	-6.7
Solids	47267	27232	30920	23965	13232	16459	-12157	-19644	-11874	-33.7	-59.8	-41.9
Oil (including refinery gas)	7172	806	815	0	0	0	0	0	0		-16.4	36.1
Gas (including derived gases)	1668	26033	26807	20258	29126	23560	-5597	1032	2704	-21.6	3.7	13.0
Biomass & Waste	212	1410	3455	3745	7054	11113	484	3100	5506	14.8	78.4	98.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	99436	99887	98180	-1756	-4141	-9129	-1.7	-4.0	-8.5
Refineries	89882	89299	87320	91229	90388	88898	-2081	-4912	-9426	-2.2	-5.2	-9.6
Biofuels and hydrogen production	0	0	80	2893	4802	5691	309	961	607	12.0	25.0	11.9
District heating	0	3354	1976	747	529	310	-150	-262	-326	-16.7	-33.1	-51.3
Derived gases, cokeries etc.	9263	7682	5436	4567	4168	3282	165	73	16	3.8	1.8	0.5
Energy Branch Consumption	12836	15039	15383	12507	12611	11737	-923	-989	-1234	-6.9	-7.3	-9.5
Non-Energy Uses	11173	11152	11510	12179	12593	13359	-9	-6	-3	-0.1	0.0	0.0
Final Energy Demand	136947	151665	151580	150680	150337	147901	-4954	-8098	-14257	-3.2	-5.1	-8.8
by sector												
Industry	34962	35909	33889	34537	34791	35473	-610	-1108	-1204	-1.7	-3.1	-3.3
- energy intensive industries	19483	19215	16289	16659	16519	16237	-181	-479	-435	-1.1	-2.8	-2.6
- other industrial sectors	15479	16694	17600	17878	18272	19236	-429	-630	-769	-2.3	-3.3	-3.8
Residential	37939	43072	43284	39568	38253	36047	-1168	-2069	-3515	-2.9	-5.1	-8.9
Tertiary	18596	20359	19170	17361	17236	17096	-1630	-1996	-2406	-8.6	-10.4	-12.3
Transport	45451	52324	55236	59214	60058	59285	-1547	-2925	-7132	-2.5	-4.6	-10.7
by fuel												
Solids	12266	5683	4422	4812	4523	3213	191	-157	-239	4.1	-3.4	-6.9
Oil	58770	62437	65731	68484	66141	62435	-2005	-5420	-11043	-2.8	-7.6	-15.0
Gas	41893	52180	49853	41584	39946	33394	-1645	-2598	-9362	-3.8	-6.1	-21.9
Electricity	23597	28325	29686	29542	31381	39241	-3299	-2687	3679	-10.0	-7.9	10.3
Heat (from CHP and District Heating)	0	2439	1317	1208	1532	1985	54	223	419	4.7	17.0	26.8
Renewable energy forms	421	600	572	5042	6799	7614	1750	2540	2293	53.2	59.6	43.1
Other	0	0	0	7	15	19	0	1	-4	3.5	4.1	-18.6
RES in Gross Final Energy Consumption ^(A)		1537	2483	13050	20042	26511	6020	9915	11428	85.6	97.9	75.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	612.6	576.4	504.2	-77.9	-107.9	-108.1	-11.3	-15.8	-17.7
CO₂ Emissions (energy related)	566.9	546.0	559.7	494.1	459.7	422.8	-72.2	-100.2	-101.1	-12.8	-17.9	-19.3
Power generation/District heating	214.2	181.2	193.8	144.1	121.9	121.2	-61.6	-75.9	-42.0	-29.9	-38.4	-25.8
Energy Branch	27.9	33.1	34.6	27.7	28.0	24.0	-1.7	-1.1	-3.0	-5.6	-3.9	-10.9
Industry	81.8	70.5	65.5	67.1	65.0	60.2	0.6	-2.3	-4.5	0.9	-3.4	-7.0
Residential	77.8	81.9	79.7	67.9	60.5	41.3	-2.6	-7.7	-23.6	-3.7	-11.2	-36.4
Tertiary	32.9	26.7	24.3	19.9	19.2	16.6	-1.7	-2.1	-4.3	-7.9	-9.8	-20.5
Transport	132.4	152.7	161.8	167.3	165.0	159.5	-5.2	-11.1	-23.7	-3.0	-6.3	-12.9
CO₂ Emissions (non energy related)	27.5	23.7	26.8	27.0	27.4	27.4	-0.2	-0.4	-0.8	-0.9	-1.3	-2.9
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	91.5	89.3	54.0	-5.4	-7.4	-6.3	-5.5	-7.6	-10.4
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	79.0	74.3	65.0	-10.0	-13.9	-13.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: EC proposal with JI/CDM & RES trading					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	94.1	81.4	68.4	-7.2	-6.9	-6.0	-7.1	-7.8	-8.1
Carbon Intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.29	2.21	2.02	-0.15	-0.27	-0.28	-6.1	-10.9	-12.2
Import Dependency %	2.8	-16.7	13.9	48.1	62.4	63.1	-5.7	-4.6	-6.2			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	169.0	189.4	215.2	5.1	8.3	9.0	3.1	4.6	4.4
as % of GDP		8.7	7.4	7.4	7.4	7.0	0.2	0.3	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				5.2	8.4	9.1						
as % of GDP				0.23	0.33	0.30						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	88.0	81.9	73.2	-1.6	-2.6	-2.5	-1.7	-3.1	-3.3
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	63.3	54.9	43.5	-1.9	-3.0	-4.2	-2.9	-5.1	-8.9
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	53.8	47.1	38.2	-5.0	-5.4	-5.4	-8.6	-10.4	-12.3
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.4	41.0	37.0	-0.6	-1.1	-4.2	-1.3	-2.5	-10.2
Freight transport (toe/Mtkm)	54.4	51.5	59.8	57.4	55.1	51.7	-1.1	-2.4	-2.4	-1.8	-4.1	-4.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.36	0.28	0.22	-0.10	-0.14	-0.11	-22.3	-32.9	-32.7
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.14	2.06	1.88	0.01	-0.04	-0.18	0.5	-1.9	-8.8
Industry	2.34	1.96	1.93	1.94	1.87	1.70	0.05	-0.01	-0.07	2.7	-0.3	-3.9
Residential	2.05	1.90	1.84	1.72	1.58	1.14	-0.02	-0.11	-0.49	-0.9	-6.4	-30.2
Tertiary	1.77	1.31	1.27	1.15	1.11	0.97	0.01	0.01	-0.10	0.8	0.6	-9.3
Transport	2.91	2.92	2.93	2.82	2.75	2.69	-0.01	-0.05	-0.07	-0.5	-1.7	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	8.4	13.0	17.3	4.0	6.8	8.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	5.3	8.9	10.8	0.7	2.1	1.8			
Gross Electricity generation by source (in GWh_e)												
Total	374308	397522	387002	410867	526045	526045	-44514	-40629	46821	-10.3	-9.0	9.8
Nuclear energy	85048	81603	61709	29140	77209	77209	0	0	4674	0.0	0.0	6.4
Solids	118129	134618	105554	58366	97795	97795	-53466	-114636	-63578	-33.6	-66.3	-39.4
Oil (including refinery gas)	7147	7622	104	106	1156	1156	0	-1	1066	0.0	-0.5	1193.7
Gas (including derived gases)	153298	152495	142558	210585	196194	196194	-32574	16310	37325	-18.6	8.4	23.5
Biomass-waste	4653	13308	17528	31634	48410	48410	2906	12088	22423	19.9	61.8	86.3
Hydro (pumping excluded)	5085	4960	5733	5798	6076	6076	664	540	0	13.1	10.3	0.0
Wind	947	2907	52466	71371	92670	92670	36657	42524	41988	231.9	147.4	82.8
Solar	1	8	50	79	236	236	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	1299	3788	6299	6299	1299	2545	2923	204.8	86.6	86.6
Net Generation Capacity in MW_e	84356	90824	110318	105821	135409	135409	15520	9646	26612	16.4	10.0	24.5
<u>Nuclear energy</u>	13038	11837	9265	4412	9202	9202	0	0	540	0.0	0.0	6.2
<u>Renewable energy</u>	1758	3009	20893	30199	39570	39570	13765	17704	17927	193.1	141.7	82.8
Hydro (pumping excluded)	1350	1437	1475	1489	1514	1514	0	0	0	0.0	0.0	0.0
Wind	406	1562	18679	26640	34474	34474	13168	16383	16410	238.9	159.7	90.8
Solar	2	11	66	105	313	313	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	674	1965	3269	3269	597	1321	1517	775.1	204.8	86.6
<u>Thermal power</u>	69560	75978	80160	71211	86637	86637	1755	-8057	8146	2.2	-10.2	10.4
of which cogeneration units	6116	8041	8793	11965	16157	16157	389	2292	3221	4.6	23.7	24.9
Solids fired	30684	30627	23771	7478	11734	11734	0	-13286	-9070	0.0	-64.0	-43.6
Gas fired	27319	33944	41652	43346	53741	53741	-1028	-2843	5018	-2.4	-6.2	10.3
Oil fired	10540	9879	9164	7715	1856	1856	0	0	-2302	0.0	0.0	-55.4
Biomass-waste fired	1017	1528	5572	12672	19306	19306	2783	8071	14500	99.8	175.4	301.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	48.4	47.7	38.7	43.0	42.7	42.7	-11.4	-8.3	-5.3			
Efficiency of gross thermal power generation (%)	43.9	42.7	47.6	52.3	57.8	57.8	1.7	1.1	3.4			
% of gross electricity from CHP	9.0	8.5	14.5	20.0	20.4	20.4	2.0	5.9	4.7			
Carbon free gross electricity generation (%)	25.6	25.9	35.9	34.5	43.9	43.9	13.3	15.9	10.7			
- nuclear	22.7	20.5	15.9	7.1	14.7	14.7	1.6	0.6	-0.5			
- renewable energy forms	2.9	5.3	19.9	27.4	29.2	29.2	11.7	15.2	11.2			
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1032.4	1090.0	1197.6	-10.2	-18.1	-24.1	-1.0	-1.6	-2.0
Public road transport	46.2	47.0	48.8	52.2	54.1	56.4	0.6	1.0	1.2	1.2	1.9	2.2
Private cars and motorcycles	591.1	644.9	684.7	761.9	795.2	863.3	-8.2	-14.5	-21.0	-1.1	-1.8	-2.4
Rail	39.9	46.7	51.8	62.4	68.0	79.3	0.4	0.5	2.0	0.6	0.7	2.6
Aviation	49.3	94.0	110.0	149.3	166.0	191.9	-3.0	-5.0	-6.2	-2.0	-2.9	-3.1
Inland navigation	8.1	6.6	6.5	6.6	6.6	6.8	0.0	0.0	0.0	-0.6	-0.5	-0.5
Freight transport activity (Gtkm)	217.5	243.7	250.8	269.8	278.6	290.0	-4.0	-6.1	-7.4	-1.5	-2.1	-2.5
Trucks	145.7	165.6	167.5	181.2	188.2	197.6	-4.4	-6.7	-8.3	-2.4	-3.5	-4.0
Rail	16.0	18.1	22.1	26.2	27.5	29.2	0.5	0.6	0.8	1.8	2.2	3.0
Inland navigation	55.8	60.0	61.2	62.4	62.8	63.2	0.0	0.1	0.1	-0.1	0.1	0.1
Energy demand in transport (ktoe)	45451	52324	55236	59214	60058	59285	-1547	-2925	-7132	-2.5	-4.6	-10.7
Public road transport	514	518	490	482	485	483	0	-2	-15	0.0	-0.5	-3.0
Private cars and motorcycles	25438	27031	25783	26123	26088	26287	-505	-848	-1357	-1.9	-3.1	-4.9
Trucks	10387	11277	13316	13684	13663	13785	-576	-1067	-1127	-4.0	-7.2	-7.6
Rail	1063	1464	1532	1461	1291	836	32	22	32	2.2	1.7	4.0
Aviation	6779	11115	12847	16190	17279	16686	-490	-1018	-4646	-2.9	-5.6	-21.8
Inland navigation	1269	920	1269	1273	1252	1208	-8	-12	-20	-0.7	-0.9	-1.6

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 6: Cost Efficiency scenario

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▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	933011	946298	937567	896393	835802	776647	752049	750492	760217	0.0	-1.1	-1.1	0.1	
Solids	365918	277924	213693	196451	161245	130392	113385	106148	105442	-5.2	-2.8	-3.5	-0.7	
Oil	128809	170055	171665	132993	104428	76540	52939	44266	40784	2.9	-4.8	-6.6	-2.6	
Natural gas	162447	188965	207559	188021	165811	123991	110427	95499	82609	2.5	-2.2	-4.0	-2.9	
Nuclear	202589	223028	243761	257360	245217	243897	218874	212156	207958	1.9	0.1	-1.1	-0.5	
Renewable energy sources	73248	86325	100890	121568	159101	201827	256425	292423	323424	3.3	4.7	4.9	2.3	
Hydro	25101	28054	30374	26394	29621	29538	29784	30088	30293	1.9	-0.3	0.1	0.2	
Biomass & Waste	44737	54203	64774	82903	104851	130140	165947	189688	205373	3.8	4.9	4.7	2.2	
Wind	67	350	1913	6060	15151	22833	32070	41278	51064	39.8	23.0	7.8	4.8	
Solar and others	153	273	418	816	3302	12566	21678	24337	29546	10.6	23.0	20.7	3.1	
Geothermal	3190	3444	3412	5395	6176	6751	6945	7032	7148	0.7	6.1	1.2	0.3	
Net Imports	748677	730704	818875	975298	1007090	1060275	1084198	1093237	1092274	0.9	2.1	0.7	0.1	
Solids	79289	79183	79183	126702	133430	123834	114920	107597	110882	2.2	3.1	-1.5	-0.4	
Oil	530805	504448	525661	589611	602292	622932	630639	627480	620139	-0.1	1.4	0.5	-0.2	
- Crude oil and Feedstocks	503539	488479	507317	574313	600550	627646	644408	648806	648766	0.1	1.7	0.7	0.1	
- Oil products	27265	15969	18344	15298	1743	-4715	-13770	-21326	-28627	-3.9	-21.0			
Natural gas	135121	145288	192531	256828	267551	302775	310429	321270	320382	3.6	3.3	1.5	0.3	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1789244	1780902	1778025	1783546	1790882	0.4	0.4	-0.1	0.1	
Solids	450105	364252	321399	320065	294675	254226	228304	213745	216324	-3.3	-0.9	-2.5	-0.5	
Oil	625464	642003	650399	665514	653071	643451	625356	611563	599314	0.4	0.0	-0.4	-0.4	
Natural gas	294905	333268	393417	444804	433362	426766	420856	416769	402991	2.9	1.0	-0.3	-0.4	
Nuclear	202589	223028	243761	257360	245217	243897	218874	212156	207958	1.9	0.1	-1.1	-0.5	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	161423	211095	283594	328387	363372	3.2	4.8	5.8	2.5	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	16.5	14.3	12.8	12.0	12.1					
Oil	37.9	38.9	38.0	36.7	36.5	36.1	35.2	34.3	33.5					
Natural gas	17.9	20.2	23.0	24.6	24.2	24.0	23.7	23.4	22.5					
Nuclear	12.3	13.5	14.2	14.2	13.7	13.7	12.3	11.9	11.6					
Renewable energy forms	4.5	5.2	5.9	6.8	9.0	11.9	15.9	18.4	20.3					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3312417	3418118	3585952	3942871	4301413	1.6	1.0	0.8	1.8	
Self consumption and grid losses	335093	353101	383382	407678	377776	378400	392534	451594	509467	1.4	-0.1	0.4	2.6	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	358586	334545	346855	373341	393377	0.1	-0.7	-0.3	1.3	
Solids	259913	233747	223114	229144	208349	169491	148377	138500	147213	-1.5	-0.7	-3.3	-0.1	
Oil (including refinery gas)	54361	51375	39172	29499	9158	3984	3665	3089	3089	-3.2	-13.5	-8.0	-2.5	
Gas (including derived gases)	56680	67840	102572	133257	112730	114397	116756	125815	123154	6.1	0.9	0.4	0.5	
Biomass & Waste	5861	9809	14969	26638	23144	39314	72221	99696	114021	9.8	4.5	12.1	4.7	
Geothermal heat	2774	2992	2939	4645	5205	5390	5516	5666	5900	0.6	5.9	0.6	0.7	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	834501	840352	838828	830744	824013	-0.2	0.2	0.1	-0.2	
Refineries	673810	699352	727451	749312	738858	738813	731593	726615	722181	0.8	0.2	-0.1	-0.1	
Biofuels and hydrogen production	2	202	624	3206	15787	26553	39671	42568	45309	80.0	38.1	9.7	1.3	
District heating	33413	23351	19302	16177	19703	17271	15178	13176	12092	-5.3	0.2	-2.6	-2.2	
Derived gases, cokeries etc.	127920	86079	71473	65511	60153	57715	52386	48385	44430	-5.7	-1.7	-1.4	-1.6	
Energy Branch Consumption	81962	88206	87583	93941	88107	84731	83204	84307	85185	0.7	0.1	-0.6	0.2	
Non-Energy Uses	96068	105319	109135	111706	115840	120738	125164	128433	130846	1.3	0.6	0.8	0.4	
Final Energy Demand	1070684	1066881	1112192	1166880	1206192	1223181	1236079	1238782	1245282	0.4	0.8	0.2	0.1	
by sector														
Industry	367505	325769	324835	324493	339118	349461	355137	361417	369274	-1.2	0.4	0.5	0.4	
- energy intensive industries	236724	213853	212264	209326	217534	223410	224221	225593	228065	-1.1	0.2	0.3	0.2	
- other industrial sectors	130780	111916	112571	115167	121584	126051	130915	135824	141209	-1.5	0.8	0.7	0.8	
Residential	264548	279716	287255	307013	309252	306551	308941	304395	301342	0.8	0.7	0.0	-0.2	
Tertiary	159192	161639	160963	173669	173690	170216	169801	169445	167867	0.1	0.8	-0.2	-0.1	
Transport	279440	299758	339129	361705	384133	396953	402202	403525	406798	2.0	1.3	0.5	0.1	
by fuel														
Solids	130725	85607	61781	53475	53673	53453	51050	48258	44386	-7.2	-1.4	-0.5	-1.4	
Oil	442561	455056	477166	492540	501265	494193	478393	466301	455928	0.8	0.5	-0.5	-0.5	
Gas	227872	245996	267506	287197	290741	282876	273264	259535	247716	1.6	0.8	-0.6	-1.0	
Electricity	184059	194149	217155	237501	243838	254343	267578	293282	319210	1.7	1.2	0.9	1.8	
Heat (from CHP and District Heating)	48744	45026	40988	41333	39156	38496	40616	41143	41887	-1.7	-0.5	0.4	0.3	
Renewable energy forms	36724	41048	47586	54833	77490	99760	125065	130129	136010	2.6	5.0	4.9	0.8	
Other	0	0	0	0	28	59	115	133	145			15.0	2.4	
RES in Gross Final Energy Consumption (A)			91114	104237	145987	192191	256998	296653	328698	4.8	5.8	2.5		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	5002.4	4677.9	4459.7	4250.9	4064.3	-0.9	-0.2	-1.1	-0.9	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3770.7	3553.2	3372.5	3239.1	3100.4	-0.6	-0.1	-1.1	-0.8	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1179.7	1011.4	920.9	878.9	825.7	-1.1	-1.1	-2.4	-1.1	
Energy Branch	154.2	172.4	173.1	184.3	166.5	159.4	151.8	142.4	133.2	1.2	-0.4	-0.9	-1.3	
Industry	801.7	684.2	632.4	599.4	622.7	629.3	602.8	580.4	558.0	-2.3	-0.2	-0.3	-0.8	
Residential	507.7	482.4	466.1	483.1	464.3	426.6	401.7	363.4	326.2	-0.9	0.0	-1.4	-2.1	
Tertiary	304.7	274.8	242.0	254.6	249.3	226.8	213.4	198.8	184.2	-2.3	0.3	-1.5	-1.5	
Transport	810.0	870.4	987.6	1050.6	1088.2	1099.8	1081.9	1075.2	1073.0	2.0	1.0	-0.1	-0.1	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	331.5	342.5	347.7	352.7	356.3	-0.8	0.8	0.5	0.2	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	782.1	739.5	659.1	607.6	-2.1	-0.8	-1.9	-1.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	89.7	83.9	80.0	76.2	72.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										EU27: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	143.9	126.7	113.3	103.3	95.8	-1.8	-1.7	-2.4	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.11	2.00	1.90	1.82	1.73	-0.9	-0.6	-1.0	-0.9
Import Dependency %	44.4	43.3	46.7	52.4	54.6	57.7	59.0	59.3	59.0				
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1254.7	1427.2	1603.3	1729.9	1834.2		2.5	2.5	1.4
as % of GDP			9.7	9.9	10.1	10.2	10.2	10.0	9.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.6	80.0	73.0	67.7	64.2	-2.7	-1.3	-1.8	-1.3
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	86.9	76.8	69.8	62.8	57.5	-1.3	-1.4	-2.2	-1.9
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	85.5	73.8	65.8	59.5	54.3	-2.3	-1.6	-2.6	-1.9
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.2	33.5	31.3	30.0	0.1	-0.7	-0.9	-1.1
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.1	47.7	44.9	43.1	41.6	0.3	-0.1	-1.1	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.31	0.26	0.22	0.19	0.17	-2.0	-2.0	-3.1	-2.7
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.01	1.95	1.86	1.79	1.72	-0.8	-0.4	-0.8	-0.8
Industry	2.18	2.10	1.95	1.85	1.84	1.80	1.70	1.61	1.51	-1.1	-0.6	-0.8	-1.2
Residential	1.92	1.72	1.62	1.57	1.50	1.39	1.30	1.19	1.08	-1.7	-0.8	-1.4	-1.8
Tertiary	1.91	1.70	1.50	1.47	1.44	1.33	1.26	1.17	1.10	-2.4	-0.5	-1.3	-1.3
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.69	2.66	2.64	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	11.7	15.3	20.2	23.2	25.5				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.1	6.7	10.0	10.8	11.6				
Gross Electricity generation by source (in GWh)													
			2992030	3275359	3312417	3418118	3585952	3942871	4301413		1.0	0.8	1.8
Nuclear energy	944823	997519	951111	949179	855194	847062	883843			0.1	-1.1	0.3	
Solids	900381	918139	916045	801431	717944	724362	801401			0.2	-2.4	1.1	
Oil (including refinery gas)	176516	150480	50764	37235	32033	29273	25492			-11.7	-4.5	-2.3	
Gas (including derived gases)	535039	721024	753379	798843	841830	924240	940591			3.5	1.1	1.1	
Biomass-waste	54964	101813	107775	204519	384595	540576	623489			7.0	13.6	5.0	
Hydro (pumping excluded)	353182	306902	344432	343465	346324	349857	352240			-0.3	0.1	0.2	
Wind	22246	70469	176180	265497	372911	479982	593772			23.0	7.8	4.8	
Solar	117	1489	3731	6432	18491	28991	60254			41.4	17.4	12.5	
Geothermal and other renewables	4762	7525	8999	11517	16630	18528	20331			6.6	6.3	2.0	
Net Generation Capacity in MW_e	680864	739517	833032	865879	903154	977847	1092538			2.0	0.8	1.9	
<u>Nuclear energy</u>	135806	134187	125500	123755	112726	102829	107229			-0.8	-1.1	-0.5	
<u>Renewable energy</u>	120596	151902	199433	237624	294834	348884	424563			5.2	4.0	3.7	
Hydro (pumping excluded)	107638	109284	111446	113128	114409	115071	115613			0.3	0.3	0.1	
Wind	12786	40822	83926	116756	161648	206330	258333			20.7	6.8	4.8	
Solar	172	1797	3782	6276	14753	22565	44703			36.2	14.6	11.7	
Other renewables (tidal etc.)	0	0	280	1464	4024	4919	5913				30.6	3.9	
<u>Thermal power</u>	424462	453429	508099	504500	495594	526134	560746			1.8	-0.2	1.2	
of which cogeneration units	123462	133684	115354	126696	149184	163514	171675			-0.7	2.6	1.4	
Solids fired	191258	188695	184257	178629	149507	137082	126799			-0.4	-2.1	-1.6	
Gas fired	149738	181031	232804	233429	231140	250716	285697			4.5	-0.1	2.1	
Oil fired	71858	67498	64982	45849	34533	23709	16353			-1.0	-6.1	-7.2	
Biomass-waste fired	10810	15216	25053	45556	79334	113519	130641			8.8	12.2	5.1	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	798	988	1003	1037	1080	1108	1256			2.3	0.7	1.5	
Avg. Load factor of net power capacity (%)	47.4	47.8	43.3	43.1	43.4	44.0	42.8						
Efficiency of gross thermal power generation (%)	37.6	38.6	44.0	47.6	49.2	51.3	52.5						
% of gross electricity from CHP	12.7	12.8	16.2	18.6	22.0	22.9	22.6						
Carbon free gross electricity generation (%)	46.1	45.4	48.1	52.1	55.6	57.4	58.9						
- nuclear	31.6	30.5	28.7	27.8	23.8	21.5	20.5						
- renewable energy forms	14.5	14.9	19.4	24.3	31.8	36.0	38.4						
Transport sector													
Passenger transport activity (Gpkm)	4784.5	5221.8	5819.7	6245.4	6733.0	7222.8	7694.1	8175.5	8593.3	2.0	1.5	1.3	1.1
Public road transport	555.6	498.3	514.0	529.0	548.3	569.9	598.4	621.0	640.0	-0.8	0.6	0.9	0.7
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5059.9	5374.3	5653.6	5942.7	6181.5	2.4	1.5	1.1	0.9
Rail	464.8	412.0	438.5	446.8	475.1	518.4	569.3	628.9	691.8	-0.6	0.8	1.8	2.0
Aviation	247.9	325.9	442.0	506.3	600.7	710.5	821.7	930.5	1026.7	6.0	3.1	3.2	2.3
Inland navigation	57.0	55.4	49.4	48.9	49.1	49.7	51.0	52.3	53.4	-1.4	-0.1	0.4	0.5
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2737.1	2988.2	3210.0	3416.3	3571.4	1.5	2.3	1.6	1.1
Trucks	1096.9	1279.3	1507.5	1790.0	2002.5	2184.1	2343.5	2501.5	2616.7	3.2	2.9	1.6	1.1
Rail	524.8	385.0	396.1	393.9	438.7	488.5	530.7	565.3	593.7	-2.8	1.0	1.9	1.1
Inland navigation	257.2	264.7	271.3	280.1	295.8	315.6	335.9	349.5	361.1	0.5	0.9	1.3	0.7
Energy demand in transport (ktoe)	279440	299758	339129	361705	384133	396953	402202	403525	406798	2.0	1.3	0.5	0.1
Public road transport	5216	4538	4464	4316	4292	4255	4227	4088	3997	-1.5	-0.4	-0.2	-0.6
Private cars and motorcycles	148125	159084	174735	175721	180795	182430	181987	178916	177741	1.7	0.3	0.1	-0.2
Trucks	80641	85832	99349	116963	126284	130861	132391	136097	138773	2.1	2.4	0.5	0.5
Rail	9605	9409	9710	9605	10012	10147	9846	9286	7890	0.1	0.3	-0.2	-2.2
Aviation	28947	34014	45368	49744	57178	63491	67810	69154	72411	4.6	2.3	1.7	0.7
Inland navigation	6905	6881	5503	5356	5573	5769	5940	5984	5986	-2.2	0.1	0.6	0.1

Source: PRIMES

EU27: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	933011	937567	896393	776647	752049	760217	6424	27291	69526	0.8	3.8	10.1
Solids	365918	213693	196451	130392	113385	105442	-21973	-28379	-20367	-14.4	-20.0	-16.42
Oil	128809	171665	132993	76540	52939	40784	-626	-172	-35	-0.8	-0.3	-0.1
Natural gas	162447	207559	188021	123991	110427	82609	-5008	-4507	-2152	-3.9	-3.9	-2.5
Nuclear	202589	243761	257360	243897	218874	207958	182	-2598	1555	0.1	-1.2	0.8
Renewable energy sources	73248	100890	121568	201827	256425	323424	33850	62947	90525	20.2	32.5	38.9
Hydro	25101	30374	26394	29538	29784	30293	1204	854	110	4.2	3.0	0.4
Biomass & Waste	44737	64774	82903	130140	165947	205373	17660	36718	47332	15.7	28.4	29.9
Wind	67	1913	6060	22833	32070	51064	5461	8750	21627	31.4	37.5	73.5
Solar and others	153	418	816	12566	21678	29546	8398	15436	20875	201.5	247.3	240.7
Geothermal	3190	3412	5395	6751	6945	7148	1127	1189	581	20.0	20.6	8.9
Net Imports	748677	818875	975298	1060275	1084198	1092274	-153192	-216929	-283508	-12.6	-16.7	-20.6
Solids	79289	98575	126702	123834	114920	110882	-57950	-85168	-98952	-31.9	-42.6	-47.2
Oil	530805	525661	589611	622932	630639	620139	-46755	-76165	-109048	-7.0	-10.8	-15.0
- Crude oil and Feedstocks	503539	507317	574313	627646	644408	648766	-31503	-51865	-72193	-4.8	-7.4	-10.0
- Oil products	27265	18344	15298	-4715	-13770	-28627	-15251	-24300	-36855	-144.7	-230.8	-447.9
Natural gas	135121	192531	256828	302775	310429	320382	-55272	-79535	-111067	-15.4	-20.4	-25.7
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1780902	1778025	1790882	-146737	-189545	-213831	-7.6	-9.6	-10.7
Solids	450105	321390	320065	254226	228304	216324	-79923	-113548	-119318	-23.9	-33.2	-35.5
Oil	625464	650399	665514	643451	625356	599314	-47350	-76243	-108933	-6.9	-10.9	-15.4
Natural gas	294905	393417	444804	426766	420856	402991	-60279	-84041	-113219	-12.4	-16.6	-21.9
Nuclear	202589	243761	257360	243897	218874	207958	182	-2598	1555	0.1	-1.2	0.8
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	211095	283594	363372	40634	86886	126084	23.8	44.2	53.1
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	14.3	12.8	12.1	-3.1	-4.5	-4.7			
Oil	37.9	38.0	36.7	36.1	35.2	33.5	0.3	-0.5	-1.9			
Natural gas	17.9	23.0	24.6	24.0	23.7	22.5	-1.3	-2.0	-3.2			
Nuclear	12.3	14.2	14.2	13.7	12.3	11.6	1.1	1.1	1.3			
Renewable energy forms	4.5	5.9	6.8	11.9	15.9	20.3	3.0	6.0	8.5			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3418118	3585952	4301413	-421291	-492286	-106621	-11.0	-12.1	-2.4
Self consumption and grid losses	335093	383382	407678	378400	392534	509467	-59218	-73951	-10945	-13.5	-15.9	-2.1
Fuel Inputs to Thermal Power Generation	379588	382767	423183	334545	346855	393377	-105458	-119265	-80322	-24.0	-25.6	-17.0
Solids	259913	223114	229144	169491	148377	147213	-78749	-109098	-109493	-31.7	-42.4	-42.7
Oil (including refinery gas)	54361	39172	29499	5954	3984	3089	-8992	-9382	-7433	-60.2	-70.2	-70.6
Gas (including derived gases)	56680	102572	133257	114397	116756	123154	-30344	-37057	-25376	-21.0	-24.1	-17.1
Biomass & Waste	5861	14969	26638	39314	72221	114021	12121	35787	61980	44.6	98.2	119.1
Geothermal heat	2774	2939	4645	5390	5516	5900	506	484	0	10.4	9.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	840352	838828	824013	-28321	-46943	-76516	-3.3	-5.3	-8.5
Refineries	673810	727451	749312	738813	731593	722181	-32208	-52147	-72341	-4.2	-6.7	-9.1
Biofuels and hydrogen production	2	624	3206	26553	39671	45309	2677	7404	2882	11.2	22.9	6.8
District heating	33413	19302	16177	17271	15178	12092	-1947	-3272	-6810	-10.1	-17.7	-36.0
Derived gases, cokeries etc.	127920	71473	65511	57715	52386	44430	3157	1073	-247	5.8	2.1	-0.6
Energy Branch Consumption	81962	87583	93941	84731	83204	85185	-5742	-8336	-8108	-6.3	-9.1	-8.7
Non-Energy Uses	96068	109135	111706	120738	125164	130846	-257	-355	-368	-0.2	-0.3	-0.3
Final Energy Demand	1070684	1112182	1166880	1223181	1236079	1245282	-78855	-111728	-160599	-6.1	-8.3	-11.4
by sector												
Industry	367505	324835	324493	349461	355137	369274	-5888	-12555	-17105	-1.7	-3.4	-4.4
- energy intensive industries	236724	212264	209326	223410	224221	228065	-1507	-6115	-8783	-0.7	-2.7	-3.7
- other industrial sectors	130780	112571	115167	126051	130915	141209	-4381	-6440	-8322	-3.4	-4.7	-5.6
Residential	264548	287255	307013	306551	308941	301342	-23161	-27064	-42003	-7.0	-8.1	-12.2
Tertiary	159192	160963	173669	170216	169801	167867	-28455	-35668	-45011	-14.3	-17.4	-21.1
Transport	279440	339129	361705	396953	402202	406798	-21351	-36440	-56281	-5.1	-8.3	-12.2
by fuel												
Solids	130725	61781	53475	53453	51050	44386	-1850	-4391	-6943	-3.3	-7.9	-13.5
Oil	442561	477166	492540	494193	478393	455928	-34569	-61386	-93832	-6.5	-11.4	-17.1
Gas	227872	267506	287197	282876	273264	247716	-25960	-40952	-78661	-8.4	-13.0	-24.1
Electricity	184059	217155	237501	254343	267578	319210	-30909	-35551	-7595	-10.8	-11.7	-2.3
Heat (from CHP and District Heating)	48744	40988	41333	38496	40616	41887	-4898	-5538	-6499	-11.3	-12.0	-13.4
Renewable energy forms	36724	47586	54833	99760	125065	136010	19325	36085	33159	24.0	40.6	32.2
Other	0	0	0	59	115	145	6	5	-29	12.1	4.8	-16.5
RES in Gross Final Energy Consumption ^(A)		91114	104237	192191	256998	328698	40446	80932	115451	26.7	46.0	54.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4677.9	4459.7	4064.3	-711.3	-1036.7	-1315.3	-13.2	-18.9	-24.4
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3553.2	3372.5	3100.4	-603.5	-880.0	-1163.3	-14.5	-20.7	-27.3
Power generation/District heating	1468.7	1319.6	1374.9	1011.4	920.9	825.7	-419.4	-561.9	-636.8	-29.3	-37.9	-43.5
Energy Branch	154.2	173.1	184.3	159.4	151.8	133.2	-12.8	-19.7	-31.5	-7.5	-11.5	-19.1
Industry	801.7	632.4	599.4	629.3	602.8	558.0	-1.2	-34.5	-75.4	-0.2	-5.4	-11.9
Residential	507.7	466.1	483.1	426.6	401.7	326.2	-60.4	-83.3	-157.1	-12.4	-17.2	-32.5
Tertiary	304.7	242.0	254.6	226.8	213.4	184.2	-38.3	-50.0	-75.8	-14.4	-19.0	-29.2
Transport	810.0	987.6	1050.6	1099.8	1081.9	1073.0	-71.4	-130.6	-186.8	-6.1	-10.8	-14.8
CO₂ Emissions (non energy related)	332.1	307.3	320.4	342.5	347.7	356.3	-1.1	-10.3	-18.5	-0.3	-2.9	-4.9
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	782.1	739.5	607.6	-106.7	-146.4	-133.4	-12.0	-16.5	-18.0
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	83.9	80.0	72.9	-12.8	-18.6	-23.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							EU27: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	126.7	113.3	95.8	-10.4	-12.1	-11.4	-7.6	-9.6	-10.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	2.00	1.90	1.73	-0.16	-0.26	-0.40	-7.5	-12.2	-18.6
Import Dependency %	44.4	46.7	52.4	57.7	59.0	59.0	-3.5	-5.2	-7.6			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1427.2	1603.3	1834.2	58.1	87.5	124.7	4.2	5.8	7.3
as % of GDP		9.7	9.9	10.2	10.2	9.8	0.4	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				60.0	90.8	128.3						
as % of GDP				0.43	0.58	0.69						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	80.0	73.0	64.2	-1.3	-2.6	-3.0	-1.7	-3.4	-4.4
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	76.8	69.8	57.5	-5.8	-6.1	-8.0	-7.0	-8.1	-12.2
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	73.8	65.8	54.3	-12.3	-13.8	-14.6	-14.3	-17.4	-21.1
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.2	33.5	30.0	-0.8	-1.3	-2.5	-2.2	-3.8	-7.6
Freight transport (toe/Mtkm)	49.2	50.5	51.7	47.7	44.9	41.6	-2.4	-4.3	-5.4	-4.8	-8.7	-11.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.26	0.22	0.17	-0.07	-0.09	-0.12	-20.7	-29.4	-41.4
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.95	1.86	1.72	-0.01	-0.07	-0.16	-0.7	-3.5	-8.3
Industry	2.18	1.95	1.85	1.80	1.70	1.51	0.03	-0.04	-0.13	1.5	-2.1	-7.8
Residential	1.92	1.62	1.57	1.39	1.30	1.08	-0.09	-0.14	-0.33	-5.8	-9.9	-23.1
Tertiary	1.91	1.50	1.47	1.33	1.26	1.10	0.00	-0.03	-0.12	-0.1	-2.0	-10.2
Transport	2.90	2.91	2.90	2.77	2.69	2.64	-0.03	-0.07	-0.08	-1.0	-2.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.3	20.2	25.5	4.0	7.5	10.8			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	6.7	10.0	11.6	1.0	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3418118	3585952	4301413	421291	-492286	-106621		-11.0	-12.1	-2.4
Nuclear energy	944823	997519	949179	855194	883843	470	-10382	11581		0.0	-1.2	1.3
Solids	900381	918139	801431	717944	801401	-335416	-523502	-572794		-29.5	-42.2	-41.7
Oil (including refinery gas)	176516	150480	37235	32033	25492	-50912	-48018	-47194		-57.8	-60.0	-64.9
Gas (including derived gases)	535039	721024	798843	841830	940591	-175548	-225438	-143081		-18.0	-21.1	-13.2
Biomass-waste	54964	101813	204519	384595	623489	59289	188195	341635		40.8	95.8	121.2
Hydro (pumping excluded)	353182	306902	343465	346324	352240	14001	9932	1281		4.2	3.0	0.4
Wind	22246	70469	265497	372911	593772	63501	101742	251477		31.4	37.5	73.5
Solar	117	1489	6432	18491	60254	212	9022	43709		3.4	95.3	264.2
Geothermal and other renewables	4762	7525	11517	16630	20331	3113	6164	6765		37.0	58.9	49.9
Net Generation Capacity in MW_e												
	680864	739517	865879	903154	1092538	4255	1926	126419		0.5	0.2	13.1
<u>Nuclear energy</u>	135806	134187	123755	112726	107229	102	37	4785		0.1	0.0	4.7
<u>Renewable energy</u>	120596	151902	237624	294834	424563	25889	49990	145305		12.2	20.4	52.0
Hydro (pumping excluded)	107638	109284	113128	114409	115613	89	107	93		0.1	0.1	0.1
Wind	12786	40822	116756	161648	258333	24519	41274	112393		26.6	34.3	77.0
Solar	172	1797	6276	14753	44703	134	5774	29309		2.2	64.3	190.4
Other renewables (tidal etc.)	0	0	1464	4024	5913	1147	2835	3510		361.8	238.5	146.1
<u>Thermal power</u>	424462	453429	504500	495594	560746	-21736	-48101	-23671		-4.1	-3.8	-4.1
of which cogeneration units	123462	133684	126696	149184	171675	-11812	-9136	1626		-8.5	-5.8	1.0
Solids fired	191258	188695	178629	149507	126799	-9815	-36767	-61547		-5.2	-19.7	-32.7
Gas fired	149738	181031	233429	231140	285697	-27671	-50695	-27696		-10.6	-18.0	-8.8
Oil fired	71858	67498	45849	34533	16353	-4340	-3790	-14365		-8.6	-9.9	-46.8
Biomass-waste fired	10810	15216	45556	79334	130641	20054	43101	79941		78.6	119.0	157.7
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	798	988	1037	1080	1256	36	50	-4		3.6	4.9	-0.3
Avg. Load factor of net power capacity (%)	47.4	47.8	43.1	43.4	42.8	-5.5	-5.9	-6.8				
Efficiency of gross thermal power generation (%)	37.6	38.6	47.6	49.2	52.5	1.6	1.4	1.2				
% of gross electricity from CHP	12.7	12.8	18.6	22.0	22.6	0.7	1.7	1.5				
Carbon free gross electricity generation (%)	46.1	45.4	52.1	55.6	58.9	9.4	14.2	16.3				
- nuclear	31.6	30.5	27.8	23.8	20.5	3.1	2.6	0.8				
- renewable energy forms	14.5	14.9	24.3	31.8	38.4	6.3	11.6	15.6				
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7222.8	7694.1	8593.3	-127.2	-203.1	-267.4	-1.7	-2.6	-3.0
Public road transport	555.6	514.0	529.0	569.9	598.4	640.0	12.4	18.3	22.6	2.2	3.2	3.7
Private cars and motorcycles	3459.2	4375.8	4714.4	5374.3	5653.6	6181.5	-124.3	-195.7	-259.9	-2.3	-3.3	-4.0
Rail	464.8	438.5	446.8	518.4	569.3	691.8	9.1	13.1	24.2	1.8	2.4	3.6
Aviation	247.9	442.0	506.3	710.5	821.7	1026.7	-23.9	-38.3	-53.9	-3.3	-4.5	-5.0
Inland navigation	57.0	49.4	48.9	49.7	51.0	53.4	-0.5	-0.4	-0.5	-0.9	-0.8	-0.8
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	2988.2	3210.0	3571.4	-73.1	-111.4	-145.8	-2.4	-3.4	-3.9
Trucks	1096.9	1507.5	1790.0	2184.1	2343.5	2616.7	-94.8	-142.1	-186.3	-4.2	-5.7	-6.6
Rail	524.8	396.1	393.9	488.5	530.7	593.7	19.0	26.1	34.7	4.0	5.2	6.2
Inland navigation	257.2	271.3	280.1	315.6	335.9	361.1	2.7	4.5	5.8	0.9	1.4	1.6
Energy demand in transport (ktoe)												
	279440	339129	361705	396953	402202	406798	-21351	-36440	-56281	-5.1	-8.3	-12.2
Public road transport	5216	4464	4316	4255	4227	3997	-20	-108	-282	-0.5	-2.5	-6.6
Private cars and motorcycles	148125	174735	175721	182430	181987	177741	-7339	-11356	-16107	-3.9	-5.9	-8.3
Trucks	80641	99349	116963	130861	132391	138773	-11179	-19450	-26528	-7.9	-12.8	-16.0
Rail	9605	9710	9605	10147	9846	7890	142	158	204	1.4	1.6	2.7
Aviation	28947	45368	49744	63491	67810	72411	-2919	-5621	-13493	-4.4	-7.7	-15.7
Inland navigation	6905	5503	5356	5769	5940	5986	-37	-63	-75	-0.6	-1.1	-1.2

Source: PRIMES

Austria: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	8154	8638	9551	9780	10768	12113	13119	13641	13984	1.6	1.2	2.0	0.6	
Solids	644	305	293	0	0	0	0	0	0	-7.6				
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1296	1187	400	447	440	3.4	-1.7	-11.1	1.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8622	10306	12439	12964	13353	2.6	2.6	3.7	0.7	
Hydro	2709	3187	3598	3085	3279	3176	3297	3297	3297	2.9	-0.9	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4832	6122	7965	8433	8755	2.0	5.0	5.1	1.0	
Wind	0	0	6	114	267	398	427	461	490		46.8	4.8	1.4	
Solar and others	15	36	64	92	235	596	733	756	795	15.7	13.9	12.0	0.8	
Geothermal	4	3	14	35	8	13	16	17	16	14.2	-5.6	7.6	-0.1	
Net Imports	17086	17769	18853	24392	23342	22252	20915	20214	20277	1.0	2.2	-1.1	-0.3	
Solids	3112	2543	3064	3958	3959	4166	3205	2447	3267	-0.2	2.6	-2.1	0.2	
Oil	9521	10012	10703	13028	12879	12252	11733	11130	10486	1.2	1.9	-0.9	-1.1	
- Crude oil and Feedstocks	7878	8068	7704	7964	8146	8090	8134	7952	7742	-0.2	0.6	0.0	-0.5	
- Oil products	1643	1944	3000	5064	4733	4162	3599	3178	2744	6.2	4.7	-2.7	-2.7	
Natural gas	4443	5404	5253	7288	6333	5803	6064	6782	6676	1.7	1.9	-0.4	1.0	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	34110	34365	34034	33855	34260	1.3	1.8	0.0	0.1	
Solids	4042	3336	3637	4050	3959	4166	3205	2447	3267	-1.1	0.9	-2.1	0.2	
Oil	10596	11196	11882	14125	13729	12872	12013	11360	10676	1.2	1.5	-1.3	-1.2	
Natural gas	5184	6374	6519	8263	7629	6991	6464	7229	7116	2.3	1.6	-1.6	1.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8492	10141	12224	12736	13117	2.4	2.5	3.7	0.7	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.6	12.1	9.4	7.2	9.5					
Oil	42.4	41.9	41.7	41.6	40.2	37.5	35.3	33.6	31.2					
Natural gas	20.7	23.9	22.9	24.3	22.4	20.3	19.0	21.4	20.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	24.9	29.5	35.9	37.6	38.3					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62205	66113	71940	79576	87687	2.0	0.3	1.5	2.0	
Self consumption and grid losses	4886	4995	5404	7536	6280	6469	7226	8186	9639	1.0	1.5	1.4	2.9	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3316	4054	4440	5400	6534	-0.2	-1.7	3.0	3.9	
Solids	1510	1055	1236	1510	1326	1654	835	168	1055	-2.0	0.7	-4.5	2.4	
Oil (including refinery gas)	488	489	287	270	193	0	0	21	0	-5.2	-3.9			
Gas (including derived gases)	1776	2276	1974	2901	1538	941	527	1512	1604	1.1	-2.5	-10.2	11.8	
Biomass & Waste	237	455	428	786	257	1451	3070	3689	3865	6.1	-5.0	28.2	2.3	
Geothermal heat	0	0	0	2	3	7	8	9	10			12.5	1.9	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12730	12057	11433	10979	10798	-0.2	1.2	-1.1	-0.6	
Refineries	9123	9170	8765	9080	8997	8711	8415	8183	7932	-0.4	0.3	-0.7	-0.6	
Biofuels and hydrogen production	2	5	9	42	336	549	871	956	1080	17.5	44.0	10.0	2.2	
District heating	347	438	566	612	1278	769	250	39	0	5.0	8.5	-15.0		
Derived gases, cokeries etc.	1971	1790	1910	2009	2119	2027	1897	1801	1786	-0.3	1.0	-1.1	-0.6	
Energy Branch Consumption	1639	1703	1750	2134	1893	1783	1689	1638	1604	0.7	0.8	-1.1	-0.5	
Non-Energy Uses	1401	1145	1386	1381	1408	1463	1512	1552	1583	-0.1	0.2	0.7	0.5	
Final Energy Demand	19057	20919	22913	27309	28678	28925	29067	28699	28487	1.9	2.3	0.1	-0.2	
by sector														
Industry	6153	6474	7528	8825	9353	9482	9439	9446	9483	2.0	2.2	0.1	0.0	
- energy intensive industries	4048	4038	4982	5533	5783	5795	5677	5604	5547	2.1	1.5	-0.2	-0.2	
- other industrial sectors	2105	2436	2546	3293	3570	3687	3762	3842	3937	1.9	3.4	0.5	0.5	
Residential	5755	6222	6042	6548	6739	6886	7064	6914	6841	0.5	1.1	0.5	-0.3	
Tertiary	2544	3062	3304	3942	4133	4075	4102	4043	3937	2.6	2.3	-0.1	-0.4	
Transport	4603	5161	6038	7994	8453	8481	8462	8296	8226	2.7	3.4	0.0	-0.3	
by fuel														
Solids	1718	1535	1415	1458	1454	1371	1274	1203	1018	-1.9	0.3	-1.3	-2.2	
Oil	7896	8728	9402	11774	11579	11064	10455	9904	9473	1.8	2.1	-1.0	-1.0	
Gas	2968	3607	4254	4936	5341	5507	5289	5117	4888	3.7	2.3	-0.1	-0.8	
Electricity	3669	3953	4474	4884	4998	5216	5587	6120	6695	2.0	1.1	1.1	1.8	
Heat (from CHP and District Heating)	614	848	1052	1260	1336	1247	1282	1287	1203	5.5	2.4	-0.4	-0.6	
Renewable energy forms	2192	2248	2316	2996	3969	4518	5177	5065	5206	0.6	5.5	2.7	0.1	
Other	0	0	0	0	1	1	2	3	3			14.4	1.8	
RES in Gross Final Energy Consumption ^(A)			6285	6788	8165	9651	11605	12028	12358		2.7	3.6	0.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	94.4	89.0	80.6	76.2	76.2	0.5	1.1	-1.6	-0.6	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	70.4	67.0	59.3	56.0	56.7	1.0	1.5	-1.7	-0.4	
Power generation/District heating	12.8	12.1	11.6	15.0	11.6	10.0	5.6	4.9	8.5	-1.0	0.1	-7.1	4.2	
Energy Branch	3.8	4.0	4.2	4.6	4.3	4.0	3.6	3.4	3.2	1.0	0.2	-1.6	-1.2	
Industry	12.7	13.6	15.5	17.5	17.9	18.3	17.4	17.1	16.3	2.0	1.4	-0.3	-0.6	
Residential	9.8	9.7	8.8	9.0	8.3	7.5	7.0	6.3	5.7	-1.1	-0.6	-1.7	-2.1	
Tertiary	3.4	4.0	3.7	4.5	4.5	3.9	3.3	2.6	2.1	0.8	2.1	-3.1	-4.6	
Transport	12.7	14.6	17.2	23.1	23.7	23.3	22.4	21.6	21.0	3.1	3.3	-0.6	-0.6	
CO ₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.6	9.1	9.0	8.9	0.2	1.6	-0.6	-0.3	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.5	12.2	11.2	10.6	-1.1	-0.7	-1.6	-1.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	117.5	110.8	100.3	94.8	94.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: Cost Efficiency Scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1	
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4	
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	123.0	112.2	101.5	93.2	88.6	-1.2	-0.2	-1.9	-1.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.06	1.95	1.74	1.65	1.66	-0.3	-0.3	-1.7	-0.5	
Import Dependency %	68.4	66.5	66.1	71.8	68.4	64.8	61.5	59.7	59.2					
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.6	30.1	34.2	36.6	38.0		3.4	2.5	1.1	
as % of GDP			8.4	9.5	9.6	9.8	10.2	10.1	9.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.9	91.2	82.6	76.1	71.7	-0.6	0.0	-1.9	-1.4	
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.4	86.8	81.6	73.9	68.9	-1.6	-0.7	-1.3	-1.7	
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.6	91.3	83.7	76.0	69.5	0.1	0.3	-2.0	-1.8	
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	37.3	35.6	32.6	30.8	0.1	2.3	-0.9	-1.4	
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	54.4	51.0	48.6	47.0	-0.8	2.4	-1.3	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.15	0.12	0.06	0.05	0.08	-3.4	-0.7	-8.0	2.7	
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.90	1.83	1.72	1.66	1.58	-0.3	-0.4	-1.0	-0.9	
Industry	2.06	2.10	2.06	1.98	1.91	1.93	1.84	1.81	1.72	0.0	-0.7	-0.4	-0.7	
Residential	1.71	1.55	1.46	1.37	1.24	1.08	0.99	0.91	0.83	-1.6	-1.6	-2.2	-1.8	
Tertiary	1.34	1.32	1.12	1.15	1.10	0.95	0.81	0.65	0.52	-1.8	-0.2	-3.0	-4.2	
Transport	2.75	2.82	2.85	2.89	2.81	2.74	2.64	2.60	2.55	0.3	-0.1	-0.6	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	27.8	32.6	39.0	40.8	42.1					
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.0	9.7	11.2	12.9					
Gross Electricity generation by source (in GWh)														
			60150	62969	62205	66113	71940	79576	87687		0.3	1.5	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids			4642	5863	6114	7640	3950	990	6329		2.8	-4.3	4.8	
Oil (including refinery gas)			1220	1452	1830	1188	951	891	668		4.1	-6.3	-3.5	
Gas (including derived gases)			10541	14513	9863	7015	6642	13961	15019		-0.7	-3.9	8.5	
Biomass-waste			1845	3929	3118	8611	16919	19774	21276		5.4	18.4	2.3	
Hydro (pumping excluded)			41832	35868	38130	36936	38342	38342	38342		-0.9	0.1	0.0	
Wind			67	1328	3109	4632	4969	5363	5701		46.8	4.8	1.4	
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1	
Geothermal and other renewables			0	3	4	9	11	12	13			10.0	1.7	
Net Generation Capacity in MW_e			16771	17685	20058	21940	23603	24583	25353		1.8	1.6	0.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			10792	11287	12000	13460	14334	15024	16057		1.1	1.8	1.1	
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3	
Wind			77	817	1350	2152	2382	2746	3483		33.2	5.8	3.9	
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5978	6397	8057	8480	9269	9559	9296		3.0	1.4	0.0	
of which cogeneration units			3067	3657	3466	4252	4886	5785	5727		1.2	3.5	1.6	
Solids fired			1600	1587	1460	1460	1460	570	734		-0.9	0.0	-6.6	
Gas fired			2916	3267	4707	4509	4295	5202	4704		4.9	-0.9	0.9	
Oil fired			1167	1158	1214	968	412	261	151		0.4	-10.2	-9.6	
Biomass-waste fired			295	384	675	1542	3100	3523	3704		8.6	16.5	1.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	1	1	2	2	3	3			7.5	1.4	
Avg. Load factor of net power capacity (%)			39.8	38.3	33.8	33.0	33.4	35.5	37.9					
Efficiency of gross thermal power generation (%)			40.0	40.5	54.3	51.9	55.2	56.7	57.0					
% of gross electricity from CHP			12.3	20.6	24.6	26.8	35.5	37.3	35.2					
Carbon free gross electricity generation (%)			72.7	65.3	71.4	76.0	84.0	80.1	74.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			72.7	65.3	71.4	76.0	84.0	80.1	74.9					
Transport sector														
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	136.8	143.2	149.8	154.7	1.9	1.3	1.0	0.8	
Public road transport	14.2	14.8	14.8	15.1	16.0	16.6	17.3	17.9	18.2	0.4	0.7	0.8	0.5	
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	95.1	97.8	100.6	102.3	2.2	1.2	0.6	0.5	
Rail	11.5	12.7	11.8	12.3	13.4	14.6	15.6	16.5	17.3	0.3	1.3	1.6	1.0	
Aviation	4.1	5.4	6.6	7.3	8.8	10.5	12.4	14.7	16.8	5.0	2.9	3.5	3.1	
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.6	0.7	
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	62.2	65.9	70.1	73.5	4.7	0.8	1.2	1.1	
Trucks	20.3	26.5	35.1	37.0	38.3	39.9	41.7	44.2	46.2	5.6	0.9	0.9	1.0	
Rail	12.2	13.2	16.6	17.1	18.5	20.3	22.1	23.7	25.1	3.2	1.1	1.8	1.3	
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.3	3.9	-3.1	1.5	0.8	
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8481	8462	8296	8226	2.7	3.4	0.0	-0.3	
Public road transport	80	83	80	107	111	109	104	97	92	-0.1	3.4	-0.6	-1.3	
Private cars and motorcycles	2499	2643	2865	3890	4126	4053	3975	3672	3474	1.4	3.7	-0.4	-1.3	
Trucks	1350	1675	2167	3004	3087	3067	3048	3105	3182	4.8	3.6	-0.1	0.4	
Rail	357	292	333	310	322	333	328	318	290	-0.7	-0.3	0.2	-1.2	
Aviation	310	461	586	675	798	910	997	1095	1176	6.6	3.1	2.2	1.7	
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.1	0.5	

Source: PRIMES

Austria: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	12113	13119	13984	1840	3545	3709	17.9	37.0	36.1
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1187	400	440	-83	0	55	-6.5	0.0	14.2
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	5168	6654	7422	10306	12439	13353	1941	3563	3672	23.2	40.1	37.9
Hydro	2709	3598	3085	3176	3297	3297	179	0	0	6.0	0.0	0.0
Biomass & Waste	2440	2973	4097	6122	7965	8755	1305	3052	3094	27.1	62.1	54.7
Wind	0	6	114	398	427	490	74	39	96	22.8	10.0	24.3
Solar and others	15	64	92	596	733	795	379	468	483	174.3	176.6	154.9
Geothermal	4	14	35	13	16	16	4	4	-1	45.1	28.9	-4.0
Net Imports	17086	18853	24392	22252	20915	20277	-4428	-7388	-8107	-16.6	-26.1	-28.6
Solids	3112	3064	3958	4166	3205	3267	-131	-1575	-2325	-3.0	-33.0	-41.6
Oil	9521	10703	13028	12252	11733	10486	-1667	-2221	-3142	-12.0	-15.9	-23.1
- Crude oil and Feedstocks	7878	7704	7964	8090	8134	7742	-653	-851	-1197	-7.5	-9.5	-13.4
- Oil products	1643	3000	5064	4162	3599	2744	-1013	-1370	-1945	-19.6	-27.6	-41.5
Natural gas	4443	5253	7288	5803	6064	6676	-2596	-3509	-2556	-30.9	-36.7	-27.7
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	34365	34034	34260	-2589	-3843	-4398	-7.0	-10.1	-11.4
Solids	4042	3637	4050	4166	3205	3267	-149	-1593	-2344	-3.4	-33.2	-41.8
Oil	10596	11882	14125	12872	12013	10676	-1667	-2221	-3142	-11.5	-15.6	-22.7
Natural gas	5184	6519	8263	6991	6464	7116	-2679	-3509	-2502	-27.7	-35.2	-26.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	10141	12224	13117	1905	3480	3589	23.1	39.8	37.7
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.1	9.4	9.5	0.4	-3.3	-5.0			
Oil	42.4	41.7	41.6	37.5	35.3	31.2	-1.9	-2.3	-4.6			
Natural gas	20.7	22.9	24.3	20.3	19.0	20.8	-5.8	-7.3	-4.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	29.5	35.9	38.3	7.2	12.8	13.6			
Gross Electricity Generation in GWh_e	49287	60150	62969	66113	71940	87687	-6378	-6405	1816	-8.8	-8.2	2.1
Self consumption and grid losses	4886	5404	7536	6469	7226	9639	-400	-254	702	-5.8	-3.4	7.8
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4054	4440	6534	-1587	-1407	24	-28.1	-24.1	0.4
Solids	1510	1236	1510	1654	835	1055	14	-1337	-1879	0.8	-61.6	-64.0
Oil (including refinery gas)	488	287	270	0	0	0	-547	-315	-326	-100.0	-100.0	-100.0
Gas (including derived gases)	1776	1974	2901	941	527	1604	-2124	-2313	-803	-69.3	-81.5	-33.4
Biomass & Waste	237	428	786	1451	3070	3865	1067	2557	3032	278.0	498.5	363.9
Geothermal heat	0	0	2	7	8	10	3	2	0	79.9	35.4	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	12057	11433	10798	-611	-1149	-1596	-4.8	-9.1	-12.9
Refineries	9123	8765	9080	8711	8415	7932	-653	-851	-1197	-7.0	-9.2	-13.1
Biofuels and hydrogen production	2	9	42	549	871	1080	58	167	36	11.7	23.7	3.5
District heating	347	566	612	769	250	0	-56	-463	-432	-6.8	-64.9	-100.0
Derived gases, cokeries etc.	1971	1910	2009	2027	1897	1786	40	-2	-3	2.0	-0.1	-0.2
Energy Branch Consumption	1639	1750	2134	1783	1689	1604	-163	-224	-252	-8.4	-11.7	-13.6
Non-Energy Uses	1401	1386	1381	1463	1512	1583	-2	-4	-7	-0.1	-0.3	-0.4
Final Energy Demand	19057	22913	27309	28925	29067	28487	-1781	-2579	-4022	-5.8	-8.1	-12.4
by sector												
Industry	6153	7528	8825	9482	9439	9483	-172	-356	-471	-1.8	-3.6	-4.7
- energy intensive industries	4048	4982	5533	5795	5677	5547	-57	-183	-244	-1.0	-3.1	-4.2
- other industrial sectors	2105	2546	3293	3687	3762	3937	-114	-174	-227	-3.0	-4.4	-5.5
Residential	5755	6042	6548	6886	7064	6841	-376	-456	-920	-5.2	-6.1	-11.8
Tertiary	2544	3304	3942	4075	4102	3937	-692	-872	-1178	-14.5	-17.5	-23.0
Transport	4603	6038	7994	8481	8462	8226	-542	-895	-1454	-6.0	-9.6	-15.0
by fuel												
Solids	1718	1415	1458	1371	1274	1018	-67	-105	-239	-4.6	-7.6	-19.0
Oil	7896	9402	11774	11064	10455	9473	-1159	-1769	-2636	-9.5	-14.5	-21.8
Gas	2968	4254	4936	5507	5289	4888	-370	-933	-1430	-6.3	-15.0	-22.6
Electricity	3669	4474	4884	5216	5587	6695	-508	-519	111	-8.9	-8.5	1.7
Heat (from CHP and District Heating)	614	1052	1260	1247	1282	1203	-246	-282	-338	-16.5	-18.0	-21.9
Renewable energy forms	2192	2316	2996	4518	5177	5206	569	1029	509	14.4	24.8	10.8
Other	0	0	0	1	2	3	0	0	0	7.4	6.0	-2.2
RES in Gross Final Energy Consumption ^(A)		6285	6788	9651	11605	12358	1899	3163	3185	24.5	37.5	34.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	89.0	80.6	76.2	-13.5	-23.7	-27.4	-13.1	-22.7	-26.4
CO₂ Emissions (energy related)	55.2	61.0	73.7	67.0	59.3	56.7	-12.0	-21.3	-24.7	-15.2	-26.4	-30.3
Power generation/District heating	12.8	11.6	15.0	10.0	5.6	8.5	-7.0	-12.6	-11.6	-41.0	-69.3	-57.8
Energy Branch	3.8	4.2	4.6	4.0	3.6	3.2	-0.4	-0.7	-0.8	-8.3	-15.3	-19.2
Industry	12.7	15.5	17.5	18.3	17.4	16.3	0.0	-1.0	-1.5	0.1	-5.7	-8.4
Residential	9.8	8.8	9.0	7.5	7.0	5.7	-1.5	-2.0	-3.5	-17.0	-22.5	-37.9
Tertiary	3.4	3.7	4.5	3.9	3.3	2.1	-1.3	-1.7	-2.7	-25.2	-34.2	-56.4
Transport	12.7	17.2	23.1	23.3	22.4	21.0	-1.8	-3.2	-4.7	-7.2	-12.4	-18.2
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.6	9.1	8.9	-0.1	-0.5	-0.8	-0.8	-4.7	-8.5
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.5	12.2	10.6	-1.4	-2.0	-1.9	-10.2	-14.0	-15.2
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	110.8	100.3	94.8	-16.7	-29.5	-34.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	112.2	101.5	88.6	-8.5	-11.5	-11.4	-7.0	-10.1	-11.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	1.95	1.74	1.66	-0.19	-0.38	-0.45	-8.8	-18.1	-21.4
Import Dependency %	68.4	66.1	71.8	64.8	61.5	59.2	-7.4	-13.3	-14.2			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	30.1	34.2	38.0	0.9	2.2	2.7	3.0	6.8	7.7
as % of GDP		8.4	9.5	9.8	10.2	9.8	0.3	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.9	2.2	2.8						
as % of GDP				0.29	0.66	0.72						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	91.2	82.6	71.7	-1.7	-3.1	-3.6	-1.8	-3.6	-4.7
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	86.8	81.6	68.9	-4.7	-5.3	-9.3	-5.2	-6.1	-11.8
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	91.3	83.7	69.5	-15.5	-17.8	-20.8	-14.5	-17.5	-23.0
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	37.3	35.6	30.8	-0.9	-1.4	-3.2	-2.5	-3.9	-9.5
Freight transport (toe/Mtkm)	49.4	45.7	59.0	54.4	51.0	47.0	-3.7	-6.2	-8.0	-6.4	-10.8	-14.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.12	0.06	0.08	-0.06	-0.12	-0.11	-34.2	-65.8	-56.9
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.83	1.72	1.58	-0.04	-0.11	-0.18	-2.4	-6.1	-10.3
Industry	2.06	2.06	1.98	1.93	1.84	1.72	0.04	-0.04	-0.07	1.9	-2.1	-3.9
Residential	1.71	1.46	1.37	1.08	0.99	0.83	-0.15	-0.21	-0.35	-12.5	-17.5	-29.5
Tertiary	1.34	1.12	1.15	0.95	0.81	0.52	-0.14	-0.20	-0.40	-12.5	-20.3	-43.4
Transport	2.75	2.85	2.89	2.74	2.64	2.55	-0.03	-0.09	-0.10	-1.3	-3.2	-3.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	26.8	24.2	32.6	39.0	42.1	42.1	7.9	12.9	14.6			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.0	9.7	12.9	1.0	2.7	2.6			
Gross Electricity generation by source (in GWh_e)												
Gross electricity generation	60150	62969	66113	71940	67687	67687	-6378	-6405	1816	-8.8	-8.2	2.1
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7640	3950	6329	6329	0	-6325	-9423	0.0	-61.6	-59.8
Oil (including refinery gas)	1220	1452	1188	951	668	668	-2977	-1980	-2190	-71.5	-67.6	-76.6
Gas (including derived gases)	10541	14513	7015	6642	15019	15019	-11028	-10589	-2187	-61.1	-61.5	-12.7
Biomass-waste	1845	3929	8611	16919	21276	21276	4683	12035	14502	119.2	246.4	214.1
Hydro (pumping excluded)	41832	35868	36936	38342	38342	38342	2080	0	0	6.0	0.0	0.0
Wind	67	1328	4632	4969	5701	5701	860	452	1114	22.8	10.0	24.3
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	9	11	13	13	4	3	0	63.2	30.3	0.0
Net Generation Capacity in MW_e	16771	17685	21940	23603	25353	25353	-466	49	198	-2.1	0.2	0.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13460	14334	16057	16057	475	211	775	3.7	1.5	5.1
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2152	2382	3483	3483	475	211	775	28.3	9.7	28.6
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8480	9269	9296	9296	-941	-162	-577	-10.0	-1.7	-5.8
of which cogeneration units	3067	3657	4252	4886	5727	5727	-410	-282	113	-8.8	-5.5	2.0
Solids fired	1600	1587	1460	1460	734	734	0	-88	-1140	0.0	-5.7	-60.8
Gas fired	2916	3267	4509	4295	4704	4704	-1582	-1687	-1462	-26.0	-28.2	-23.7
Oil fired	1167	1158	968	412	151	151	-460	-503	-434	-32.2	-55.0	-74.2
Biomass-waste fired	295	384	1542	3100	3704	3704	1100	2116	2458	248.5	214.9	197.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	2	3	3	1	0	0	46.4	24.3	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	33.0	33.4	37.9	37.9	-2.6	-3.3	0.4			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.9	55.2	57.0	57.0	0.4	3.2	0.7			
% of gross electricity from CHP	12.3	20.6	26.8	35.5	35.2	35.2	-5.1	2.9	-1.0			
Carbon free gross electricity generation (%)	72.7	65.3	76.0	84.0	74.9	74.9	17.2	22.8	16.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	76.0	84.0	74.9	74.9	17.2	22.8	16.6			
Transport sector												
Passenger transport activity (Gpkm)	95.0	114.6	120.6	136.8	143.2	154.7	-2.5	-4.0	-5.4	-1.8	-2.7	-3.4
Public road transport	14.2	14.8	15.1	16.6	17.3	18.2	0.2	0.4	0.5	1.4	2.2	2.6
Private cars and motorcycles	65.2	81.3	85.8	95.1	97.8	102.3	-2.6	-4.1	-5.4	-2.7	-4.0	-5.0
Rail	11.5	11.8	12.3	14.6	15.6	17.3	0.3	0.4	0.4	2.1	2.5	2.5
Aviation	4.1	6.6	7.3	10.5	12.4	16.8	-0.4	-0.6	-0.9	-3.6	-4.8	-5.2
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	-0.5	-0.3
Freight transport activity (Gtkm)	34.1	54.2	55.9	62.2	65.9	73.5	-1.5	-2.3	-3.3	-2.4	-3.4	-4.2
Trucks	20.3	35.1	37.0	39.9	41.7	46.2	-2.2	-3.2	-4.3	-5.2	-7.2	-8.5
Rail	12.2	16.6	17.1	20.3	22.1	25.1	0.7	0.9	1.0	3.5	4.2	4.2
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.3	0.0	0.0	0.0	0.3	0.9	1.4
Energy demand in transport (ktoe)	4603	6038	7994	8481	8462	8226	-542	-895	-1454	-6.0	-9.6	-15.0
Public road transport	80	80	107	109	104	92	-2	-7	-9	-1.6	-6.1	-8.7
Private cars and motorcycles	2499	2865	3890	4053	3975	3474	-182	-276	-565	-4.3	-6.5	-14.0
Trucks	1350	2167	3004	3067	3048	3182	-318	-538	-754	-9.4	-15.0	-19.2
Rail	357	333	310	333	328	290	0	-4	-16	-0.1	-1.2	-5.2
Aviation	310	586	675	910	997	1176	-40	-70	-110	-4.3	-6.6	-8.6
Inland navigation	7	6	9	10	10	11	0	0	0	-0.6	-0.8	-1.6

Source: PRIMES

Belgium: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	12529	11336	13366	14064	14865	14961	13711	7746	5449	0.6	1.1	-0.8	-8.8	
Solids	1085	269	191	57	11	9	9	15	13	-16.0	-25.0	-1.8	3.6	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	1930	3248	4633	5091	5437	0.3	9.9	9.2	1.6	
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.2	-0.2	
Biomass & Waste	702	694	706	1675	1662	2529	3392	3723	3973	0.0	8.9	7.4	1.6	
Wind	1	1	1	20	197	390	697	800	810	7.9	65.3	13.5	1.5	
Solar and others	1	1	1	3	38	297	509	534	619	2.1	43.5	29.7	2.0	
Geothermal	1	1	4	1	2	2	3	3	3	14.0	-7.0	6.0	0.3	
Net Imports	38857	43775	48651	48968	48566	47281	48072	51730	53442	2.3	0.0	-0.1	1.1	
Solids	9492	9343	7566	5511	4963	4547	5057	7629	10034	-2.2	-4.1	0.2	7.1	
Oil	21468	23579	27331	28425	28762	27602	26955	26594	26261	2.4	0.5	-0.6	-0.3	
- Crude oil and Feedstocks	26116	25674	32658	30565	31876	31389	31124	31038	30882	2.3	-0.2	-0.2	-0.1	
- Oil products	-4648	-2096	-5328	-2141	-3115	-3786	-4169	-4444	-4621					
Natural gas	8217	10418	13278	14191	13935	14078	14943	16363	16000	4.9	0.5	0.7	0.7	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	55651	54166	53296	50576	49617	1.9	-0.3	-0.4	-0.7	
Solids	10244	8551	8200	5450	4973	4556	5066	7644	10047	-2.2	-4.9	0.2	7.1	
Oil	17730	19794	21949	20547	20981	19527	18468	17693	16987	2.2	-0.5	-1.3	-0.8	
Natural gas	8169	10611	13369	14113	13935	14078	14943	16363	16000	5.0	0.4	0.7	0.7	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2227	3700	5239	5756	6146	1.6	10.0	8.9	1.6	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	8.4	9.5	15.1	20.2					
Oil	37.5	39.2	38.4	37.4	37.7	36.1	34.7	35.0	34.2					
Natural gas	17.3	21.0	23.4	25.7	25.0	26.0	28.0	32.4	32.2					
Nuclear	22.7	20.5	21.7	22.3	23.2	21.6	17.0	5.2	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.0	6.8	9.8	11.4	12.4					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88244	93813	102319	116632	127209	1.6	0.7	1.5	2.2	
Self consumption and grid losses	7382	7778	7813	8244	7520	7961	8714	11354	13050	0.6	-0.4	1.5	4.1	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6169	6898	9352	14812	17993	1.3	-1.9	4.2	6.8	
Solids	3875	3764	3025	1889	1818	1535	2297	5006	7518	-2.4	-5.0	2.4	12.6	
Oil (including refinery gas)	318	232	172	411	0	1	5	4	131	-6.0			38.9	
Gas (including derived gases)	1983	2721	3790	4612	3363	3752	4885	7304	7513	6.7	-1.2	3.8	4.4	
Biomass & Waste	368	465	466	1388	989	1611	2165	2498	2831	2.4	7.8	8.2	2.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38291	37606	37219	36803	36527	1.5	-0.6	-0.3	-0.2	
Refineries	29036	28632	37085	35792	34899	34035	33517	33131	32872	2.5	-0.6	-0.4	-0.2	
Biofuels and hydrogen production	0	0	0	0	235	568	986	1075	1144			15.4	1.5	
District heating	10	5	41	27	69	49	40	38	35	15.2	5.4	-5.4	-1.4	
Derived gases, cokeries etc.	6109	4320	3612	3173	3089	2954	2675	2560	2477	-5.1	-1.6	-1.4	-0.8	
Energy Branch Consumption	2310	2273	2370	2127	1908	1842	1798	1855	1884	0.3	-2.1	-0.6	0.5	
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3986	3948	7.8	-3.1	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	37160	36747	36476	35751	35111	1.7	0.1	-0.2	-0.4	
by sector														
Industry	11886	12110	13636	11605	11802	11696	11501	11294	11297	1.4	-1.4	-0.3	-0.2	
- energy intensive industries	9285	9192	10043	8751	8876	8813	8586	8383	8286	0.8	-1.2	-0.3	-0.4	
- other industrial sectors	2600	2918	3593	2854	2926	2883	2915	2911	3010	3.3	-2.0	0.0	0.3	
Residential	8337	9295	9465	9914	9786	9558	9510	9066	8615	1.3	0.3	-0.3	-1.0	
Tertiary	3370	4604	4158	5005	5082	4921	4873	4836	4766	2.1	2.0	-0.4	-0.2	
Transport	7704	8480	9672	9880	10491	10572	10592	10554	10433	2.3	0.8	0.1	-0.2	
by fuel														
Solids	3787	3306	3378	2080	1842	1774	1633	1577	1490	-1.1	-5.9	-1.2	-0.9	
Oil	14734	16248	16047	16443	16308	15119	14130	13550	12828	0.9	0.2	-1.4	-1.0	
Gas	7249	8517	10010	10009	10482	10210	9862	8701	8074	3.3	0.5	-0.6	-2.0	
Electricity	4986	5885	6667	6894	7257	7697	8282	9272	10002	2.9	0.9	1.3	1.9	
Heat (from CHP and District Heating)	213	220	490	427	341	421	445	466	495	8.7	-3.6	2.7	1.1	
Renewable energy forms	326	312	338	549	929	1524	2122	2183	2218	0.3	10.7	8.6	0.4	
Other	0	0	0	0	1	2	3	3	4			15.0	2.1	
RES in Gross Final Energy Consumption ^(A)			495	909	1896	3406	4814	5278	5616	14.4	9.8	1.6		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	139.7	130.2	129.0	140.4	147.0	0.4	-0.6	-0.8	1.3	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	102.5	97.4	98.4	109.8	116.4	0.8	-1.2	-0.4	1.7	
Power generation/District heating	21.8	23.1	22.5	20.6	16.1	15.9	21.5	37.8	48.6	0.3	-3.3	2.9	8.5	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.6	3.6	3.4	3.2	0.3	-3.8	-0.6	-0.9	
Industry	30.2	28.7	30.5	22.8	22.6	21.5	20.2	19.8	19.4	0.1	-3.0	-1.1	-0.4	
Residential	18.7	20.1	20.0	20.3	19.2	17.0	15.1	11.5	8.6	0.7	-0.4	-2.4	-5.4	
Tertiary	7.5	10.4	8.2	10.5	10.3	9.5	9.2	8.9	8.7	0.8	2.3	-1.1	-0.5	
Transport	22.6	24.9	28.6	29.4	30.6	30.0	28.9	28.5	27.8	2.4	0.7	-0.6	-0.4	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.2	10.1	10.0	9.8	0.9	-0.2	0.1	-0.3	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	22.5	20.5	20.7	20.8	-1.4	1.6	-2.8	0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.2	91.5	90.7	98.7	103.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.7	145.0	130.2	113.7	103.9	-0.4	-2.1	-2.4	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.84	1.80	1.85	2.17	2.35	-1.1	-0.9	0.0	2.4
Import Dependency %	75.7	80.5	77.8	78.3	76.6	76.0	77.8	87.0	90.7				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.5	41.2	45.9	48.4	50.3		1.9	2.3	0.9
as % of GDP			10.9	10.6	10.9	11.0	11.2	10.9	10.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	70.9	64.8	59.3	55.4	-0.2	-2.4	-1.9	-1.6
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	78.1	71.6	63.3	56.4	-0.9	-1.3	-2.0	-2.4
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.5	85.3	76.7	69.7	64.0	0.2	-0.2	-2.5	-1.8
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.5	41.4	38.4	35.6	0.1	-0.4	-0.9	-1.5
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.3	43.6	43.5	43.1	-0.7	0.0	-0.8	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.17	0.16	0.20	0.31	0.36	-1.7	-3.8	1.4	6.3
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.12	2.01	1.92	1.84	-0.7	-0.6	-1.0	-0.9
Industry	2.54	2.37	2.24	1.97	1.91	1.83	1.76	1.75	1.72	-1.3	-1.6	-0.9	-0.2
Residential	2.24	2.16	2.11	2.05	1.96	1.78	1.59	1.27	1.00	-0.6	-0.7	-2.1	-4.5
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.88	1.84	1.83	-1.3	0.3	-0.7	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.70	2.67	0.1	-0.2	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.0	9.1	12.9	14.3	15.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.5	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			82639	85694	88244	93813	102319	116632	127209		0.7	1.5	2.2
Nuclear energy			48148	47586	50094	45361	35148	10232	0		0.4	-3.5	
Solids			12953	8552	7996	6967	10643	29594	44630		-4.7	2.9	15.4
Oil (including refinery gas)			865	1871	80	721	686	160	733		-21.1	23.9	0.7
Gas (including derived gases)			18968	23608	22675	27451	36117	54049	57494		1.8	4.8	4.8
Biomass-waste			1231	3561	4734	8379	11184	12831	14414		14.4	9.0	2.6
Hydro (pumping excluded)			459	288	360	363	367	359	359		-2.4	0.2	-0.2
Wind			15	227	2287	4532	8105	9300	9420		65.3	13.5	1.5
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17880	18990	20579	23937	24898		2.2	1.4	1.9
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0		0.1	-3.5	
<u>Renewable energy</u>			319	467	1230	2144	3592	4320	4399		14.5	11.3	2.0
Hydro (pumping excluded)			306	298	300	303	304	304	304		-0.2	0.1	0.0
Wind			13	167	906	1789	3196	3875	3886		52.9	13.4	2.0
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10776	11574	12891	18425	20500		2.6	1.8	4.7
of which cogeneration units			1863	2324	2984	4139	4829	4737	4796		4.8	4.9	-0.1
Solids fired			1680	1392	1258	1182	1329	3705	5188		-2.8	0.6	14.6
Gas fired			5522	6360	7628	7845	8614	12002	12800		3.3	1.2	4.0
Oil fired			615	641	588	546	523	169	253		-0.5	-1.2	-7.0
Biomass-waste fired			515	551	1302	2001	2425	2550	2259		9.7	6.4	-0.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	54.3	54.5	55.1	53.4	55.9				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.5	54.3	53.9	56.1	56.1				
% of gross electricity from CHP			7.3	7.2	17.2	24.7	25.2	23.5	22.4				
Carbon free gross electricity generation (%)			60.3	60.3	65.2	62.5	53.6	28.1	19.1				
- nuclear			58.3	55.5	56.8	48.4	34.4	8.8	0.0				
- renewable energy forms			2.1	4.8	8.4	14.2	19.3	19.4	19.1				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	113.7	126.3	139.3	153.2	165.1	173.1	179.7	186.6	192.6	2.0	1.7	0.8	0.7
Private cars and motorcycles	10.9	13.1	13.3	17.6	18.8	19.2	19.8	20.2	20.4	2.0	3.5	0.5	0.3
Rail	90.1	98.6	107.7	114.4	120.9	124.5	126.7	130.0	132.4	1.8	1.2	0.5	0.4
Aviation	7.3	7.6	8.6	10.1	11.8	13.1	14.4	15.2	16.5	1.7	3.2	2.0	1.4
Inland navigation	4.6	6.4	9.3	10.8	13.3	15.9	18.4	20.8	23.0	7.2	3.6	3.3	2.2
Freight transport activity (Gtkm)	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.3	0.3
Trucks	48.0	58.6	65.9	60.5	63.3	67.2	72.4	77.8	82.8	3.2	-0.4	1.4	1.3
Rail	34.2	45.6	51.0	43.8	45.4	48.4	52.8	57.8	62.4	4.1	-1.2	1.5	1.7
Inland navigation	8.4	7.3	7.7	8.1	8.8	9.5	10.0	10.2	10.5	-0.9	1.4	1.3	0.4
Energy demand in transport (ktoe)	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Public road transport	7704	8480	9672	9880	10491	10572	10592	10554	10433	2.3	0.8	0.1	-0.2
Private cars and motorcycles	165	164	170	173	182	176	167	157	150	0.3	0.7	-0.9	-1.1
Trucks	4075	4502	4794	5442	5692	5560	5398	5108	4851	1.6	1.7	-0.5	-1.1
Rail	2205	2420	2858	2581	2657	2700	2800	3032	3236	2.6	-0.7	0.5	1.5
Aviation	177	202	183	185	196	198	201	196	177	0.4	0.7	0.3	-1.3
Inland navigation	952	945	1530	1281	1536	1708	1792	1827	1786	4.9	0.0	1.6	0.0
Inland navigation	129	247	136	217	227	231	233	234	233	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	14961	13711	5449	570	1392	1446	4.0	11.3	36.1
Solids	1085	191	57	9	9	13	-11	-9	0	-56.0	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	191.6	-141.8	6.5
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3248	4633	5437	581	1401	1446	21.8	43.3	36.2
Hydro	23	39	25	31	32	31	1	0	1	1.7	0.2	3.6
Biomass & Waste	702	706	1675	2529	3392	3973	300	773	719	13.5	29.5	22.1
Wind	1	1	20	390	697	810	55	238	280	16.6	51.9	52.8
Solar and others	1	1	3	297	509	619	224	388	443	307.8	319.4	252.3
Geothermal	1	4	1	2	3	3	1	2	2	79.8	132.2	143.4
Net Imports	38857	48651	48968	47281	48072	53442	-3751	-5490	-5904	-7.3	-10.2	-9.9
Solids	9492	7566	5511	4547	5057	10034	-802	-1445	-787	-15.0	-22.2	-7.3
Oil	21468	27331	28425	27602	26955	26261	-1548	-2293	-3386	-5.3	-7.8	-11.4
- Crude oil and Feedstocks	26116	32658	30565	31389	31124	30882	-864	-1291	-1943	-2.7	-4.0	-5.9
- Oil products	-4648	-5328	-2141	-3786	-4169	-4621	-684	-1002	-1443	22.0	31.6	45.4
Natural gas	8217	13278	14191	14078	14943	16000	-1454	-1889	-1860	-9.4	-11.2	-10.4
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	54166	53296	49617	-3178	-4086	-4436	-5.5	-7.1	-8.2
Solids	10244	8200	5450	4556	5066	10047	-814	-1454	-787	-15.2	-22.3	-7.3
Oil	17730	21949	20547	19527	18468	16987	-1544	-2281	-3363	-7.3	-11.0	-16.5
Natural gas	8169	13369	14113	14078	14943	16000	-1454	-1889	-1860	-9.4	-11.2	-10.4
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3700	5239	6146	635	1539	1574	20.7	41.6	34.4
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	8.4	9.5	20.2	-1.0	-1.9	0.2			
Oil	37.5	38.4	37.4	36.1	34.7	34.2	-0.7	-1.5	-3.4			
Natural gas	17.3	23.4	25.7	26.0	28.0	32.2	-1.1	-1.3	-0.8			
Nuclear	22.7	21.7	22.3	21.6	17.0	0.0	1.2	1.2	0.0			
Renewable energy forms	1.5	1.5	3.7	6.8	9.8	12.4	1.5	3.4	3.9			
Gross Electricity Generation in GWh_e	70202	82639	85694	93813	102319	127209	-7269	-6620	9461	-7.2	-6.1	8.0
Self consumption and grid losses	7382	7813	8244	7961	8714	13050	-673	-728	1373	-7.8	-7.7	11.8
Fuel Inputs to Thermal Power Generation	6544	7453	8299	6898	9352	17993	-1585	-1655	857	-18.7	-15.0	5.0
Solids	3875	3025	1889	1535	2297	7518	-804	-1325	-645	-34.4	-36.6	-7.9
Oil (including refinery gas)	318	172	411	1	5	131	-89	-75	33	-99.4	-93.9	33.9
Gas (including derived gases)	1983	3790	4612	3752	4885	7513	-983	-981	613	-20.8	-16.7	8.9
Biomass & Waste	368	466	1388	1611	2165	2831	290	727	856	22.0	50.6	43.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37606	37219	36527	-727	-1138	-1874	-1.9	-3.0	-4.9
Refineries	29036	37085	35792	34035	33517	32872	-867	-1295	-1950	-2.5	-3.7	-5.6
Biofuels and hydrogen production	0	0	0	568	986	1144	65	199	89	13.0	25.3	8.5
District heating	10	41	27	49	40	35	2	-1	-8	3.2	-2.8	-19.1
Derived gases, cokeries etc.	6109	3612	3173	2954	2675	2477	73	-41	-4	2.5	-1.5	-0.2
Energy Branch Consumption	2310	2370	2127	1842	1798	1884	-73	-125	-127	-3.8	-6.5	-6.3
Non-Energy Uses	2739	5814	4583	4051	4024	3948	-3	-5	-12	-0.1	-0.1	-0.3
Final Energy Demand	31296	36931	36403	36747	36476	35111	-2191	-3137	-4759	-5.6	-7.9	-11.9
by sector												
Industry	11886	13636	11605	11696	11501	11297	-200	-406	-587	-1.7	-3.4	-4.9
- energy intensive industries	9285	10043	8751	8813	8586	8286	-88	-259	-386	-1.0	-2.9	-4.4
- other industrial sectors	2600	3593	2854	2883	2915	3010	-112	-147	-202	-3.7	-4.8	-6.3
Residential	8337	9465	9914	9558	9510	8615	-789	-953	-1707	-7.6	-9.1	-16.5
Tertiary	3370	4158	5005	4921	4873	4766	-657	-838	-979	-11.8	-14.7	-17.0
Transport	7704	9672	9880	10572	10592	10433	-544	-940	-1486	-4.9	-8.2	-12.5
by fuel												
Solids	3787	3378	2080	1774	1633	1490	-52	-152	-190	-2.9	-8.5	-11.3
Oil	14734	16047	16443	15119	14130	12828	-1301	-2091	-3207	-7.9	-12.9	-20.0
Gas	7249	10010	10009	10210	9862	8074	-540	-913	-2466	-5.0	-8.5	-23.4
Electricity	4986	6667	6894	7697	8282	10002	-558	-492	720	-6.8	-5.6	7.8
Heat (from CHP and District Heating)	213	490	427	421	445	495	-16	-26	-38	-3.7	-5.5	-7.2
Renewable energy forms	326	338	549	1524	2122	2218	277	537	423	22.2	33.9	23.6
Other	0	0	0	2	3	4	1	0	-2	44.6	9.7	-29.5
RES in Gross Final Energy Consumption ^(A)		495	909	3406	4814	5616	933	1641	1592	37.7	51.7	39.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	130.2	129.0	147.0	-16.0	-23.5	-25.0	-11.0	-15.4	-14.5
CO₂ Emissions (energy related)	106.2	115.4	107.8	97.4	98.4	116.4	-11.4	-17.2	-17.7	-10.4	-14.8	-13.2
Power generation/District heating	21.8	22.5	20.6	15.9	21.5	48.6	-5.7	-7.8	-1.0	-26.6	-26.5	-2.0
Energy Branch	5.4	5.5	4.3	3.6	3.6	3.2	-0.2	-0.3	-0.4	-5.7	-6.8	-11.6
Industry	30.2	30.5	22.8	21.5	20.2	19.4	0.1	-0.4	-0.2	0.7	-1.8	-1.1
Residential	18.7	20.0	20.3	17.0	15.1	8.6	-2.5	-3.9	-9.4	-12.7	-20.4	-52.0
Tertiary	7.5	8.2	10.5	9.5	9.2	8.7	-1.2	-1.5	-1.6	-11.5	-13.8	-15.8
Transport	22.6	28.6	29.4	30.0	28.9	27.8	-1.8	-3.4	-5.1	-5.8	-10.6	-15.4
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.2	10.1	9.8	-0.1	-0.2	-0.4	-0.6	-2.2	-3.7
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	22.5	20.5	20.8	-4.6	-6.1	-6.9	-16.9	-23.0	-24.8
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	91.5	90.7	103.4	-11.3	-16.5	-17.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	145.0	130.2	103.9	-8.5	-10.0	-9.3	-5.5	-7.1	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.80	1.85	2.35	-0.10	-0.17	-0.14	-5.2	-8.3	-5.4
Import Dependency %	75.7	77.8	78.3	76.0	77.8	90.7	-2.0	-3.5	-2.9			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	41.2	45.9	50.3	2.0	3.0	3.8	5.1	6.9	8.1
as % of GDP		10.9	10.6	11.0	11.2	10.5	0.5	0.7	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				2.1	3.1	3.9						
as % of GDP				0.55	0.76	0.83						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	70.9	64.8	55.4	-1.2	-2.3	-2.9	-1.7	-3.4	-4.9
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	78.1	71.6	56.4	-6.4	-7.2	-11.2	-7.6	-9.1	-16.5
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	85.3	76.7	64.0	-11.4	-13.2	-13.2	-11.8	-14.7	-17.0
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.5	41.4	35.6	-1.1	-1.8	-3.1	-2.4	-4.1	-8.0
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.3	43.6	43.1	-2.5	-4.3	-5.8	-5.2	-9.1	-11.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.16	0.20	0.36	-0.04	-0.06	-0.03	-21.1	-21.8	-8.6
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.12	2.01	1.84	-0.02	-0.07	-0.19	-0.9	-3.4	-9.3
Industry	2.54	2.24	1.97	1.83	1.76	1.72	0.04	0.03	0.07	2.4	1.7	4.0
Residential	2.24	2.11	2.05	1.78	1.59	1.00	-0.10	-0.22	-0.74	-5.5	-12.4	-42.5
Tertiary	2.23	1.96	2.09	1.93	1.88	1.83	0.01	0.02	0.03	0.3	1.0	1.5
Transport	2.94	2.96	2.97	2.84	2.73	2.67	-0.03	-0.08	-0.09	-0.9	-2.7	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.1	12.9	15.5	2.9	5.1	5.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.5	11.2	0.9	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	93813	102319	127209	127209	-7269	-6620	9461	-7.2	-6.1	8.0
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	0.0
Solids	12953	8552	6967	10643	44630	44630	-3427	-6857	-2598	-33.0	-39.2	-5.5
Oil (including refinery gas)	865	1871	721	686	733	733	-416	-345	-134	-36.6	-33.5	-15.4
Gas (including derived gases)	18968	23608	27451	36117	57494	57494	-5671	-5675	5228	-17.1	-13.6	10.0
Biomass-waste	1231	3561	8379	11184	14414	14414	1594	3486	3697	23.5	45.3	34.5
Hydro (pumping excluded)	459	288	363	367	359	359	6	1	13	1.7	0.2	3.6
Wind	15	227	4532	8105	9420	9420	645	2771	3256	16.6	51.9	52.8
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	14452	15254	18990	20579	24898	24898	104	-19	2790	0.6	-0.1	12.6
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	319	467	2144	3592	4399	4399	217	967	1316	11.3	36.8	42.7
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1789	3196	3886	3886	217	967	1316	13.8	43.4	51.2
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11574	12891	20500	20500	-113	-987	1474	-1.0	-7.1	7.7
of which cogeneration units	1863	2324	4139	4829	4796	4796	-396	-379	-556	-8.7	-7.3	-10.4
Solids fired	1680	1392	1182	1329	5188	5188	-292	-839	-468	-19.8	-38.7	-8.3
Gas fired	5522	6360	7845	8614	12800	12800	-531	-1045	1131	-6.3	-10.8	9.7
Oil fired	615	641	546	523	253	253	-4	0	2	-0.7	0.0	0.8
Biomass-waste fired	515	551	2001	2425	2259	2259	714	897	809	55.5	58.7	55.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	54.5	55.1	55.9	55.9	-4.6	-3.3	-2.2			
Efficiency of gross thermal power generation (%)	39.3	39.0	54.3	53.9	56.1	56.1	2.1	0.8	0.3			
% of gross electricity from CHP	7.3	7.2	24.7	25.2	22.4	22.4	1.2	0.2	-4.6			
Carbon free gross electricity generation (%)	60.3	60.3	62.5	53.6	19.1	6.7	6.7	9.0	4.4			
- nuclear	58.3	55.5	48.4	34.4	0.0	0.0	3.5	2.1	0.0			
- renewable energy forms	2.1	4.8	14.2	19.3	19.1	19.1	3.2	6.9	4.4			
Transport sector												
Passenger transport activity (Gpkm)												
	113.7	139.3	153.2	173.1	179.7	192.6	-2.8	-4.5	-6.1	-1.6	-2.4	-3.1
Public road transport	10.9	13.3	17.6	19.2	19.8	20.4	0.4	0.6	0.7	2.0	2.9	3.4
Private cars and motorcycles	90.1	107.7	114.4	124.5	126.7	132.4	-2.9	-4.6	-5.9	-2.3	-3.5	-4.3
Rail	7.3	8.6	10.1	13.1	14.4	16.5	0.3	0.4	0.3	2.2	3.1	1.7
Aviation	4.6	9.3	10.8	15.9	18.4	23.0	-0.5	-0.9	-1.1	-3.3	-4.5	-4.7
Inland navigation	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.7	-0.5	-0.3
Freight transport activity (Gtkm)												
	48.0	65.9	60.5	67.2	72.4	82.8	-1.4	-2.3	-3.5	-2.0	-3.1	-4.1
Trucks	34.2	51.0	43.8	48.4	52.8	62.4	-2.0	-3.2	-4.5	-3.9	-5.6	-6.7
Rail	8.4	7.7	8.1	9.5	10.0	10.5	0.5	0.7	0.7	5.4	7.1	7.2
Inland navigation	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.2	0.2	1.3	1.9	2.3
Energy demand in transport (ktoe)												
	7704	9672	9880	10572	10592	10433	-544	-940	-1486	-4.9	-8.2	-12.5
Public road transport	165	170	173	176	167	150	-2	-9	-13	-1.0	-5.2	-7.7
Private cars and motorcycles	4075	4794	5442	5560	5398	4851	-227	-348	-414	-3.9	-6.1	-7.9
Trucks	2205	2858	2581	2700	2800	3236	-238	-437	-681	-8.1	-13.5	-17.4
Rail	177	183	185	198	201	177	3	9	16	1.4	4.5	10.1
Aviation	952	1530	1281	1708	1792	1786	-81	-154	-400	-4.5	-7.9	-18.3
Inland navigation	129	136	217	231	233	233	0	0	4	0.2	-0.1	1.9

Source: PRIMES

Bulgaria: Cost Efficiency Scenario				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9136	10192	9845	10611	9668	8644	10635	12485	12112	0.8	-0.2	1.0	1.3	
Solids	5121	5287	4310	4178	4390	2912	2395	1871	1054	-1.7	0.2	-5.9	-7.9	
Oil	60	43	42	30	33	34	36	38	38	-3.5	-2.4	0.8	0.6	
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Renewable energy sources	161	370	792	1207	1487	1961	2562	3081	3547	17.2	6.5	5.6	3.3	
Hydro	161	151	230	373	305	319	323	332	341	3.6	2.9	0.6	0.6	
Biomass & Waste	0	219	562	801	1045	1391	1878	2347	2702		6.4	6.0	3.7	
Wind	0	0	0	0	38	88	173	206	260			16.4	4.1	
Solar and others	0	0	0	0	13	58	112	162	228			24.2	7.4	
Geothermal	0	0	0	33	87	105	75	34	16			-1.5	-14.5	
Net Imports	17823	13475	8681	9416	9650	9743	9460	9610	11119	-6.9	1.1	-0.2	1.6	
Solids	3527	2424	2258	2550	2703	2691	1916	1728	2606	-4.4	1.8	-3.4	3.1	
Oil	8540	6511	4081	5086	5285	5450	5743	6035	6149	-7.1	2.6	0.8	0.7	
- Crude oil and Feedstocks	8247	8003	5346	6328	7078	7300	7684	8064	8218	-4.2	2.8	0.8	0.7	
- Oil products	292	-1492	-1265	-1242	-1793	-1850	-1941	-2029	-2068					
Natural gas	5430	4563	2742	2458	1902	1899	2009	1982	2469	-6.6	-3.6	0.5	2.1	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Gross Inland Consumption	27964	23305	18610	19885	19183	18234	19928	21916	23046	-4.0	0.3	0.4	1.5	
Solids	8706	7673	6417	6892	7093	5603	4312	3600	3660	-3.0	1.0	-4.9	-1.6	
Oil	9593	6245	4181	4847	5184	5331	5611	5895	6003	-8.0	2.2	0.8	0.7	
Natural gas	5395	4584	2932	2804	2139	2098	2178	2126	2591	-5.9	-3.1	0.2	1.8	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Renewable energy forms	161	363	788	1181	1454	1916	3007	3656	4209	17.2	6.3	7.5	3.4	
as % in Gross Inland Consumption														
Solids	31.1	32.9	34.5	34.7	37.0	30.7	21.6	16.4	15.9					
Oil	34.3	26.8	22.5	24.4	27.0	29.2	28.2	26.9	26.0					
Natural gas	19.3	19.7	15.8	14.1	11.2	11.5	10.9	9.7	11.2					
Nuclear	13.5	19.1	25.2	24.2	18.4	19.4	27.5	33.5	31.9					
Renewable energy forms	0.6	1.6	4.2	5.9	7.6	10.5	15.1	16.7	18.3					
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	37611	39669	49520	57698	65328	-0.4	-0.8	2.8	2.8	
Self consumption and grid losses	8456	8102	7245	7081	5799	5529	6055	6868	8181	-1.5	-2.2	0.4	3.1	
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	5617	4502	4242	4092	5024	-4.6	-1.1	-2.8	1.7	
Solids	6800	6734	5245	5675	5441	4206	3052	2371	2481	-2.6	0.4	-5.6	-2.1	
Oil (including refinery gas)	951	613	160	149	0	0	0	18	12	-16.3				
Gas (including derived gases)	2352	1835	884	697	177	132	107	70	399	-9.3	-14.9	-4.9	14.0	
Biomass & Waste	0	0	3	2	0	164	1083	1633	2133				7.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	13079	11635	7612	8839	8767	8837	9067	9386	9515	-5.3	1.4	0.3	0.5	
Refineries	8341	8023	5406	6586	7307	7525	7908	8275	8407	-4.2	3.1	0.8	0.6	
Biofuels and hydrogen production	0	0	0	0	34	73	113	196	313			12.9	10.7	
District heating	2779	1544	324	370	512	454	404	330	268	-19.3	4.7	-2.4	-4.0	
Derived gases, cokeries etc.	1960	2069	1882	1883	914	785	642	585	526	-0.4	-7.0	-3.5	-2.0	
Energy Branch Consumption	1359	1458	1146	1279	1410	1343	1389	1438	1550	-1.7	2.1	-0.1	1.1	
Non-Energy Uses	1427	1236	1261	1059	991	1051	1186	1290	1362	-1.2	-2.4	1.8	1.4	
Final Energy Demand	16138	11575	8861	9682	10310	10831	11695	12653	13466	-5.8	1.5	1.3	1.4	
by sector														
Industry	8966	6032	3637	3673	3627	3777	4132	4576	5062	-8.6	0.0	1.3	2.0	
- energy intensive industries	5579	4837	2814	2809	2803	2906	3125	3406	3692	-6.6	0.0	1.1	1.7	
- other industrial sectors	3387	1195	823	864	823	871	1007	1170	1370	-13.2	0.0	2.0	3.1	
Residential	2264	2378	2363	2268	2298	2313	2455	2548	2595	0.4	-0.3	0.7	0.6	
Tertiary	2389	1189	1044	1181	1303	1252	1278	1336	1369	-7.9	2.2	-0.2	0.7	
Transport	2518	1976	1817	2560	3083	3490	3831	4192	4441	-3.2	5.4	2.2	1.5	
by fuel														
Solids	1477	1280	860	936	1091	1017	919	910	882	-5.3	2.4	-1.7	-0.4	
Oil	4967	2893	2981	3599	4234	4428	4707	4982	5110	-5.0	3.6	1.1	0.8	
Gas	2066	1787	1231	1025	929	992	1087	1101	1239	-5.0	-2.8	1.6	1.3	
Electricity	3085	2639	2358	2383	2399	2554	2935	3487	3974	-2.7	0.2	2.0	3.1	
Heat (from CHP and District Heating)	4543	2798	877	939	636	733	888	977	1105	-15.2	-3.2	3.4	2.2	
Renewable energy forms	0	178	555	800	1021	1108	1157	1194	1155		6.3	1.3	0.0	
Other	0	0	0	0	0	1	1	2	2			16.0	3.7	
RES in Gross Final Energy Consumption ^(A)			786	1182	1436	1846	2799	3356	3816	6.2	6.9	3.1		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	63.5	54.4	49.0	43.8	40.6	-5.4	0.1	-2.6	-1.8	
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	45.4	39.6	35.2	33.0	31.9	-5.3	0.7	-2.5	-1.0	
Power generation/District heating	44.8	38.2	24.9	26.2	24.1	18.7	13.8	10.8	9.1	-5.7	-0.3	-5.4	-4.1	
Energy Branch	1.6	1.4	1.3	1.6	1.8	1.1	1.0	0.9	0.9	-2.1	3.4	-6.1	-0.4	
Industry	11.2	9.3	8.3	7.6	8.2	7.7	7.7	7.9	8.4	-2.9	-0.2	-0.6	0.8	
Residential	3.0	2.2	1.2	1.2	1.1	0.9	0.8	0.6	0.4	-8.9	-0.8	-3.5	-5.2	
Tertiary	4.7	1.4	1.2	1.1	1.3	1.3	1.2	1.1	1.0	-13.0	0.7	-0.8	-1.1	
Transport	7.1	5.6	5.2	7.4	8.9	10.0	10.8	11.6	12.0	-3.0	5.5	2.0	1.1	
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.7	5.2	6.0	6.7	-4.2	0.1	1.8	2.5	
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	13.8	10.1	8.5	4.8	4.8	2.1	-5.8	-1.8	-4.7	-13.2	
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	58.0	49.7	44.8	40.0	37.1						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	687.1	495.7	404.3	336.3	271.4	-2.3	-4.6	-5.2	-3.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.36	2.17	1.77	1.50	1.38	-1.3	0.4	-2.9	-2.4
Import Dependency %	63.6	57.2	46.5	47.1	50.0	53.0	47.1	43.5	47.9				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	8.2	10.2	12.6	15.0	17.8		3.4	4.4	3.5
as % of GDP			34.7	28.7	29.3	27.6	25.5	23.0	20.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.4	43.4	34.1	27.7	22.8	-3.0	-5.4	-5.1	-3.9
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	57.4	44.3	35.6	28.2	22.3	1.5	-5.4	-4.7	-4.6
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	76.9	56.1	43.1	34.6	27.4	-4.0	-2.6	-5.6	-4.4
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.0	31.0	29.7	28.7	28.1	2.5	1.8	-0.7	-0.6
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	63.6	58.7	54.8	53.5	52.2	2.1	-1.6	-1.5	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.48	0.35	0.21	0.14	0.11	0.2	0.4	-7.8	-6.5
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.88	1.83	1.75	1.68	1.63	1.1	0.5	-0.7	-0.7
Industry	1.25	1.55	2.29	2.06	2.26	2.03	1.86	1.74	1.65	6.2	-0.2	-1.9	-1.2
Residential	1.33	0.92	0.50	0.53	0.47	0.39	0.31	0.24	0.17	-9.3	-0.5	-4.1	-5.7
Tertiary	1.98	1.16	1.13	0.91	0.97	1.02	0.91	0.82	0.76	-5.5	-1.5	-0.6	-1.8
Transport	2.81	2.84	2.87	2.91	2.88	2.86	2.83	2.78	2.71	0.2	0.1	-0.2	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	13.1	16.2	22.7	25.2	26.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.3	3.2	5.2	8.0				
Gross Electricity generation by source (in GWh)													
			40639	43965	37611	39669	49520	57698	65328		-0.8	2.8	2.8
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	18274	18274	14537	11241	13731		0.8	-2.3	-0.6
Oil (including refinery gas)			590	825	0	0	0	86	55				
Gas (including derived gases)			2368	1963	1372	1299	1184	992	3412		-5.3	-1.5	11.2
Biomass-waste			10	70	333	1651	5778	8408	10341		42.4	33.0	6.0
Hydro (pumping excluded)			2673	4336	3541	3704	3754	3855	3968		2.9	0.6	0.6
Wind			0	2	441	1018	2017	2398	3019			16.4	4.1
Solar			0	0	2	5	9	19	101			17.5	26.9
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9961	11422	12141	13632	14210		-0.9	2.0	1.6
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2483	3020	3946	4319	5041		2.6	4.7	2.5
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	304	814	1722	2049	2542			19.0	4.0
Solar			0	0	2	4	8	15	97			17.5	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5593	6492	5325	5496	5352		0.2	-0.5	0.1
of which cogeneration units			2163	2183	826	1429	1836	2301	3008		-9.2	8.3	5.1
Solids fired			4536	4527	4398	5218	3721	3707	2856		-0.3	-1.7	-2.6
Gas fired			603	625	783	640	313	238	495		2.6	-8.8	4.7
Oil fired			355	355	359	334	262	58	27		0.1	-3.1	-20.3
Biomass-waste fired			11	11	53	300	1029	1494	1973		17.4	34.5	6.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	39.6	36.9	43.7	45.5	49.1				
Efficiency of gross thermal power generation (%)			27.0	27.7	30.6	40.5	43.6	43.6	47.1				
% of gross electricity from CHP			12.0	14.3	8.4	17.3	20.4	21.8	26.7				
Carbon free gross electricity generation (%)			51.3	52.4	47.8	50.7	68.3	78.6	73.7				
- nuclear			44.7	42.4	36.3	34.6	44.9	53.2	47.0				
- renewable energy forms			6.6	10.0	11.5	16.1	23.3	25.4	26.7				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	44.8	51.7	59.3	67.1	73.7		-1.7	2.9	2.8
Public road transport	26.0	11.6	13.9	11.5	10.6	10.1	10.0	10.0	10.1		-6.1	-2.6	-0.6
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.2	35.3	41.3	47.4	52.2		11.2	6.5	3.5
Rail	7.8	4.7	3.5	2.4	2.5	2.9	3.6	4.3	5.2		-7.8	-3.1	3.6
Aviation	0.8	0.9	0.9	1.6	2.5	3.4	4.5	5.4	6.1		0.6	10.6	6.0
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-23.0	-2.5	-0.7
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.0	32.2	37.8	42.3	45.5		-7.9	7.8	3.8
Trucks	12.0	9.7	6.4	14.3	19.3	24.0	28.1	31.4	33.6		-6.1	11.7	3.8
Rail	14.1	8.6	5.5	5.2	5.7	7.0	8.2	9.3	10.1		-8.9	0.2	3.8
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.5	1.6	1.7		-15.1	12.1	4.0
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3083	3490	3831	4192	4441		-3.2	5.4	2.2
Public road transport	318	152	158	97	82	72	67	61	57		-6.8	-6.3	-2.1
Private cars and motorcycles	231	175	639	928	1082	1200	1296	1400	1487		10.7	5.4	1.8
Trucks	1459	1223	842	1274	1591	1814	1991	2186	2306		-5.4	6.6	2.3
Rail	216	144	77	60	62	75	78	79	69		-9.8	-2.2	2.4
Aviation	276	276	101	200	263	327	396	463	519		-9.6	10.1	4.1
Inland navigation	18	6	1	2	2	3	3	3	3		-25.5	8.5	3.4

Source: PRIMES

Bulgaria: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8644	10635	12112	-1434	-1336	-911	-14.2	-11.2	-7.0
Solids	5121	4310	4178	2912	2395	1054	-2067	-2472	-2513	-41.5	-50.8	-70.5
Oil	60	42	30	34	36	38	-1	-4	-3	-3.9	-9.4	-6.7
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	1961	2562	3547	633	1140	1605	47.7	80.2	82.6
Hydro	161	230	373	319	323	341	34	27	0	11.8	9.2	0.0
Biomass & Waste	0	562	801	1391	1878	2702	441	859	1258	46.4	84.3	87.1
Wind	0	0	0	88	173	260	51	131	181	141.2	309.6	231.5
Solar and others	0	0	0	58	112	228	44	86	179	324.5	333.5	362.0
Geothermal	0	0	33	105	75	16	63	36	-14	148.7	92.2	-46.3
Net Imports	17823	8681	9416	9743	9460	11119	-497	-1699	-1636	-4.9	-15.2	-12.8
Solids	3527	2258	2550	2691	1916	2606	-22	-868	-236	-0.8	-31.2	-8.3
Oil	8540	4081	5086	5450	5743	6149	-225	-608	-885	-4.0	-9.6	-12.6
- Crude oil and Feedstocks	8247	5346	6328	7300	7684	8218	-285	-767	-1113	-3.8	-9.1	-11.9
- Oil products	292	-1265	-1242	-1850	-1941	-2068	60	158	228	-3.1	-7.5	-9.9
Natural gas	5430	2742	2458	1899	2009	2469	-236	-701	-1223	-11.1	-25.9	-33.1
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18234	19928	23046	-1931	-3035	-2545	-9.6	-13.2	-9.9
Solids	8706	6417	6892	5603	4312	3660	-2090	-3340	-2749	-27.2	-43.6	-42.9
Oil	9593	4181	4847	5331	5611	6003	-226	-612	-886	-4.1	-9.8	-12.9
Natural gas	5395	2932	2804	2098	2178	2591	-235	-701	-1223	-10.1	-24.4	-32.1
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	1916	3007	4209	619	1618	2313	47.7	116.5	122.0
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	30.7	21.6	15.9	-7.4	-11.7	-9.2			
Oil	34.3	22.5	24.4	29.2	28.2	26.0	1.7	1.1	-0.9			
Natural gas	19.3	15.8	14.1	11.5	10.9	11.2	-0.1	-1.6	-3.7			
Nuclear	13.5	25.2	24.2	19.4	27.5	31.9	1.9	3.6	3.2			
Renewable energy forms	0.6	4.2	5.9	10.5	15.1	18.3	4.1	9.0	10.9			
Gross Electricity Generation in GWh_e	42133	40639	43965	39669	49520	65328	-6453	-7254	-1380	-14.0	-12.8	-2.1
Self consumption and grid losses	8456	7245	7081	5529	6055	8181	-1392	-1528	-74	-20.1	-20.1	-0.9
Fuel Inputs to Thermal Power Generation	10103	6292	6523	4502	4242	5024	-1756	-2358	-1043	-28.1	-35.7	-17.2
Solids	6800	5245	5675	4206	3052	2481	-1869	-3180	-2559	-30.8	-51.0	-50.8
Oil (including refinery gas)	951	160	149	0	0	12	0	0	0			2.5
Gas (including derived gases)	2352	884	697	132	107	399	-51	-256	-416	-27.7	-70.4	-51.0
Biomass & Waste	0	3	2	164	1083	2133	164	1077	1931		20659.8	958.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	8837	9067	9515	-356	-928	-1380	-3.9	-9.3	-12.7
Refineries	8341	5406	6586	7525	7908	8407	-289	-772	-1118	-3.7	-8.9	-11.7
Biofuels and hydrogen production	0	0	0	73	113	313	8	22	22	12.9	24.3	7.4
District heating	2779	324	370	454	404	268	-51	-120	-241	-10.1	-22.9	-47.3
Derived gases, cokeries etc.	1960	1882	1883	785	642	526	-25	-57	-43	-3.1	-8.2	-7.6
Energy Branch Consumption	1359	1146	1279	1343	1389	1550	-119	-192	-176	-8.1	-12.1	-10.2
Non-Energy Uses	1427	1261	1059	1051	1186	1362	-11	-9	-9	-1.0	-0.7	-0.7
Final Energy Demand	16138	8861	9682	10831	11695	13466	-702	-1157	-1634	-6.1	-9.0	-10.8
by sector												
Industry	8966	3637	3673	3777	4132	5062	-91	-203	-220	-2.4	-4.7	-4.2
- energy intensive industries	5579	2814	2809	2906	3125	3692	-48	-129	-115	-1.6	-4.0	-3.0
- other industrial sectors	3387	823	864	871	1007	1370	-44	-74	-105	-4.8	-6.8	-7.1
Residential	2264	2363	2268	2313	2455	2595	-178	-273	-506	-7.1	-10.0	-16.3
Tertiary	2389	1044	1181	1252	1278	1369	-245	-332	-415	-16.4	-20.6	-23.3
Transport	2518	1817	2560	3490	3831	4441	-188	-350	-493	-5.1	-8.4	-10.0
by fuel												
Solids	1477	860	936	1017	919	882	-87	-144	-175	-7.9	-13.5	-16.6
Oil	4967	2981	3599	4428	4707	5110	-196	-553	-821	-4.2	-10.5	-13.8
Gas	2066	1231	1025	992	1087	1239	-40	-53	-257	-3.8	-4.6	-17.2
Electricity	3085	2358	2383	2554	2935	3974	-431	-485	-101	-14.4	-14.2	-2.5
Heat (from CHP and District Heating)	4543	877	939	733	888	1105	-126	-90	-256	-14.7	-9.2	-18.8
Renewable energy forms	0	555	800	1108	1157	1155	178	167	-24	19.1	16.9	-2.0
Other	0	0	0	1	1	2	0	0	0	10.4	-0.3	-0.5
RES in Gross Final Energy Consumption ^(A)		786	1182	1846	2799	3816	566	1433	2007	44.2	104.9	110.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	54.4	49.0	40.6	-11.6	-19.5	-20.5	-17.6	-28.4	-33.5
CO₂ Emissions (energy related)	72.4	42.1	45.1	39.6	35.2	31.9	-9.8	-17.0	-19.4	-19.8	-32.6	-37.8
Power generation/District heating	44.8	24.9	26.2	18.7	13.8	9.1	-8.0	-14.0	-14.8	-30.1	-50.3	-62.0
Energy Branch	1.6	1.3	1.6	1.1	1.0	0.9	-0.7	-0.7	-0.8	-40.5	-41.9	-46.4
Industry	11.2	8.3	7.6	7.7	7.7	8.4	-0.1	-0.7	-1.0	-1.2	-8.2	-10.9
Residential	3.0	1.2	1.2	0.9	0.8	0.4	-0.2	-0.3	-0.6	-17.9	-25.5	-57.6
Tertiary	4.7	1.2	1.1	1.3	1.2	1.0	-0.1	-0.3	-0.5	-9.4	-18.7	-31.6
Transport	7.1	5.2	7.4	10.0	10.8	12.0	-0.6	-1.2	-1.7	-5.6	-9.7	-12.2
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.7	5.2	6.7	-0.1	-0.2	-0.3	-1.8	-3.4	-3.9
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	10.1	8.5	2.1	-1.8	-2.2	-0.8	-14.9	-20.8	-28.2
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	49.7	44.8	37.1	-10.6	-17.8	-18.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	495.7	404.3	271.4	-52.5	-61.6	-30.0	-9.6	-13.2	-9.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.17	1.77	1.38	-0.28	-0.51	-0.62	-11.4	-22.3	-30.9
Import Dependency %	63.6	46.5	47.1	53.0	47.1	47.9	2.6	-1.2	-1.6			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	10.2	12.6	17.8	0.5	1.0	1.8	5.0	8.8	11.4
as % of GDP		34.7	28.7	27.6	25.5	20.9	1.3	2.1	2.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.1	1.9						
as % of GDP				1.41	2.16	2.19						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	43.4	34.1	22.8	-1.0	-1.7	-1.0	-2.4	-4.7	-4.2
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	44.3	35.6	22.3	-3.4	-3.9	-4.3	-7.1	-10.0	-16.3
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	56.1	43.1	27.4	-11.0	-11.2	-8.3	-16.4	-20.6	-23.3
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.0	29.7	28.1	-0.7	-1.0	0.0	-2.1	-3.1	0.1
Freight transport (toe/Mtkm)	60.4	74.4	65.7	58.7	54.8	52.2	-3.1	-5.4	-7.8	-5.0	-8.9	-13.0
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.35	0.21	0.11	-0.08	-0.16	-0.16	-19.2	-43.3	-59.6
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.83	1.75	1.63	0.02	-0.03	-0.07	1.3	-1.5	-4.4
Industry	1.25	2.29	2.06	2.03	1.86	1.65	0.02	-0.07	-0.13	1.1	-3.7	-7.1
Residential	1.33	0.50	0.53	0.39	0.31	0.17	-0.05	-0.06	-0.17	-11.5	-17.2	-49.4
Tertiary	1.98	1.13	0.91	1.02	0.91	0.76	0.08	0.02	-0.09	8.4	2.4	-10.8
Transport	2.81	2.87	2.91	2.86	2.83	2.71	-0.02	-0.04	-0.07	-0.6	-1.4	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	16.2	22.7	26.8	5.7	12.7	15.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.3	3.2	8.0	0.4	0.9	1.5			
Gross Electricity generation by source (in GWh_e)												
	40639	43965	39669	49520	65328	65328	-6453	-7254	-1380	-14.0	-12.8	-2.1
Nuclear energy	18175	18650	13718	22242	30700	30700	0	0	0	0.0	0.0	0.0
Solids	16824	18120	18274	14537	13731	13731	-8111	-11790	-10238	-30.7	-44.8	-42.7
Oil (including refinery gas)	590	825	0	0	55	55	0	0	27			92.3
Gas (including derived gases)	2368	1963	1299	1184	3412	3412	-795	-2839	-2838	-38.0	-70.6	-45.4
Biomass-waste	10	70	1651	5778	10341	10341	1466	5533	9493	791.8	2256.6	1119.9
Hydro (pumping excluded)	2673	4336	3704	3754	3968	3968	391	317	0	11.8	9.2	0.0
Wind	0	2	1018	2017	3019	3019	596	1525	2109	141.2	309.6	231.5
Solar	0	0	5	9	101	101	0	0	68	0.0	0.0	205.8
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	10900	10201	11422	12141	14210	14210	347	1636	1651	3.1	15.6	13.1
<u>Nuclear energy</u>	3473	2678	1910	2870	3817	3817	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	3020	3946	5041	5041	505	1363	1955	20.1	52.8	63.4
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	814	1722	2542	2542	505	1363	1885	164.0	380.7	287.1
Solar	0	0	4	8	97	97	0	0	70	0.0	0.0	265.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6492	5325	5352	5352	-159	272	-305	-2.4	5.4	-5.4
of which cogeneration units	2163	2183	1429	1836	3008	3008	-135	200	478	-8.6	12.2	18.9
Solids fired	4536	4527	5218	3721	2856	2856	-324	-351	-1009	-5.8	-8.6	-26.1
Gas fired	603	625	640	313	495	495	-104	-365	-919	-14.0	-53.9	-65.0
Oil fired	355	355	334	262	27	27	0	0	-165	0.0	0.0	-85.9
Biomass-waste fired	11	11	300	1029	1973	1973	270	988	1788	880.5	2452.8	963.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	36.9	43.7	49.1	49.1	-7.0	-13.7	-7.7			
Efficiency of gross thermal power generation (%)	27.0	27.7	40.5	43.6	47.1	47.1	1.2	3.7	3.1			
% of gross electricity from CHP	12.0	14.3	17.3	20.4	26.7	26.7	-1.0	2.1	4.6			
Carbon free gross electricity generation (%)	51.3	52.4	50.7	68.3	73.7	73.7	12.4	21.7	19.0			
- nuclear	44.7	42.4	34.6	44.9	47.0	47.0	4.8	5.7	1.0			
- renewable energy forms	6.6	10.0	16.1	23.3	26.7	26.7	7.6	16.0	18.0			
Transport sector												
Passenger transport activity (Gpkm)												
	40.3	33.8	38.7	51.7	59.3	73.7	-0.6	-1.1	-1.8	-1.2	-1.8	-2.4
Public road transport	26.0	13.9	11.5	10.1	10.0	10.1	0.2	0.3	0.4	2.4	3.2	3.7
Private cars and motorcycles	5.4	15.5	23.1	35.3	41.3	52.2	-0.8	-1.3	-2.1	-2.2	-3.0	-3.8
Rail	7.8	3.5	2.4	2.9	3.6	5.2	0.1	0.1	0.2	2.4	3.3	4.1
Aviation	0.8	0.9	1.6	3.4	4.5	6.1	-0.1	-0.2	-0.3	-3.4	-4.7	-5.0
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	-0.7	-0.7
Freight transport activity (Gtkm)												
	27.8	12.3	20.3	32.2	37.8	45.5	-0.6	-1.0	-1.5	-1.8	-2.5	-3.2
Trucks	12.0	6.4	14.3	24.0	28.1	33.6	-1.0	-1.5	-2.3	-3.8	-5.1	-6.4
Rail	14.1	5.5	5.2	7.0	8.2	10.1	0.3	0.5	0.8	5.3	6.8	8.0
Inland navigation	1.6	0.3	0.8	1.2	1.5	1.7	0.0	0.0	0.0	1.7	2.2	2.8
Energy demand in transport (ktoe)												
	2518	1817	2560	3490	3831	4441	-188	-350	-493	-5.1	-8.4	-10.0
Public road transport	318	158	97	72	67	57	0	-1	-5	0.2	-0.9	-7.9
Private cars and motorcycles	231	639	928	1200	1296	1487	-42	-67	-10	-3.4	-4.9	-0.7
Trucks	1459	842	1274	1814	1991	2306	-138	-259	-443	-7.1	-11.5	-16.1
Rail	216	77	60	75	78	69	3	-2	0	4.7	-2.2	-0.5
Aviation	276	101	200	327	396	519	-12	-22	-35	-3.4	-5.2	-6.3
Inland navigation	18	1	2	3	3	3	0	0	0	0.7	0.5	-0.3

Source: PRIMES

Cyprus: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	107	158	204	226	268	23.0	9.2	6.7	2.7	
Solids	0	0	0	0	1	0	0	0	0				0.0	
Oil	0	0	0	0	0	0	0	0	0				-3.0	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	106	158	204	225	268	23.0	9.1	6.8	2.8	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6	
Wind	0	0	0	0	9	11	45	61	88			17.3	7.0	
Solar and others	0	31	35	41	82	129	136	136	144		8.8	5.2	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			6.4	-0.6	
Net Imports	1554	2017	2537	2808	2948	2689	2679	2731	2659	5.0	1.5	-1.0	-0.1	
Solids	68	17	36	44	34	34	33	33	33	-6.3	-0.6	-0.3	0.2	
Oil	1486	2000	2502	2764	2771	2180	2137	2090	1896	5.3	1.0	-2.6	-1.2	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.3	-0.6	
- Oil products	761	1207	1353	2764	2769	2178	2135	2087	1894	5.9	7.4	-2.6	-1.2	
Natural gas	0	0	0	0	142	466	486	539	642			13.1	2.8	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2721	2510	2543	2614	2582	4.7	1.3	-0.7	0.2	
Solids	60	13	35	36	34	34	33	33	34	-5.3	-0.2	-0.3	0.2	
Oil	1434	1914	2302	2374	2437	1842	1797	1747	1551	4.8	0.6	-3.0	-1.5	
Natural gas	0	0	0	0	142	466	486	539	642			13.1	2.8	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	107	168	227	295	355	23.0	9.2	7.8	4.6	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.3	1.3	1.3	1.3	1.3					
Oil	95.6	97.2	96.7	96.5	89.6	73.4	70.7	66.8	60.1					
Natural gas	0.0	0.0	0.0	0.0	5.2	18.6	19.1	20.6	24.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	3.9	6.7	8.9	11.3	13.8					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4342	4408	4957	5719	6290	5.5	2.6	1.3	2.4	
Self consumption and grid losses	207	236	353	410	427	317	343	392	401	5.5	1.9	-2.2	1.6	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1026	757	766	853	812	5.7	1.5	-2.9	0.6	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	883	289	273	263	101	5.7	0.0	-11.1	-9.5	
Gas (including derived gases)	0	0	0	0	142	466	486	539	642			13.1	2.8	
Biomass & Waste	0	0	0	0	0	2	7	52	70				26.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	7	15	26	33	41	4.9	-40.4	14.9	4.6	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.3	-0.6	
Biofuels and hydrogen production	0	0	0	0	4	12	24	31	39			19.4	5.0	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	23	13	13	14	12	4.3	-8.1	-5.8	-0.9	
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6	
Final Energy Demand	1013	1306	1527	1691	1834	1901	1920	1940	1957	4.2	1.8	0.5	0.2	
by sector														
Industry	281	201	229	201	201	203	215	223	230	-2.0	-1.3	0.7	0.7	
- energy intensive industries	246	125	117	78	74	73	70	69	68	-7.2	-4.5	-0.5	-0.2	
- other industrial sectors	35	76	113	122	127	130	145	154	162	12.3	1.2	1.3	1.1	
Residential	102	172	215	234	260	271	260	258	263	7.8	1.9	0.0	0.1	
Tertiary	151	186	233	289	312	336	354	366	374	4.4	2.9	1.3	0.6	
Transport	479	747	850	967	1062	1092	1092	1093	1089	5.9	2.3	0.3	0.0	
by fuel														
Solids	76	13	35	36	34	34	33	33	34	-7.5	-0.2	-0.3	0.2	
Oil	781	1068	1190	1263	1367	1364	1323	1276	1237	4.3	1.4	-0.3	-0.7	
Gas	0	0	0	0	0	0	0	0	0			7.5	4.4	
Electricity	151	191	258	340	336	351	396	458	506	5.5	2.7	1.7	2.5	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	97	153	168	173	180	23.0	8.2	5.6	0.7	
Other	0	0	0	0	0	0	0	0	0			15.5	1.2	
RES in Gross Final Energy Consumption ^(A)			44	51	106	165	218	258	306		9.1	7.5	3.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.5	7.2	7.0	6.9	6.4	3.1	0.8	-1.8	-0.9	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.4	6.2	6.1	6.0	5.6	4.3	1.1	-1.9	-0.7	
Power generation/District heating	1.6	2.1	2.8	3.5	3.2	2.0	2.0	2.1	1.8	5.7	1.1	-4.4	-1.0	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.2	0.3	0.3	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.7	-5.5	-13.4	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	4.3	1.9	-2.7	-5.4	
Transport	1.4	2.2	2.5	2.9	3.1	3.2	3.2	3.1	3.1	6.0	2.2	0.1	-0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.8	0.8	-1.5	-0.8	-1.4	-2.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	147.4	124.9	122.4	119.6	111.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Cyprus: Cost Efficiency Scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6	
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5	
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	166.4	128.3	108.8	97.4	86.2	0.2	-2.0	-4.2	-2.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.71	2.48	2.39	2.31	2.19	-0.4	-0.3	-1.2	-0.9	
Import Dependency %	100.1	99.1	98.8	100.7	96.5	94.4	92.9	92.4	90.8					
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.3	2.6	2.7		5.4	2.3	1.6	
as % of GDP			9.3	11.4	11.3	10.4	9.9	9.6	9.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.1	59.6	54.0	50.2	-3.1	-2.8	-2.3	-1.7	
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.7	72.7	58.1	50.6	46.7	1.6	-1.8	-3.6	-2.2	
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	94.4	84.3	74.0	66.2	60.4	-1.4	-0.6	-2.4	-2.0	
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	42.8	40.6	38.9	37.2	2.1	0.2	-0.9	-0.9	
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	253.4	240.3	233.6	231.0	3.5	-0.7	-0.8	-0.4	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.41	0.37	0.29	0.2	-1.4	-5.7	-3.3	
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.29	2.21	2.12	2.03	1.96	-0.8	-0.5	-0.8	-0.8	
Industry	3.07	2.67	2.72	2.48	2.47	2.43	2.38	2.31	2.29	-1.2	-0.9	-0.4	-0.4	
Residential	1.51	1.15	1.05	0.82	0.73	0.56	0.41	0.21	0.10	-3.6	-3.5	-5.5	-13.5	
Tertiary	1.37	1.55	1.35	1.18	1.22	1.04	0.82	0.61	0.44	-0.1	-1.0	-3.9	-5.9	
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.90	2.88	2.85	0.0	-0.1	-0.2	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	5.7	8.5	11.2	13.1	15.4					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.5	1.4	2.7	3.6	4.6					
Gross Electricity generation by source (in GWh)														
			3369	4377	4342	4408	4957	5719	6290		2.6	1.3	2.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			3369	4376	3681	1367	1306	1264	486		0.9	-9.8	-9.4	
Gas (including derived gases)			0	0	554	2899	3060	3448	4326			18.6	3.5	
Biomass-waste			0	0	0	10	34	250	337				25.8	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	106	130	522	708	1029			17.3	7.0	
Solar			0	1	1	1	35	48	65			42.3	6.3	
Geothermal and other renewables			0	0	0	0	0	0	47				65.4	
Net Generation Capacity in MW_e			930	1155	1402	1392	1567	1679	2064		4.2	1.1	2.8	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1	1	57	60	225	298	451		52.3	14.8	7.2	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	56	59	202	266	384			13.7	6.6	
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3	
Other renewables (tidal etc.)			0	0	0	0	0	0	24				65.4	
<u>Thermal power</u>			929	1154	1346	1332	1342	1381	1614		3.8	0.0	1.9	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	0	429	489	582	918				6.5	
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1	
Biomass-waste fired			0	0	0	3	7	67	77				27.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			39.3	40.8	33.2	35.0	35.1	37.9	34.1					
Efficiency of gross thermal power generation (%)			32.8	35.0	35.5	48.6	49.4	50.0	54.5					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	2.5	3.2	11.9	17.6	23.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	2.5	3.2	11.9	17.6	23.5					
Transport sector														
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.6	17.7	18.6	19.2	3.5	3.4	1.4	0.8	
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.7	1.1	
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.7	4.9	5.0	2.5	3.9	0.9	0.6	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	4.7	5.5	7.0	8.4	9.7	10.6	11.4	12.0	12.3	4.0	3.3	1.6	0.8	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.6	1.6	2.7	1.0	0.6	0.5	
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.6	1.6	2.7	1.0	0.6	0.5	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	479	747	850	967	1062	1092	1092	1093	1089	5.9	2.3	0.3	0.0	
Public road transport	8	14	16	16	18	18	19	18	18	6.4	1.2	0.8	-0.8	
Private cars and motorcycles	117	145	177	288	322	329	325	319	309	4.2	6.2	0.1	-0.5	
Trucks	201	321	368	364	378	380	371	371	375	6.2	0.3	-0.2	0.1	
Rail	0	0	0	0	0	0	0	0	0					
Aviation	152	267	290	299	344	364	377	385	388	6.6	1.7	0.9	0.3	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Cyprus: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	158	204	268	51	52	68	46.8	33.7	34.0
Solids	0	0	0	0	0	0	0	-1	-4	-63.7	-72.3	-89.7
Oil	0	0	0	0	0	0	0	0	0	-58.8	-321.1	
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6	44	51	158	204	268	51	53	72	47.3	34.8	36.6
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	6	9	10	18	23	35	0	0	0	0.0	0.0	0.0
Wind	0	0	0	11	45	88	2	4	24	22.3	10.4	38.2
Solar and others	0	35	41	129	136	144	49	48	47	60.8	55.0	48.9
Geothermal	0	0	0	0	0	0	0	0	0	64.6	137.5	170.9
Net Imports	1554	2537	2808	2689	2679	2659	-379	-475	-555	-12.3	-15.1	-17.3
Solids	68	36	44	34	33	33	-1	-1	-1	-2.6	-4.3	-4.2
Oil	1486	2502	2764	2180	2137	1896	-326	-355	-376	-13.0	-14.3	-16.5
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-4.1	-4.8	-6.1
- Oil products	761	1353	2764	2178	2135	1894	-326	-355	-375	-13.0	-14.3	-16.5
Natural gas	0	0	0	466	486	642	-52	-116	-163	-10.1	-19.2	-20.2
Electricity	0	0	0	0	0	0	0	0	0	100.0		-50.0
Gross Inland Consumption	1500	2381	2461	2510	2543	2582	-328	-423	-486	-11.6	-14.3	-15.8
Solids	60	35	36	34	33	34	-1	-3	-5	-3.5	-7.3	-13.3
Oil	1434	2302	2374	1842	1797	1551	-326	-355	-375	-15.0	-16.5	-19.5
Natural gas	0	0	0	466	486	642	-52	-116	-163	-10.1	-19.2	-20.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	0	0	0	0	0	0	100.0		-50.0
Renewable energy forms	6	44	51	168	227	355	51	50	57	43.5	28.5	19.0
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.3	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	73.4	70.7	60.1	-3.0	-1.9	-2.7			
Natural gas	0.0	0.0	0.0	18.6	19.1	24.9	0.3	-1.2	-1.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	6.7	8.9	13.8	2.6	3.0	4.0			
Gross Electricity Generation in GWh_e	1974	3369	4377	4408	4957	6290	-1309	-1555	-1433	-22.9	-23.9	-18.6
Self consumption and grid losses	207	353	410	317	343	401	-119	-126	-126	-27.4	-26.9	-24.0
Fuel Inputs to Thermal Power Generation	509	884	1077	757	766	812	-310	-332	-314	-29.1	-30.2	-27.9
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	289	273	101	-255	-208	-134	-46.9	-43.2	-57.1
Gas (including derived gases)	0	0	0	466	486	642	-52	-116	-163	-10.1	-19.3	-20.2
Biomass & Waste	0	0	0	2	7	70	-2	-8	-17	-51.8	-55.0	-19.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	15	26	41	1	5	3	9.9	21.6	6.6
Refineries	725	1167	0	2	2	2	0	0	0	-4.1	-4.8	-6.1
Biofuels and hydrogen production	0	0	0	12	24	39	1	5	3	12.8	24.7	7.3
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	13	12	-6	-5	-5	-30.5	-28.1	-30.8
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1901	1920	1957	-123	-223	-319	-6.1	-10.4	-14.0
by sector												
Industry	281	229	201	203	215	230	-5	-10	-14	-2.6	-4.3	-5.6
- energy intensive industries	246	117	78	73	70	68	-1	-1	-1	-1.2	-2.0	-1.5
- other industrial sectors	35	113	122	130	145	162	-4	-8	-13	-3.3	-5.4	-7.2
Residential	102	215	234	271	260	263	-4	-25	-31	-1.3	-8.9	-10.4
Tertiary	151	233	289	336	354	374	-66	-105	-156	-16.4	-22.8	-29.5
Transport	479	850	967	1092	1092	1089	-48	-83	-119	-4.2	-7.1	-9.8
by fuel												
Solids	76	35	36	34	33	34	-1	-3	-5	-3.5	-7.3	-13.3
Oil	781	1190	1263	1364	1323	1237	-71	-147	-241	-4.9	-10.0	-16.3
Gas	0	0	0	0	0	0	0	0	0	13.7	9.3	16.4
Electricity	151	258	340	351	396	506	-102	-123	-112	-22.6	-23.7	-18.2
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	30.3	449.2	4185.4
Renewable energy forms	6	44	51	153	168	180	51	50	39	50.2	42.8	28.1
Other	0	0	0	0	0	0	0	0	0	7.5	9.8	-5.9
RES in Gross Final Energy Consumption ^(A)		44	51	165	218	306	52	54	65	46.3	32.9	27.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.2	7.0	6.4	-1.3	-1.5	-1.7	-15.0	-18.0	-20.8
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.2	6.1	5.6	-1.2	-1.4	-1.6	-15.7	-18.6	-21.6
Power generation/District heating	1.6	2.8	3.5	2.0	2.0	1.8	-0.9	-0.9	-0.8	-31.8	-31.8	-30.8
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-3.5	-7.8	-13.8
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	-4.1	-20.6	-71.0
Tertiary	0.2	0.3	0.3	0.3	0.3	0.2	0.0	-0.1	-0.2	-11.1	-28.1	-55.9
Transport	1.4	2.5	2.9	3.2	3.2	3.1	-0.2	-0.3	-0.4	-4.5	-7.9	-11.1
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.2	-0.1	-9.8	-13.8	-14.8
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	124.9	122.4	111.6	-22.0	-26.8	-29.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Cyprus: Cost Efficiency Scenario						
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030	
							Difference from Baseline			% Change from Baseline			
Main Energy System Indicators													
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0	
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0	
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	128.3	108.8	86.2	-16.8	-18.1	-16.2	-11.6	-14.3	-15.8	
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.48	2.39	2.19	-0.12	-0.13	-0.16	-4.7	-5.1	-6.8	
Import Dependency %	100.1	98.8	100.7	94.4	92.9	90.8	-2.2	-2.5	-3.3				
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.3	2.7	0.0	0.0	0.0	1.3	0.8	0.2	
as % of GDP		9.3	11.4	10.4	9.9	9.1	0.1	0.1	0.0				
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0							
as % of GDP				0.14	0.09	0.03							
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.1	59.6	50.2	-1.8	-2.7	-3.0	-2.6	-4.3	-5.6	
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	72.7	58.1	46.7	-1.0	-5.7	-5.4	-1.3	-8.9	-10.4	
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	84.3	74.0	60.4	-16.6	-21.8	-25.2	-16.4	-22.8	-29.5	
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	42.8	40.6	37.2	-0.5	-1.0	-1.7	-1.1	-2.4	-4.2	
Freight transport (toe/Mtkm)	199.1	280.6	261.2	253.4	240.3	231.0	-11.2	-21.2	-29.0	-4.2	-8.1	-11.2	
Carbon intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.41	0.29	-0.06	-0.05	-0.05	-11.6	-10.4	-15.0	
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.21	2.12	1.96	0.03	0.01	-0.05	1.2	0.4	-2.7	
Industry	3.07	2.72	2.48	2.43	2.38	2.29	-0.02	-0.09	-0.22	-1.0	-3.7	-8.7	
Residential	1.51	1.05	0.82	0.56	0.41	0.10	-0.02	-0.06	-0.20	-2.8	-12.8	-67.6	
Tertiary	1.37	1.35	1.18	1.04	0.82	0.44	0.06	-0.06	-0.27	6.4	-6.9	-37.5	
Transport	2.97	2.98	2.97	2.94	2.90	2.85	-0.01	-0.02	-0.04	-0.3	-0.8	-1.5	
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	8.5	11.2	15.4	3.1	3.7	5.0				
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	1.4	2.7	4.6	0.2	0.7	0.9				
Gross Electricity generation by source (in GWh_e)													
Nuclear energy		3369	4377	4408	4957	6290	-1309	-1555	-1433	-22.9	-23.9	-18.6	
Solids		0	0	0	0	0	0	0	0				
Oil (including refinery gas)		3369	4376	1367	1306	486	-994	-809	-646	-42.1	-38.2	-57.1	
Gas (including derived gases)		0	0	2899	3060	4326	-326	-788	-1080	-10.1	-20.5	-20.0	
Biomass-waste		0	0	10	34	337	-13	-42	-102	-55.2	-55.2	-23.3	
Hydro (pumping excluded)		0	0	0	0	0	0	0	0				
Wind		0	0	130	522	1029	24	49	284	22.3	10.4	38.2	
Solar		0	1	1	35	65	0	34	64	0.0	3301.2	6192.9	
Geothermal and other renewables		0	0	0	0	47	0	0	47			20818.2	
Net Generation Capacity in MW_e													
Nuclear energy		930	1155	1392	1567	2064	11	-113	-1	0.8	-6.7	0.0	
Renewable energy		1	1	60	225	451	10	13	136	20.1	5.9	43.3	
Hydro (pumping excluded)		0	0	0	0	0	0	0	0				
Wind		0	0	59	202	384	10	-10	70	20.4	-4.7	22.4	
Solar		1	1	1	23	43	0	22	42	0.0	2641.3	4955.0	
Other renewables (tidal etc.)		0	0	0	0	24	0	0	24			20818.2	
Thermal power		929	1154	1332	1342	1614	0	-125	-137	0.0	-8.5	-7.8	
of which cogeneration units		0	0	0	0	0	0	0	0				
Solids fired		0	0	0	0	0	0	0	0				
Gas fired		0	0	429	489	918	0	-117	-144	0.0	-19.3	-13.5	
Oil fired		929	1154	899	846	618	0	0	0	0.0	0.0	0.0	
Biomass-waste fired		0	0	3	7	77	0	-9	7	17.1	-55.5	10.0	
Fuel Cells		0	0	0	0	0	0	0	0				
Geothermal heat		0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)		39.3	40.8	35.0	35.1	34.1	-10.5	-7.8	-7.6				
Efficiency of gross thermal power generation (%)		32.8	35.0	48.6	49.4	54.5	3.4	2.1	1.2				
% of gross electricity from CHP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)		0.0	0.0	3.2	11.9	23.5	0.9	3.5	8.2				
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms		0.0	0.0	3.2	11.9	23.5	0.9	3.5	8.2				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport		7.9	11.1	13.5	16.6	17.7	19.2	-0.3	-0.4	-0.5	-1.5	-2.3	-2.7
Private cars and motorcycles		0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	3.4	4.5	5.2
Rail		2.3	3.0	3.9	4.6	4.7	5.0	-0.1	-0.1	-0.1	-1.3	-2.0	-2.7
Aviation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation		4.7	7.0	8.4	10.6	11.4	12.3	-0.2	-0.4	-0.5	-2.3	-3.3	-3.8
Freight transport activity (Gtkm)		1.0	1.3	1.4	1.5	1.5	1.6	0.0	-0.1	-0.1	-2.9	-3.8	-4.4
Trucks		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Rail		1.0	1.3	1.4	1.5	1.5	1.6	0.0	-0.1	-0.1	-2.9	-3.8	-4.4
Inland navigation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
Public road transport		479	850	967	1092	1092	1089	-48	-83	-119	-4.2	-7.1	-9.8
Private cars and motorcycles		8	16	16	18	19	18	0	0	-1	0.5	-1.3	-6.0
Trucks		117	177	288	329	325	309	-10	-16	-25	-2.9	-4.8	-7.5
Rail		201	368	364	380	371	375	-28	-49	-67	-7.0	-11.6	-15.1
Aviation		0	0	0	0	0	0	0	0				
Inland navigation		152	290	299	364	377	388	-10	-18	-26	-2.6	-4.6	-6.3
Inland navigation		0	0	0	0	0	0	0	0				

Source: PRIMES

Czech Republic: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	38484	31733	29788	32779	28224	25468	25659	26998	25202	-2.5	-0.5	-0.9	-0.2	
Solids	34715	27481	25002	23520	17097	13220	12014	11000	10000	-3.2	-3.7	-3.5	-1.8	
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0	
Natural gas	201	198	169	154	162	160	155	147	134	-1.7	-0.5	-0.4	-1.5	
Nuclear	3246	3155	3506	6379	7479	7592	7885	8987	7645	0.8	7.9	0.5	-0.3	
Renewable energy sources	100	627	727	2142	3286	4295	5404	6664	7224	22.0	16.3	5.1	2.9	
Hydro	100	172	151	205	223	223	225	226	230	4.2	3.9	0.1	0.2	
Biomass & Waste	0	455	576	1933	2900	3625	4531	5664	6100		17.5	4.6	3.0	
Wind	0	0	0	2	79	127	180	211	247			8.6	3.3	
Solar and others	0	0	0	2	85	320	468	562	646			18.6	3.3	
Geothermal	0	0	0	0	0	0	0	0	0			9.7	3.3	
Net Imports	7630	8417	9297	12271	17758	17974	19127	20260	23393	2.0	6.7	0.7	2.0	
Solids	-5685	-5784	-4751	-3489	552	-261	-157	513	4045					
Oil	8589	7742	7428	9499	10632	11274	11648	12031	12361	-1.4	3.7	0.9	0.6	
- Crude oil and Feedstocks	7382	6798	5492	7539	8506	8990	9270	9560	9808	-2.9	4.5	0.9	0.6	
- Oil products	1207	944	1936	1960	2126	2284	2377	2471	2553	4.8	0.9	1.1	0.7	
Natural gas	4786	6424	7482	7535	7915	7850	7611	7210	6550	4.6	0.6	-0.4	-1.5	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Gross Inland Consumption	47380	40801	40307	44798	45982	43441	44785	47258	48595	-1.6	1.3	-0.3	0.8	
Solids	29882	22556	21645	20099	17649	12959	11857	11513	14046	-3.2	-2.0	-3.9	1.7	
Oil	8964	7876	7790	9748	10832	11474	11848	12231	12561	-1.4	3.4	0.9	0.6	
Natural gas	5248	6552	7500	7703	8077	8010	7766	7357	6683	3.6	0.7	-0.4	-1.5	
Nuclear	3246	3155	3506	6379	7479	7592	7885	8987	7645	0.8	7.9	0.5	-0.3	
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702					
Renewable energy forms	100	627	727	1955	3359	4677	6534	8650	9363	22.0	16.5	6.9	3.7	
as % in Gross Inland Consumption														
Solids	63.1	55.3	53.7	44.9	38.4	29.8	26.5	24.4	28.9					
Oil	18.9	19.3	19.3	21.8	23.6	26.4	26.5	25.9	25.8					
Natural gas	11.1	16.1	18.6	17.2	17.6	18.4	17.3	15.6	13.8					
Nuclear	6.9	7.7	8.7	14.2	16.3	17.5	17.6	19.0	15.7					
Renewable energy forms	0.2	1.5	1.8	4.4	7.3	10.8	14.6	18.3	19.3					
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	83806	85004	90058	107222	125531	1.6	1.4	0.7	3.4	
Self consumption and grid losses	8541	8837	10601	11632	10731	10135	11187	14129	20845	2.2	0.1	0.4	6.4	
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13604	10065	10402	12183	15086	3.7	-1.5	-2.6	3.8	
Solids	9947	13571	14031	13955	12372	7771	7050	7069	9699	3.5	-1.3	-5.5	3.2	
Oil (including refinery gas)	741	311	203	126	133	28	6	1	1	-12.2	-4.2	-26.9	-15.3	
Gas (including derived gases)	300	573	1270	1286	902	1210	1019	857	751	15.5	-3.4	1.2	-3.0	
Biomass & Waste	0	119	369	224	197	1057	2326	4256	4634		-6.1	28.0	7.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	18634	14422	11312	13108	13673	13801	13806	13650	13648	-4.9	1.9	0.1	-0.1	
Refineries	7946	7026	6047	7957	8762	9271	9570	9867	10126	-2.7	3.8	0.9	0.6	
Biofuels and hydrogen production	0	11	0	3	395	606	941	1017	1099			9.1	1.6	
District heating	2138	1404	999	909	1230	880	493	160	56	-7.3	2.1	-8.7	-19.6	
Derived gases, cokeries etc.	8549	5982	4266	4239	3286	3044	2802	2606	2366	-6.7	-2.6	-1.6	-1.7	
Energy Branch Consumption	2124	1866	1919	1915	2203	2140	2189	2349	2834	-1.0	1.4	-0.1	2.6	
Non-Energy Uses	1680	2132	1962	2419	2803	3172	3553	3862	4084	1.6	3.6	2.4	1.4	
Final Energy Demand	36267	25697	23905	25801	27616	28403	29292	30121	30760	-4.1	1.5	0.6	0.5	
by sector														
Industry	19215	12191	10031	9439	10034	10230	10502	10789	11020	-6.3	0.0	0.5	0.5	
- energy intensive industries	8050	6719	6276	6588	6979	7095	7154	7246	7325	-2.5	1.1	0.2	0.2	
- other industrial sectors	11165	5472	3755	2851	3055	3135	3348	3543	3695	-10.3	-2.0	0.9	1.0	
Residential	8625	5796	5260	6063	6460	6623	6731	6903	6979	-4.8	2.1	0.4	0.4	
Tertiary	5622	4871	3893	3730	3702	3639	3819	3932	4020	-3.6	-0.5	0.3	0.5	
Transport	2804	2840	4721	6569	7420	7912	8239	8496	8761	5.3	4.6	1.1	0.6	
by fuel														
Solids	17789	6457	5164	3619	3731	3606	3404	3299	3299	-11.6	-3.2	-0.9	-0.3	
Oil	6229	5018	5291	6913	7431	7841	7858	7927	8030	-1.6	3.5	0.6	0.2	
Gas	5146	6119	6419	6581	6778	6753	6925	6802	6218	2.2	0.5	0.2	-1.1	
Electricity	4142	4129	4243	4750	4667	4972	5488	6338	7120	0.2	1.0	1.6	2.6	
Heat (from CHP and District Heating)	2959	3664	2624	2478	2368	2191	2099	2098	2101	-1.2	-1.0	-1.2	0.0	
Renewable energy forms	0	309	165	1460	2641	3039	3516	3651	4006		32.0	2.9	1.3	
Other	0	0	0	0	1	1	3	5	5			15.5	6.5	
RES in Gross Final Energy Consumption ^(A)			610	1832	3227	4403	6039	7891	8560		18.1	6.5	3.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	141.2	120.5	113.7	105.0	98.0	-3.1	-0.5	-2.1	-1.5	
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	111.2	93.4	88.4	82.7	78.0	-2.8	-0.5	-2.3	-1.2	
Power generation/District heating	48.8	60.4	62.1	61.0	54.4	36.1	31.7	26.6	23.1	2.4	-1.3	-5.3	-3.1	
Energy Branch	2.3	1.5	2.2	2.3	2.8	2.7	2.7	2.7	2.6	-0.5	2.2	-0.2	-0.4	
Industry	58.1	29.0	25.2	20.9	21.9	22.5	22.5	22.0	21.0	-8.0	-1.4	0.3	-0.7	
Residential	24.0	10.6	7.9	7.1	7.2	6.8	6.4	6.3	6.0	-10.5	-0.9	-1.1	-0.6	
Tertiary	14.1	9.2	5.9	4.5	4.2	3.5	3.3	2.9	2.5	-8.4	-3.3	-2.4	-2.5	
Transport	7.5	7.7	13.4	19.1	20.7	21.7	21.8	22.3	22.8	6.0	4.4	0.5	0.4	
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.6	11.6	11.6	11.6	-3.8	-0.8	0.2	0.0	
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	15.6	13.6	10.7	8.5	-4.4	-0.6	-3.1	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	69.2	59.0	55.7	51.4	48.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Czech Republic: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	369.2	292.6	251.3	231.9	214.0	-1.9	-2.7	-3.8	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.42	2.15	1.97	1.75	1.60	-1.2	-1.8	-2.0	-2.1
Import Dependency %	16.1	20.6	23.1	27.4	38.6	41.4	42.7	42.9	48.1				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	20.6	24.7	29.1	33.1	36.3		3.0	3.5	2.2
as % of GDP			18.3	16.9	16.5	16.6	16.3	16.3	16.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.5	51.4	44.9	40.6	37.5	-7.3	-5.1	-2.8	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	83.8	71.9	60.8	54.6	49.8	-5.8	-1.8	-3.2	-2.0
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	65.4	53.6	46.4	41.7	38.1	-7.4	-4.2	-3.4	-2.0
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.6	31.8	30.3	28.4	26.6	4.0	2.4	-0.7	-1.3
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	56.9	55.7	52.2	49.5	48.8	7.5	4.0	-0.9	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.44	0.30	0.26	0.19	0.15	1.8	-2.2	-5.4	-5.5
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.95	1.92	1.84	1.77	1.70	-2.6	-1.1	-0.6	-0.8
Industry	3.03	2.38	2.51	2.21	2.18	2.20	2.14	2.04	1.90	-1.8	-1.4	-0.2	-1.2
Residential	2.78	1.84	1.50	1.16	1.11	1.03	0.95	0.91	0.86	-6.0	-2.9	-1.5	-1.0
Tertiary	2.51	1.89	1.51	1.21	1.13	0.95	0.86	0.73	0.63	-5.0	-2.8	-2.7	-3.0
Transport	2.68	2.71	2.85	2.90	2.79	2.74	2.65	2.62	2.60	0.6	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	11.1	14.9	19.8	25.0	26.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.8	7.0	10.6	11.2	11.8				
Gross Electricity generation by source (in GWh)													
			72898	81916	83806	85004	90058	107222	125531		1.4	0.7	3.4
Nuclear energy			13588	24724	28995	29433	30595	35583	32028		7.9	0.5	0.5
Solids			50038	47938	43208	38521	36375	39937	59577		-1.5	-1.7	5.1
Oil (including refinery gas)			528	447	162	64	22	15	12		-11.1	-18.2	-5.7
Gas (including derived gases)			6087	5565	6589	7879	7437	7192	7081		0.8	1.2	-0.5
Biomass-waste			899	841	1346	5038	10915	19393	21259		4.1	23.3	6.9
Hydro (pumping excluded)			1758	2380	2588	2591	2618	2631	2677		3.9	0.1	0.2
Wind			0	22	915	1474	2088	2456	2878			8.6	3.3
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14957	17114	17960	18817	19682		2.2	1.8	0.9
<u>Nuclear energy</u>			1661	3504	3519	3534	3565	4141	3715		7.8	0.1	0.4
<u>Renewable energy</u>			1148	1227	1964	2361	3028	3382	3795		5.5	4.4	2.3
Hydro (pumping excluded)			1142	1196	1256	1258	1262	1263	1268		1.0	0.0	0.0
Wind			7	30	706	1097	1754	2098	2498		59.1	9.5	3.6
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9474	11219	11366	11293	12172		0.3	1.8	0.7
of which cogeneration units			3030	3110	2742	3710	4540	5866	6208		-1.0	5.2	3.2
Solids fired			7747	7661	7663	8772	8015	6479	6803		-0.1	0.5	-1.6
Gas fired			1208	1302	1386	1435	1462	1535	1816		1.4	0.5	2.2
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	299	894	1832	3249	3542		6.1	19.9	6.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	59.6	53.5	54.1	60.8	65.4				
Efficiency of gross thermal power generation (%)			31.2	30.2	32.4	44.0	45.3	47.0	50.1				
% of gross electricity from CHP			21.1	16.7	15.3	25.6	29.3	30.4	31.0				
Carbon free gross electricity generation (%)			22.3	34.1	40.4	45.3	51.3	56.0	46.9				
- nuclear			18.6	30.2	34.6	34.6	34.0	33.2	25.5				
- renewable energy forms			3.6	4.0	5.8	10.7	17.4	22.8	21.4				
Transport sector													
Passenger transport activity (Gpkm)	92.9	95.4	101.3	105.1	115.7	128.2	143.4	157.9	169.8	0.9	1.3	2.2	1.7
Public road transport	23.6	18.6	16.2	14.7	15.1	15.7	16.5	17.5	18.3	-3.7	-0.7	0.9	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	79.6	89.0	100.4	111.0	119.7	3.7	1.7	2.3	1.8
Rail	20.6	15.7	15.4	15.6	16.1	17.0	18.1	19.2	20.0	-2.9	0.5	1.2	1.0
Aviation	1.9	2.1	2.5	3.5	4.9	6.5	8.4	10.1	11.8	2.8	6.9	5.6	3.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	64.2	53.9	55.6	59.3	64.1	68.9	74.6	81.0	87.1	-1.4	1.4	1.5	1.6
Trucks	26.3	31.3	37.3	43.4	50.5	56.1	61.5	67.1	72.6	3.6	3.1	2.0	1.7
Rail	38.0	22.6	17.5	14.8	13.4	12.5	13.0	13.8	14.5	-7.5	-2.7	-0.3	1.1
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.6	-8.0	-5.0
Energy demand in transport (ktoe)	2804	2840	4721	6569	7420	7912	8239	8496	8761	5.3	4.6	1.1	0.6
Public road transport	132	110	98	111	112	111	108	102	97	-2.9	1.4	-0.4	-1.1
Private cars and motorcycles	1271	1373	2257	2850	3144	3352	3526	3613	3603	5.9	3.4	1.2	0.2
Trucks	956	971	1868	2987	3450	3651	3724	3848	4100	6.9	6.3	0.8	1.0
Rail	272	200	295	271	241	221	203	194	180	0.8	-2.0	-1.7	-1.2
Aviation	174	185	197	346	471	576	676	739	781	1.3	9.1	3.7	1.4
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.2	-5.3	

Source: PRIMES

Czech Republic: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	25468	25659	25202	-152	1098	3701	-0.6	4.5	17.2
Solids	34715	25002	23520	13220	12014	10000	-843	-26	-86	-6.0	-0.2	-0.9
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	160	155	134	-7	-13	-46	-4.2	-8.0	-25.4
Nuclear	3246	3506	6379	7592	7885	7645	0	47	2046	0.0	0.6	36.5
Renewable energy sources	100	727	2142	4295	5404	7224	698	1091	1787	19.4	25.3	32.9
Hydro	100	151	205	223	225	230	11	7	0	5.1	3.4	0.0
Biomass & Waste	0	576	1933	3625	4531	6100	396	636	1174	12.3	16.3	23.8
Wind	0	0	2	127	180	247	36	77	110	40.1	74.4	80.7
Solar and others	0	0	2	320	468	646	254	371	503	386.2	381.0	351.0
Geothermal	0	0	0	0	0	0	0	0	0	113.1	225.5	303.1
Net Imports	7630	9297	12271	17974	19127	23393	-3086	-5528	-6904	-14.7	-22.4	-22.8
Solids	-5685	-4751	-3489	-261	-157	4045	-2753	-5130	-5536	-110.5	-103.2	-57.8
Oil	8589	7428	9499	11274	11648	12361	-579	-1125	-1595	-4.9	-8.8	-11.4
- Crude oil and Feedstocks	7382	5492	7539	8990	9270	9808	-441	-854	-1206	-4.7	-8.4	-11.0
- Oil products	1207	1936	1960	2284	2377	2553	-138	-271	-388	-5.7	-10.2	-13.2
Natural gas	4786	7482	7535	7850	7611	6550	-347	-658	-2236	-4.2	-8.0	-25.4
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	43441	44785	48595	-3238	-4430	-3203	-6.9	-9.0	-6.2
Solids	29882	21645	20099	12959	11857	14046	-3595	-5156	-5622	-21.7	-30.3	-28.6
Oil	8964	7790	9748	11474	11848	12561	-579	-1125	-1595	-4.8	-8.7	-11.3
Natural gas	5248	7500	7703	8010	7766	6683	-354	-672	-2281	-4.2	-8.0	-25.4
Nuclear	3246	3506	6379	7592	7885	7645	0	47	2046	0.0	0.6	36.5
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	4677	6534	9363	1291	2476	4250	38.1	61.0	83.1
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	29.8	26.5	28.9	-5.6	-8.1	-9.1			
Oil	18.9	19.3	21.8	26.4	26.5	25.8	0.6	0.1	-1.5			
Natural gas	11.1	18.6	17.2	18.4	17.3	13.8	0.5	0.2	-3.6			
Nuclear	6.9	8.7	14.2	17.5	17.6	15.7	1.2	1.7	4.9			
Renewable energy forms	0.2	1.8	4.4	10.8	14.6	19.3	3.5	6.3	9.4			
Gross Electricity Generation in GWh_e	62260	72898	81916	85004	90058	125531	-14081	-14327	-940	-14.2	-13.7	-0.7
Self consumption and grid losses	8541	10601	11632	10135	11187	20845	-2373	-2209	4216	-19.0	-16.5	25.4
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10065	10402	15086	-2957	-3406	-2537	-22.7	-24.7	-14.4
Solids	9947	14031	13955	7771	7050	9699	-3911	-5253	-6018	-33.5	-42.7	-38.3
Oil (including refinery gas)	741	203	126	28	6	1	0	-22	1	0.0	-79.3	
Gas (including derived gases)	300	1270	1286	1210	1019	751	-25	-68	-105	-2.0	-6.2	-12.3
Biomass & Waste	0	369	224	1057	2326	4634	979	1937	3586	1257.5	497.2	342.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	13801	13806	13648	-51	-814	-1667	-0.4	-5.6	-10.9
Refineries	7946	6047	7957	9271	9570	10126	-442	-855	-1207	-4.5	-8.2	-10.7
Biofuels and hydrogen production	0	0	3	606	941	1099	67	185	99	12.4	24.4	9.8
District heating	2138	999	909	880	493	56	42	-282	-481	5.1	-36.4	-89.6
Derived gases, cokeries etc.	8549	4266	4239	3044	2802	2366	282	139	-77	10.2	5.2	-3.2
Energy Branch Consumption	2124	1919	1915	2140	2189	2834	-124	-154	284	-5.5	-6.6	11.1
Non-Energy Uses	1680	1962	2419	3172	3553	4084	-33	-38	-25	-1.0	-1.1	-0.6
Final Energy Demand	36267	23905	25801	28403	29292	30780	-1595	-2353	-3112	-5.3	-7.4	-9.2
by sector												
Industry	19215	10031	9439	10230	10502	11020	-106	-303	-400	-1.0	-2.8	-3.5
- energy intensive industries	8050	6276	6588	7095	7154	7325	24	-129	-190	0.3	-1.8	-2.5
- other industrial sectors	11165	3755	2851	3135	3348	3695	-130	-173	-210	-4.0	-4.9	-5.4
Residential	8625	5260	6063	6623	6731	6979	-416	-465	-492	-5.9	-6.5	-6.6
Tertiary	5622	3893	3730	3639	3819	4020	-595	-740	-1152	-14.0	-16.2	-22.3
Transport	2804	4721	6569	7912	8239	8761	-478	-845	-1068	-5.7	-9.3	-10.9
by fuel												
Solids	17789	5164	3619	3606	3404	3299	156	-17	395	4.5	-0.5	13.6
Oil	6229	5291	6913	7841	7858	8030	-516	-1018	-1529	-6.2	-11.5	-16.0
Gas	5146	6419	6581	6753	6925	6218	-295	-272	-1650	-4.2	-3.8	-21.0
Electricity	4142	4243	4750	4972	5488	7120	-1005	-1035	-434	-16.8	-15.9	-5.7
Heat (from CHP and District Heating)	2959	2624	2478	2191	2099	2101	-221	-467	-438	-9.2	-18.2	-17.3
Renewable energy forms	0	165	1460	3039	3516	4006	287	456	545	10.4	14.9	15.7
Other	0	0	0	1	3	5	0	0	0	9.3	6.0	-4.6
RES in Gross Final Energy Consumption ^(A)		610	1832	4403	6039	8560	1156	2204	3787	35.6	57.5	79.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	120.5	113.7	98.0	-19.2	-29.2	-53.3	-13.7	-20.4	-35.2
CO₂ Emissions (energy related)	154.8	116.7	114.8	93.4	88.4	78.0	-16.7	-25.2	-49.4	-15.2	-22.2	-38.8
Power generation/District heating	48.8	62.1	61.0	36.1	31.7	23.1	-15.2	-21.4	-42.2	-29.6	-40.3	-64.7
Energy Branch	2.3	2.2	2.3	2.7	2.7	2.6	0.0	-0.1	-0.2	0.7	-1.8	-6.4
Industry	58.1	25.2	20.9	22.5	22.5	21.0	1.4	1.1	-0.2	6.7	5.3	-0.9
Residential	24.0	7.9	7.1	6.8	6.4	6.0	-0.9	-1.2	-1.8	-12.2	-16.2	-22.9
Tertiary	14.1	5.9	4.5	3.5	3.3	2.5	-0.4	-0.6	-1.4	-9.6	-14.9	-35.1
Transport	7.5	13.4	19.1	21.7	21.8	22.8	-1.6	-3.1	-3.7	-6.9	-12.4	-13.9
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.6	11.6	11.6	0.2	-0.3	-0.9	2.1	-2.5	-6.9
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	15.6	13.6	8.5	-2.8	-3.6	-3.0	-15.0	-21.1	-26.4
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	59.0	55.7	48.0	-9.4	-14.3	-26.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Czech Republic: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	292.6	251.3	214.0	-21.8	-24.9	-14.1	-6.9	-9.0	-6.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.15	1.97	1.60	-0.21	-0.34	-0.86	-8.9	-14.5	-34.8
Import Dependency %	16.1	23.1	27.4	41.4	42.7	48.1	-3.7	-7.4	-10.4			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	24.7	29.1	36.3	1.1	1.9	3.6	4.7	7.0	11.0
as % of GDP		18.3	16.9	16.6	16.3	16.0	0.7	1.1	1.6			
Total Compliance Costs ^(D) (in 000 M€05)				1.2	2.0	3.7						
as % of GDP				0.78	1.12	1.63						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	51.4	44.9	37.5	-0.5	-1.3	-1.4	-1.0	-2.8	-3.5
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	71.9	60.8	49.8	-4.5	-4.2	-3.5	-5.9	-6.5	-6.6
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	53.6	46.4	38.1	-8.8	-9.0	-10.9	-14.0	-16.2	-22.3
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	31.8	30.3	26.6	-0.9	-1.3	-1.6	-2.7	-4.2	-5.8
Freight transport (toe/Mtkm)	18.5	38.3	54.3	55.7	52.2	48.8	-3.1	-5.3	-5.3	-5.2	-9.2	-9.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.30	0.26	0.15	-0.07	-0.11	-0.25	-19.3	-30.1	-63.1
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.92	1.84	1.70	0.05	0.02	-0.05	2.8	1.0	-2.9
Industry	3.03	2.51	2.21	2.20	2.14	1.90	0.16	0.16	0.05	7.8	8.3	2.7
Residential	2.78	1.50	1.16	1.03	0.95	0.86	-0.07	-0.11	-0.18	-6.7	-10.4	-17.4
Tertiary	2.51	1.51	1.21	0.95	0.86	0.63	0.05	0.01	-0.13	5.1	1.6	-16.5
Transport	2.68	2.85	2.90	2.74	2.65	2.60	-0.04	-0.09	-0.09	-1.3	-3.4	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	14.9	19.8	26.2	4.6	8.2	12.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.0	10.6	11.8	1.1	2.9	2.3			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	85004	90058	125531	125531	-14081	-14327	-940	-14.2	-13.7	-0.7
Nuclear energy	13588	24724	29433	30595	32028		0	207	9308	0.0	0.7	41.0
Solids	50038	47938	38521	36375	59577		-17759	-23457	-28111	-31.6	-39.2	-32.1
Oil (including refinery gas)	528	447	64	22	12		-2	-15	7	-3.1	-41.4	154.6
Gas (including derived gases)	6087	5565	7879	7437	7081		-980	-530	152	-11.1	-6.6	2.2
Biomass-waste	899	841	5038	10915	21259		4112	8491	16419	444.1	350.3	339.2
Hydro (pumping excluded)	1758	2380	2591	2618	2677		126	86	0	5.1	3.4	0.0
Wind	0	22	1474	2088	2878		422	890	1285	40.1	74.4	80.7
Solar	0	0	4	8	20		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	12048	13981	17114	17960	19682	19682	-431	328	234	-2.5	1.9	1.2
<u>Nuclear energy</u>	1661	3504	3534	3565	3715		0	24	1075	0.0	0.7	40.7
<u>Renewable energy</u>	1148	1227	2361	3028	3795		393	946	1401	20.0	45.4	58.5
Hydro (pumping excluded)	1142	1196	1258	1262	1268		12	11	6	1.0	0.9	0.5
Wind	7	30	1097	1754	2498		381	935	1395	53.2	114.0	126.4
Solar	0	1	6	12	29		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	9239	9250	11219	11366	12172		-825	-642	-2242	-6.8	-5.3	-15.6
of which cogeneration units	3030	3110	3710	4540	6208		-306	-30	615	-7.6	-0.7	11.0
Solids fired	7747	7661	8772	8015	6803		-1505	-1992	-4696	-14.6	-19.9	-40.8
Gas fired	1208	1302	1435	1462	1816		-11	-21	-93	-0.8	-1.4	-4.9
Oil fired	118	122	118	57	11		0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	894	1832	3542		691	1371	2650	341.3	297.7	297.1
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	63.9	61.7	53.5	54.1	65.4		-7.0	-9.4	-4.1			
Efficiency of gross thermal power generation (%)	31.2	30.2	44.0	45.3	50.1		0.3	1.5	1.6			
% of gross electricity from CHP	21.1	16.7	25.6	29.3	31.0		-1.0	1.4	4.6			
Carbon free gross electricity generation (%)	22.3	34.1	45.3	51.3	46.9		11.1	16.3	21.7			
- nuclear	18.6	30.2	34.6	34.0	25.5		4.9	4.9	7.5			
- renewable energy forms	3.6	4.0	10.7	17.4	21.4		6.2	11.5	14.2			
Transport sector												
Passenger transport activity (Gpkm)												
	92.9	101.3	105.1	128.2	143.4	169.8	-1.9	-3.5	-5.0	-1.5	-2.4	-2.9
Public road transport	23.6	16.2	14.7	15.7	16.5	18.3	0.3	0.5	0.6	2.0	2.9	3.4
Private cars and motorcycles	46.8	67.3	71.3	89.0	100.4	119.7	-2.4	-4.1	-5.9	-2.6	-4.0	-4.7
Rail	20.6	15.4	15.6	17.0	18.1	20.0	0.4	0.6	1.0	2.6	3.5	5.3
Aviation	1.9	2.5	3.5	6.5	8.4	11.8	-0.2	-0.4	-0.7	-3.5	-4.7	-5.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	64.2	55.6	59.3	68.9	74.6	87.1	-1.6	-2.6	-3.5	-2.2	-3.3	-3.9
Trucks	26.3	37.3	43.4	56.1	61.5	72.6	-2.3	-3.4	-4.7	-3.9	-5.3	-6.1
Rail	38.0	17.5	14.8	12.5	13.0	14.5	0.7	0.9	1.2	5.7	7.3	8.8
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	1.7	2.4	2.6
Energy demand in transport (ktoe)												
	2804	4721	6569	7912	8239	8761	-478	-845	-1068	-5.7	-9.3	-10.9
Public road transport	132	98	111	111	108	97	-1	-2	-7	-0.7	-2.2	-6.8
Private cars and motorcycles	1271	2257	2850	3352	3526	3603	-144	-241	-302	-4.1	-6.4	-7.7
Trucks	956	1868	2987	3651	3724	4100	-313	-543	-651	-7.9	-12.7	-13.7
Rail	272	295	271	221	203	180	7	-4	0	3.3	-1.8	-0.2
Aviation	174	197	346	576	676	781	-27	-55	-108	-4.5	-7.5	-12.2
Inland navigation	0	5	5	1	1	0	0	0	0	0.8	0.7	-0.3

Source: PRIMES

Denmark: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	27881	22220	19704	19383	18888	10.6	0.1	-3.4	-0.4
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	7964	3917	3312	3224	3146	10.3	0.7	-8.4	-0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3417	4304	5392	6159	6742	5.6	5.2	4.7	2.3
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.4	0.2	0.2
Biomass & Waste	1140	1423	1687	2313	2664	3295	4232	4802	5115	4.0	4.7	4.7	1.9
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	69	294	387	424	504	12.5	25.1	18.9	2.7
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.1	11.7	1.4
Net Imports	8605	7534	-7076	-10498	-7971	-3454	-1106	-684	-324				
Solids	6216	7664	3784	3505	3705	3603	2904	2473	2051	-4.8	-0.2	-2.4	-3.4
Oil	2711	1429	-8094	-9381	-7656	-5549	-2987	-2215	-1469				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8740	-6425	-3635	-2750	-1879				
- Oil products	679	627	1512	1804	1084	876	648	535	410	8.3	-3.3	-5.0	-4.5
Natural gas	-928	-1496	-2882	-5010	-4230	-2080	-1759	-1712	-1671				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19061	17889	17695	17769	17607	1.0	-0.3	-0.7	0.0
Solids	6088	6498	3987	3715	3705	3603	2904	2473	2051	-4.1	-0.7	-2.4	-3.4
Oil	8144	9105	9043	8133	7994	7574	7110	6855	6574	1.1	-1.2	-1.2	-0.8
Natural gas	1818	3170	4449	4399	3734	1836	1553	1511	1475	9.4	-1.7	-8.4	-0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3730	4690	5888	6722	7341	5.9	5.8	4.7	2.2
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.4	20.1	16.4	13.9	11.6				
Oil	45.6	45.0	46.0	41.6	41.9	42.3	40.2	38.6	37.3				
Natural gas	10.2	15.7	22.6	22.5	19.6	10.3	8.8	8.5	8.4				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	19.6	26.2	33.3	37.8	41.7				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	36841	30271	30688	35249	39126	3.4	0.2	-1.8	2.5
Self consumption and grid losses	3290	4659	4046	3775	3646	3194	3328	3938	4364	2.1	-1.0	-0.9	2.7
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6219	4851	4781	5083	5147	2.7	-2.3	-2.6	0.7
Solids	5541	6061	3667	3444	3478	3223	2313	1857	1424	-4.0	-0.5	-4.0	-4.7
Oil (including refinery gas)	237	1008	1344	344	271	20	10	9	13	19.0	-14.8	-28.3	3.2
Gas (including derived gases)	174	975	2112	2003	1316	0	0	2	108	28.4	-4.6		
Biomass & Waste	65	378	699	1338	1153	1608	2458	3214	3602	26.9	5.1	7.9	3.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8699	8665	8616	8377	8159	-0.1	-0.3	-0.1	-0.5
Refineries	8027	9958	8452	7821	7760	7575	7365	7250	7121	0.5	-0.9	-0.5	-0.3
Biofuels and hydrogen production	0	0	0	0	193	345	576	603	644			11.6	1.1
District heating	1005	761	515	509	746	745	674	524	394	-6.5	3.8	-1.0	-5.2
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1125	806	733	734	716	4.7	-0.3	-4.2	-0.2
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15274	15010	15116	15062	14941	0.8	0.4	-0.1	-0.1
by sector													
Industry	2711	3026	2935	2831	2906	2921	2899	2891	2947	0.8	-0.1	0.0	0.2
- energy intensive industries	1076	1121	1243	1152	1174	1182	1152	1134	1138	1.5	-0.6	-0.2	-0.1
- other industrial sectors	1636	1905	1692	1679	1733	1739	1747	1757	1808	0.3	0.2	0.1	0.3
Residential	3946	4468	4154	4398	4318	4053	4198	4234	4232	0.5	0.4	-0.3	0.1
Tertiary	2822	2779	2801	2840	2605	2544	2526	2501	2440	-0.1	-0.7	-0.3	-0.3
Transport	4012	4447	4720	5254	5444	5492	5493	5436	5322	1.6	1.4	0.1	-0.3
by fuel													
Solids	396	405	290	236	227	380	591	615	627	-3.1	-2.4	10.0	0.6
Oil	7097	7132	6950	7204	7023	6858	6569	6401	6171	-0.2	0.1	-0.7	-0.6
Gas	1159	1691	1667	1701	1750	1550	1289	1301	1172	3.7	0.5	-3.0	-1.0
Electricity	2517	2655	2791	2882	2722	2483	2561	2870	3124	1.0	-0.2	-0.6	2.0
Heat (from CHP and District Heating)	1758	2242	2255	2408	2374	2196	2347	2139	1974	2.5	0.5	-0.1	-1.7
Renewable energy forms	566	595	657	892	1177	1542	1757	1733	1869	1.5	6.0	4.1	0.6
Other	0	0	0	0	0	1	2	2	2			13.8	4.2
RES in Gross Final Energy Consumption ^(A)			1919	2512	3369	4253	5225	5913	6546		5.8	4.5	2.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.7	55.6	50.5	47.0	43.9	0.1	-1.2	-2.1	-1.4
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.3	40.2	35.4	32.9	30.3	0.1	-1.2	-2.6	-1.5
Power generation/District heating	24.5	30.2	24.0	19.7	17.8	12.8	9.2	7.4	5.9	-0.2	-2.9	-6.4	-4.3
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.4	1.0	0.7	0.6	4.9	-0.7	-7.5	-5.8
Industry	5.4	6.0	5.4	5.0	4.9	5.2	5.4	5.4	5.2	-0.1	-0.8	0.8	-0.3
Residential	4.9	4.9	3.9	3.5	3.1	2.9	2.7	2.6	2.5	-2.3	-2.1	-1.6	-0.6
Tertiary	3.6	3.1	2.9	2.7	2.5	2.4	2.3	2.2	2.1	-2.1	-1.4	-0.9	-0.9
Transport	11.9	13.1	13.9	15.5	15.7	15.4	14.9	14.6	14.1	1.6	1.2	-0.5	-0.5
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.8	2.7	2.7	5.4	-0.2	-0.4	-0.3
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.6	12.3	11.4	10.8	-0.7	-1.2	-0.9	-1.3
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	89.8	79.6	72.3	67.4	62.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.2	69.0	62.9	58.9	54.8	-1.6	-2.2	-2.5	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.43	2.24	2.00	1.85	1.72	-0.8	-0.9	-1.9	-1.5
Import Dependency %	45.7	34.5	-33.7	-51.6	-40.0	-18.4	-5.9	-3.7	-1.7				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.9	19.6	22.3	24.1	25.5		1.6	2.2	1.4
as % of GDP			7.8	8.0	7.6	7.6	7.9	8.0	7.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	84.8	78.1	73.1	70.2	-1.1	-0.8	-1.6	-1.1
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.8	72.1	69.4	65.7	62.0	-1.4	-1.8	-1.9	-1.1
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.8	66.9	61.2	56.4	51.6	-2.7	-2.7	-2.1	-1.7
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	37.1	35.6	33.2	30.6	0.0	0.6	-0.8	-1.5
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	69.7	66.5	64.2	61.6	0.1	0.5	-0.9	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.21	0.15	0.11	0.09	-3.1	-3.2	-5.2	-4.7
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.72	1.67	1.65	1.60	-0.7	-0.4	-0.3	-0.4
Industry	2.00	1.98	1.83	1.76	1.70	1.77	1.85	1.86	1.76	-0.9	-0.7	0.9	-0.5
Residential	1.24	1.09	0.93	0.80	0.72	0.71	0.63	0.62	0.59	-2.8	-2.5	-1.3	-0.7
Tertiary	1.27	1.12	1.04	0.94	0.97	0.93	0.92	0.89	0.87	-2.0	-0.7	-0.6	-0.6
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.71	2.69	2.64	0.0	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	20.9	27.0	33.1	37.7	42.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.4	10.9	11.7	12.8				
Gross Electricity generation by source (in GWh)													
			36043	36269	36841	30271	30688	35249	39126		0.2	-1.8	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids	14345	13553	15218	14397	11211	10225	8599			0.6	-3.0	-2.6	
Oil (including refinery gas)	5222	1525	1545	205	163	154	184			-11.5	-20.1	1.2	
Gas (including derived gases)	9658	9549	8032	1503	1079	1426	1628			-1.8	-18.2	4.2	
Biomass-waste	2548	5006	4081	5842	9221	12555	15198			4.8	8.5	5.1	
Hydro (pumping excluded)	30	23	31	32	32	32	32			0.4	0.2	0.2	
Wind	4240	6613	7928	8279	8957	10822	13019			6.5	1.2	3.8	
Solar	0	0	6	13	24	34	465					15.8	34.4
Geothermal and other renewables	0	0	0	0	0	0	0						
Net Generation Capacity in MW_e			11888	12794	12774	12626	12257	12738	13256		0.7	-0.4	0.8
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>	2311	3014	3661	3780	4023	4630	5669			4.7	0.9	3.5	
Hydro (pumping excluded)	10	11	11	11	11	14	14			1.5	0.0	2.4	
Wind	2300	3000	3634	3732	3944	4520	5096			4.7	0.8	2.6	
Solar	2	3	16	37	68	97	559			24.9	15.8	23.4	
Other renewables (tidal etc.)	0	0	0	0	0	0	0						
<u>Thermal power</u>	9577	9781	9113	8846	8234	8107	7587			-0.5	-1.0	-0.8	
of which cogeneration units	7504	8538	5786	4652	4934	3974	4065			-2.6	-1.6	-1.9	
Solids fired	5528	5566	4819	4425	3541	3032	2213			-1.4	-3.0	-4.6	
Gas fired	2328	2485	2395	2411	2132	1992	1984			0.3	-1.2	-0.7	
Oil fired	1271	1236	1182	988	911	894	783			-0.7	-2.6	-1.5	
Biomass-waste fired	450	494	717	1022	1649	2190	2608			4.8	8.7	4.7	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	0	0	0	0	0	0	0						
Avg. Load factor of net power capacity (%)			32.7	30.4	31.0	25.8	27.0	29.8	31.9				
Efficiency of gross thermal power generation (%)			34.9	35.8	39.9	38.9	39.0	41.2	42.8				
% of gross electricity from CHP			63.9	68.3	62.0	63.1	66.1	58.6	53.2				
Carbon free gross electricity generation (%)			18.9	32.1	32.7	46.8	59.4	66.5	73.4				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	32.7	46.8	59.4	66.5	73.4				
Transport sector													
Passenger transport activity (Gpkm)													
	70.1	73.0	77.8	81.6	86.4	90.0	93.0	96.5	99.5	1.1	1.0	0.7	0.7
Public road transport	6.4	7.3	7.4	7.4	7.5	7.6	7.8	8.1	8.3	1.4	0.1	0.4	0.6
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.0	58.2	59.0	60.3	61.3	0.8	0.9	0.4	0.4
Rail	5.1	4.9	5.5	6.2	6.7	7.3	7.7	8.1	8.5	0.9	2.0	1.4	1.0
Aviation	5.5	7.0	9.0	9.8	11.4	13.1	14.5	15.9	17.1	5.0	2.4	2.4	1.6
Inland navigation	5.2	4.7	3.9	3.7	3.7	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8
Freight transport activity (Gtkm)													
	21.7	26.7	27.5	27.0	29.1	30.9	32.8	34.8	36.9	2.4	0.5	1.2	1.2
Trucks	18.1	22.4	24.0	23.3	25.0	26.4	27.9	29.6	31.3	2.9	0.4	1.1	1.2
Rail	1.7	2.0	2.0	2.0	2.2	2.4	2.6	2.8	2.9	1.6	0.8	1.7	1.3
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.5	2.6	-2.4	2.5	1.8	1.4
Energy demand in transport (ktoe)													
	4012	4447	4720	5254	5444	5492	5493	5436	5322	1.6	1.4	0.1	-0.3
Public road transport	57	76	78	83	81	78	76	72	68	3.1	0.4	-0.6	-1.2
Private cars and motorcycles	1628	1709	1788	2034	2046	1980	1902	1747	1628	0.9	1.4	-0.7	-1.5
Trucks	1374	1690	1816	1952	2021	2052	2074	2137	2220	2.8	1.1	0.3	0.7
Rail	113	117	103	106	109	110	107	99	53	-1.0	0.6	-0.2	-6.8
Aviation	690	675	820	944	1049	1130	1189	1232	1202	1.7	2.5	1.3	0.1
Inland navigation	150	181	115	136	138	141	145	150	152	-2.6	1.8	0.5	0.5

Source: PRIMES

Denmark: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22220	19704	18888	-1786	-511	323	-7.4	-2.5	1.7
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	3917	3312	3146	-2629	-2065	-1854	-40.2	-38.4	-37.1
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	4304	5392	6742	843	1554	2177	24.3	40.5	47.7
Hydro	2	3	2	3	3	3	0	0	0	4.4	2.6	0.0
Biomass & Waste	1140	1687	2313	3295	4232	5115	612	1293	1697	22.8	44.0	49.7
Wind	52	365	569	712	770	1120	25	0	151	3.7	0.0	15.6
Solar and others	2	7	10	294	387	504	205	261	329	228.9	206.4	187.4
Geothermal	2	3	3	0	0	0	0	0	0	58.3	234.7	276.2
Net Imports	8605	-7076	-10498	-3454	-1106	-324	-462	-2078	-2760	15.4	-213.7	-113.3
Solids	6216	3784	3505	3603	2904	2051	-782	-1850	-1903	-17.8	-38.9	-48.1
Oil	2711	-8094	-9381	-5549	-2987	-1469	-796	-1189	-1556	16.8	66.1	-1786.2
- Crude oil and Feedstocks	2032	-9607	-11186	-6425	-3635	-1879	-480	-659	-873	8.1	22.1	86.8
- Oil products	679	1512	1804	876	648	410	-317	-530	-683	-26.5	-45.0	-62.5
Natural gas	-928	-2882	-5010	-2080	-1759	-1671	1046	808	500	-33.4	-31.5	-23.0
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	17889	17695	17607	-2247	-2587	-2433	-11.2	-12.8	-12.1
Solids	6088	3987	3715	3603	2904	2051	-782	-1850	-1903	-17.8	-38.9	-48.1
Oil	8144	9043	8133	7574	7110	6574	-796	-1186	-1552	-9.5	-14.3	-19.1
Natural gas	1818	4449	4399	1836	1553	1475	-1583	-1256	-1354	-46.3	-44.7	-47.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4690	5888	7341	914	1705	2376	24.2	40.8	47.9
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	20.1	16.4	11.6	-1.6	-7.0	-8.1			
Oil	45.6	46.0	41.6	42.3	40.2	37.3	0.8	-0.7	-3.2			
Natural gas	10.2	22.6	22.5	10.3	8.8	8.4	-6.7	-5.1	-5.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	26.2	33.3	41.7	7.5	12.7	16.9			
Gross Electricity Generation in GWh_e	25733	36043	36269	30271	30688	39126	-8602	-9046	-3443	-22.1	-22.8	-8.1
Self consumption and grid losses	3290	4046	3775	3194	3328	4364	-860	-1012	-465	-21.2	-23.3	-9.6
Fuel Inputs to Thermal Power Generation	6016	7822	7129	4851	4781	5147	-1755	-1788	-1199	-26.6	-27.2	-18.9
Solids	5541	3667	3444	3223	2313	1424	-917	-2194	-2018	-22.1	-48.7	-58.6
Oil (including refinery gas)	237	1344	344	20	10	13	-258	-243	-179	-92.9	-96.2	-93.1
Gas (including derived gases)	174	2112	2003	0	0	108	-1018	-405	-540	-100.0	-100.0	-83.4
Biomass & Waste	65	699	1338	1608	2458	3602	438	1054	1538	37.4	75.1	74.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8665	8616	8159	-357	-460	-709	-4.0	-5.1	-8.0
Refineries	8027	8452	7821	7575	7365	7121	-480	-659	-873	-6.0	-8.2	-10.9
Biofuels and hydrogen production	0	0	0	345	576	644	35	106	34	11.2	22.4	5.6
District heating	1005	515	509	745	674	394	88	93	129	13.4	16.0	49.0
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	806	733	716	-267	-241	-227	-24.9	-24.7	-24.0
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	15010	15116	14941	-1357	-1549	-1853	-8.3	-9.3	-11.0
by sector												
Industry	2711	2935	2831	2921	2899	2947	-83	-142	-152	-2.8	-4.7	-4.9
- energy intensive industries	1076	1243	1152	1182	1152	1138	-20	-52	-52	-1.6	-4.3	-4.4
- other industrial sectors	1636	1692	1679	1739	1747	1808	-63	-90	-100	-3.5	-4.9	-5.2
Residential	3946	4154	4398	4053	4198	4232	-537	-417	-385	-11.7	-9.0	-8.3
Tertiary	2822	2801	2840	2544	2526	2440	-449	-504	-595	-15.0	-16.6	-19.6
Transport	4012	4720	5254	5492	5493	5322	-288	-486	-721	-5.0	-8.1	-11.9
by fuel												
Solids	396	290	236	380	591	627	135	344	115	55.0	139.9	22.3
Oil	7097	6950	7204	6858	6569	6171	-454	-796	-1151	-6.2	-10.8	-15.7
Gas	1159	1667	1701	1550	1289	1172	-325	-598	-484	-17.3	-31.7	-29.2
Electricity	2517	2791	2882	2483	2561	3124	-665	-689	-253	-21.1	-21.2	-7.5
Heat (from CHP and District Heating)	1758	2255	2408	2196	2347	1974	-321	-153	-312	-12.8	-6.1	-13.6
Renewable energy forms	566	657	892	1542	1757	1869	272	343	233	21.5	24.2	14.2
Other	0	0	0	1	2	2	0	0	-1	33.9	8.2	-26.1
RES in Gross Final Energy Consumption ^(A)		1919	2512	4253	5225	6546	878	1575	2324	26.0	43.2	55.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	55.6	50.5	43.9	-10.1	-15.0	-16.5	-15.4	-23.0	-27.3
CO₂ Emissions (energy related)	51.7	52.4	48.9	40.2	35.4	30.3	-9.2	-13.8	-15.4	-18.7	-28.1	-33.6
Power generation/District heating	24.5	24.0	19.7	12.8	9.2	5.9	-6.9	-10.6	-10.0	-35.1	-53.5	-63.0
Energy Branch	1.5	2.4	2.5	1.4	1.0	0.6	-0.7	-0.8	-1.2	-31.8	-44.2	-67.5
Industry	5.4	5.4	5.0	5.2	5.4	5.2	0.2	0.4	0.0	3.0	8.1	-0.7
Residential	4.9	3.9	3.5	2.9	2.7	2.5	-0.5	-0.7	-1.0	-13.8	-20.5	-29.3
Tertiary	3.6	2.9	2.7	2.4	2.3	2.1	-0.3	-0.4	-0.7	-12.4	-15.6	-25.5
Transport	11.9	13.9	15.5	15.4	14.9	14.1	-1.0	-1.7	-2.4	-5.9	-10.5	-14.5
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.8	2.8	2.7	0.0	0.0	0.0	-1.1	-0.6	-0.8
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.6	12.3	10.8	-0.8	-1.2	-1.1	-6.2	-8.8	-9.3
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	79.6	72.3	62.9	-14.5	-21.5	-23.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	69.0	62.9	54.8	-8.7	-9.2	-7.6	-11.2	-12.8	-12.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.24	2.00	1.72	-0.21	-0.43	-0.56	-8.5	-17.6	-24.5
Import Dependency %	45.7	-33.7	-51.6	-18.4	-5.9	-1.7	-4.2	-10.5	-13.3			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	19.6	22.3	25.5	0.0	0.8	1.7	0.1	3.7	7.3
as % of GDP		7.8	8.0	7.6	7.9	7.9	0.0	0.3	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.8	1.8						
as % of GDP				0.01	0.29	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	84.8	78.1	70.2	-2.4	-3.8	-3.6	-2.8	-4.7	-4.9
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	72.1	69.4	62.0	-9.6	-6.9	-5.6	-11.7	-9.0	-8.3
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	66.9	61.2	51.6	-11.8	-12.2	-12.6	-15.0	-16.6	-19.6
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	37.1	35.6	30.6	-0.8	-1.3	-2.1	-2.2	-3.4	-6.4
Freight transport (toe/Mtkm)	68.3	69.2	75.8	69.7	66.5	61.6	-3.2	-5.8	-8.1	-4.3	-8.0	-11.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.21	0.15	0.09	-0.06	-0.12	-0.13	-21.2	-45.2	-59.1
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.72	1.67	1.60	0.04	0.01	-0.07	2.7	0.4	-4.3
Industry	2.00	1.83	1.76	1.77	1.85	1.76	0.10	0.22	0.07	6.0	13.4	4.4
Residential	1.24	0.93	0.80	0.71	0.63	0.59	-0.02	-0.09	-0.18	-2.4	-12.6	-22.9
Tertiary	1.27	1.04	0.94	0.93	0.92	0.87	0.03	0.01	-0.07	3.0	1.2	-7.3
Transport	2.96	2.95	2.96	2.81	2.71	2.64	-0.03	-0.07	-0.08	-0.9	-2.6	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	12.4	15.5	27.0	33.1	42.2	7.4	12.2	18.0				
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	6.4	10.9	12.8	1.0	2.8	2.3				
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	14397	11211	8599	8599	-3047	-7698	-7166	-17.5	-40.7	-45.5
Oil (including refinery gas)	5222	1525	205	163	184	184	-1360	-1342	-1178	-86.9	-89.2	-86.5
Gas (including derived gases)	9658	9549	1503	1079	1628	1628	-6158	-3830	-3344	-80.4	-78.0	-67.3
Biomass-waste	2548	5006	5842	9221	15198	15198	1666	3823	6061	39.9	70.8	66.3
Hydro (pumping excluded)	30	23	32	32	32	32	1	1	0	4.4	2.6	0.0
Wind	4240	6613	8279	8957	13019	13019	296	0	1761	3.7	0.0	15.6
Solar	0	0	13	24	465	465	0	0	423	0.0	0.0	998.9
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	11888	12794	12626	12257	13256	13256	-86	282	293	-0.7	2.4	2.3
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4023	5669	5669	93	0	1012	2.5	0.0	21.7
Hydro (pumping excluded)	10	11	11	11	14	14	0	0	3	0.0	0.0	26.9
Wind	2300	3000	3732	3944	5096	5096	93	0	570	2.6	0.0	12.6
Solar	2	3	37	68	559	559	0	0	439	0.0	0.0	365.9
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8846	8234	7587	7587	-180	282	-719	-2.0	3.5	-8.7
of which cogeneration units	7504	8538	4652	4934	4065	4065	-1489	211	-66	-24.2	4.5	-1.6
Solids fired	5528	5566	4425	3541	2213	2213	0	0	-212	0.0	0.0	-8.7
Gas fired	2328	2485	2411	2132	1984	1984	-508	-508	-1382	-17.4	-19.2	-41.1
Oil fired	1271	1236	988	911	783	783	0	0	-116	0.0	0.0	-12.9
Biomass-waste fired	450	494	1022	1649	2608	2608	328	789	991	47.2	91.8	61.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	25.8	27.0	31.9	31.9	-7.2	-8.8	-3.6			
Efficiency of gross thermal power generation (%)	34.9	35.8	38.9	39.0	42.8	42.8	-1.2	-1.2	0.5			
% of gross electricity from CHP	63.9	68.3	63.1	66.1	53.2	53.2	1.0	7.3	4.2			
Carbon free gross electricity generation (%)	18.9	32.1	46.8	59.4	73.4	73.4	15.4	23.2	25.3			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	46.8	59.4	73.4	73.4	15.4	23.2	25.3			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	70.1	77.8	81.6	90.0	93.0	99.5	-1.5	-2.5	-3.2	-1.7	-2.6	-3.1
Private cars and motorcycles	6.4	7.4	7.4	7.6	7.8	8.3	0.2	0.2	0.3	2.2	3.2	3.7
Rail	47.8	51.9	54.4	58.2	59.0	61.3	-1.3	-2.2	-2.8	-2.3	-3.5	-4.3
Aviation	5.1	5.5	6.2	7.3	7.7	8.5	0.1	0.1	0.2	1.5	0.8	2.8
Inland navigation	5.5	9.0	9.8	13.1	14.5	17.1	-0.4	-0.7	-0.9	-3.3	-4.4	-5.0
Freight transport activity (Gtkm)	5.2	3.9	3.7	3.8	4.0	4.3	0.0	0.0	0.0	-0.6	-0.3	-0.3
Freight transport activity (Gtkm)												
Trucks	21.7	27.5	27.0	30.9	32.8	36.9	-0.8	-1.2	-1.6	-2.5	-3.6	-4.2
Rail	18.1	24.0	23.3	26.4	27.9	31.3	-1.0	-1.5	-1.9	-3.5	-5.0	-5.8
Inland navigation	1.7	2.0	2.0	2.4	2.6	2.9	0.1	0.2	0.2	5.5	6.9	7.9
Energy demand in transport (ktoe)	1.9	1.5	1.7	2.1	2.3	2.6	0.0	0.1	0.1	2.2	3.1	3.6
Public road transport	4012	4720	5254	5492	5493	5322	-288	-486	-721	-5.0	-8.1	-11.9
Private cars and motorcycles	57	78	83	78	76	68	0	-2	-4	-0.4	-2.3	-5.9
Trucks	1628	1788	2034	1980	1902	1628	-82	-124	-143	-4.0	-6.1	-8.1
Rail	1374	1816	1952	2052	2074	2220	-159	-282	-418	-7.2	-12.0	-15.8
Aviation	113	103	106	110	107	53	2	3	6	1.5	2.5	11.8
Inland navigation	690	820	944	1130	1189	1202	-48	-80	-158	-4.1	-6.3	-11.6
Inland navigation	150	115	136	141	145	152	-1	-2	-4	-0.8	-1.1	-2.3

Source: PRIMES

Estonia: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6249	3618	3332	4304	3446	3196	2889	3015	3196	-6.1	0.3	-1.7	1.0	
Solids	5798	3129	2830	3261	2514	2041	1166	919	867	-6.9	-1.2	-7.4	-2.9	
Oil	0	0	2	331	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	450	489	500	712	931	1155	1723	2096	2328	1.1	6.4	6.3	3.1	
Hydro	0	0	0	2	2	2	3	3	3		18.3	0.8	0.1	
Biomass & Waste	450	488	500	706	827	1032	1496	1825	1978	1.0	5.2	6.1	2.8	
Wind	0	0	0	5	99	110	208	243	314		102.4	7.7	4.2	
Solar and others	0	0	0	0	3	11	16	25	33			19.1	7.5	
Geothermal	0	0	0	0	0	0	0	0	0			9.4	5.2	
Net Imports	4456	1987	1447	1463	1949	2188	2145	2003	1917	-10.6	3.0	1.0	-1.1	
Solids	697	292	244	27	118	124	131	138	118	-10.0	-7.0	1.1	-1.0	
Oil	3139	1178	626	867	1536	1610	1635	1608	1586	-14.9	9.4	0.6	-0.3	
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			0.6	-0.2	
- Oil products	3139	1178	626	867	1535	1609	1634	1607	1585	-14.9	9.4	0.6	-0.3	
Natural gas	1222	583	662	800	553	691	694	616	620	-5.9	-1.8	2.3	-1.1	
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Gross Inland Consumption	10642	5630	4712	5627	5243	5211	4847	4822	4911	-7.8	1.1	-0.8	0.1	
Solids	6703	3598	3119	3255	2632	2165	1297	1057	986	-7.4	-1.7	-6.8	-2.7	
Oil	2858	1032	510	1090	1384	1437	1448	1412	1385	-15.8	10.5	0.4	-0.4	
Natural gas	1222	583	662	800	553	691	694	616	620	-5.9	-1.8	2.3	-1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Renewable energy forms	460	483	501	621	824	1021	1529	1859	2072	0.9	5.1	6.4	3.1	
as % in Gross Inland Consumption														
Solids	63.0	63.9	66.2	57.8	50.2	41.5	26.8	21.9	20.1					
Oil	26.9	18.3	10.8	19.4	26.4	27.6	29.9	29.3	28.2					
Natural gas	11.5	10.3	14.1	14.2	10.6	13.3	14.3	12.8	12.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	8.6	10.6	11.0	15.7	19.6	31.5	38.6	42.2					
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	10959	11003	12273	12992	14614	-6.8	2.6	1.1	1.8	
Self consumption and grid losses	2615	1409	1247	1422	1367	1374	1315	1394	1533	-7.1	0.9	-0.4	1.5	
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2567	2403	2026	2027	2141	-8.0	0.5	-2.3	0.6	
Solids	5085	2499	2213	2297	2473	1998	1131	895	841	-8.0	1.1	-7.5	-2.9	
Oil (including refinery gas)	210	80	12	10	17	9	45	38	37	-25.2	3.9	10.3	-1.9	
Gas (including derived gases)	357	100	226	227	34	196	232	186	202	-4.5	-17.1	21.0	-1.4	
Biomass & Waste	2	2	2	5	42	200	617	909	1061	-0.3	35.1	30.8	5.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2285	1007	783	769	438	430	349	270	229	-10.2	-5.6	-2.3	-4.1	
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.2	0.6	-0.2	
Biofuels and hydrogen production	0	0	0	0	44	70	101	108	118			8.7	1.6	
District heating	1755	527	485	511	380	352	241	158	106	-12.1	-2.4	-4.5	-7.9	
Derived gases, cokeries etc.	529	479	297	257	13	7	5	4	3	-5.6	-27.0	-8.9	-4.4	
Energy Branch Consumption	295	148	179	209	199	194	176	175	173	-4.9	1.1	-1.2	-0.2	
Non-Energy Uses	69	225	219	230	224	217	218	218	217	12.2	0.2	-0.3	0.0	
Final Energy Demand	6392	2627	2445	2854	3190	3329	3490	3569	3657	-9.2	2.7	0.9	0.5	
by sector														
Industry	2742	794	531	654	770	817	861	914	952	-15.1	3.8	1.1	1.0	
- energy intensive industries	738	430	203	215	227	241	256	271	279	-12.1	1.1	1.2	0.9	
- other industrial sectors	2004	364	328	440	544	576	605	644	673	-16.6	5.2	1.1	1.1	
Residential	1482	1054	984	977	962	942	992	980	988	-4.0	-0.2	0.3	0.0	
Tertiary	1330	289	353	498	587	621	670	700	715	-12.4	5.2	1.3	0.6	
Transport	839	490	577	725	870	949	967	975	1003	-3.7	4.2	1.1	0.4	
by fuel														
Solids	1059	201	122	102	102	102	109	117	119	-19.5	-1.8	0.7	0.9	
Oil	1803	855	748	960	1146	1202	1179	1164	1172	-8.4	4.4	0.3	-0.1	
Gas	439	202	134	207	243	270	267	264	252	-11.2	6.1	1.0	-0.6	
Electricity	608	510	506	584	640	692	787	838	941	-1.8	2.4	2.1	1.8	
Heat (from CHP and District Heating)	2086	593	511	547	503	482	502	501	500	-13.1	-0.2	0.0	0.0	
Renewable energy forms	397	265	424	453	557	582	645	684	672	0.7	2.8	1.5	0.4	
Other	0	0	0	0	0	0	0	0	1			16.4	2.9	
RES in Gross Final Energy Consumption ^(A)			538	564	788	960	1425	1726	1920		3.9	6.1	3.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	19.4	17.8	14.3	12.6	11.9	-9.1	1.2	-3.0	-1.8	
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	15.8	14.4	10.8	9.5	9.1	-9.7	1.1	-3.7	-1.6	
Power generation/District heating	27.9	12.3	10.9	11.2	11.2	9.5	6.0	4.8	4.4	-9.0	0.2	-6.0	-3.0	
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-9.8	2.9	-2.4	-2.0	
Industry	4.6	1.7	0.8	0.8	1.0	1.1	1.1	1.0	1.0	-16.0	2.7	0.4	-0.6	
Residential	2.0	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-17.7	1.2	-0.4	-0.2	
Tertiary	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.6	-17.6	8.0	0.2	0.3	
Transport	2.4	1.4	1.7	2.1	2.5	2.6	2.6	2.6	2.6	-3.6	3.8	0.6	0.1	
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.2	1.4	1.4	-5.3	9.7	3.4	1.4	
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.3	2.3	1.7	1.3	-5.7	-0.3	-1.9	-5.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	43.2	39.5	31.8	27.9	26.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: Cost Efficiency Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Int. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	323.4	262.0	205.7	177.6	164.0	-7.1	-6.5	-4.4	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.01	2.76	2.23	1.97	1.86	-2.1	0.1	-3.0	-1.8	
Import Dependency %	41.2	34.8	30.0	25.5	36.1	40.6	42.6	39.9	37.5					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	3.0	3.6	4.1	4.4		4.0	4.0	2.1	
as % of GDP			22.2	16.8	15.1	15.3	15.4	15.1	14.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.6	49.0	43.6	40.0	37.6	-12.1	-5.5	-2.6	-1.5	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	46.1	37.2	33.4	28.8	26.4	-3.6	-7.4	-3.2	-2.3	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	79.2	68.4	62.4	56.4	52.0	-12.4	-2.3	-2.4	-1.8	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.2	28.5	27.0	25.8	26.2	0.2	-0.8	-0.8	-0.3	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	19.8	20.4	20.0	19.5	19.4	-7.9	1.0	0.1	-0.3	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.62	0.54	0.32	0.24	0.21	0.5	-1.0	-6.5	-4.0	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.38	1.40	1.32	1.28	1.25	-3.1	1.1	-0.5	-0.5	
Industry	1.67	2.20	1.51	1.28	1.36	1.36	1.27	1.12	1.09	-1.0	-1.0	-0.7	-1.5	
Residential	1.33	0.44	0.29	0.36	0.33	0.33	0.31	0.32	0.31	-14.2	1.4	-0.7	-0.1	
Tertiary	1.42	0.87	0.77	0.94	1.01	0.97	0.90	0.91	0.87	-5.9	2.7	-1.1	-0.3	
Transport	2.89	2.90	2.92	2.94	2.82	2.77	2.69	2.67	2.62	0.1	-0.4	-0.5	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	23.2	27.3	38.9	46.2	50.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.4	6.5	9.2	9.8	10.7					
Gross Electricity generation by source (in GWh)														
			8511	10203	10959	11003	12273	12992	14614		2.6	1.1	1.8	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9323	7867	5115	4341	4190		2.1	-5.8	-2.0	
Oil (including refinery gas)			51	42	69	40	195	163	166		3.1	10.9	-1.6	
Gas (including derived gases)			787	1000	173	872	1606	1261	1383		-14.1	25.0	-1.5	
Biomass-waste			57	158	216	922	2912	4371	5197		14.2	29.7	6.0	
Hydro (pumping excluded)			5	22	27	28	29	29	30		18.3	0.8	0.1	
Wind			1	54	1152	1273	2415	2826	3649		102.4	7.7	4.2	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2925	2940	3053	3381	4047		-0.2	0.4	2.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	453	495	1043	1243	1647		72.3	8.7	4.7	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	446	488	1036	1235	1640		86.6	8.8	4.7	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2472	2446	2010	2138	2400		-1.9	-2.0	1.8	
of which cogeneration units			477	513	436	435	617	848	1002		-0.9	3.5	5.0	
Solids fired			2738	2672	2159	2039	955	598	491		-2.3	-7.8	-6.4	
Gas fired			175	200	207	246	543	774	915		1.7	10.1	5.4	
Oil fired			65	65	66	9	82	81	81		0.2	2.2	-0.2	
Biomass-waste fired			19	21	39	152	429	684	912		7.6	27.1	7.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	38.9	39.0	42.8	41.0	38.7					
Efficiency of gross thermal power generation (%)			29.8	34.3	32.8	34.7	41.7	43.0	43.9					
% of gross electricity from CHP			17.6	33.1	17.1	22.1	32.2	37.6	38.2					
Carbon free gross electricity generation (%)			0.7	2.3	12.7	20.2	43.6	55.6	60.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	12.7	20.2	43.6	55.6	60.7					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.8	16.7	17.4	18.1	18.4	-0.3	3.3	1.0	0.6	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.5	2.4	-5.1	0.0	-0.5	-0.3	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.0	12.8	13.3	13.8	13.9	4.2	4.5	1.1	0.4	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.1	2.6	2.1	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.5	4.7	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	-2.1	-0.3	0.8	0.6	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.7	23.2	24.9	26.0	26.8	0.5	5.6	1.9	0.7	
Trucks	4.5	1.5	3.9	5.8	8.3	10.1	11.5	12.5	13.2	-1.4	7.8	3.3	1.4	
Rail	7.0	3.8	8.1	10.6	12.3	13.1	13.4	13.5	13.6	1.5	4.3	0.8	0.2	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	870	949	967	975	1003	-3.7	4.2	1.1	0.4	
Public road transport	44	21	25	23	21	20	18	16	15	-5.5	-1.6	-1.5	-2.0	
Private cars and motorcycles	273	263	307	338	380	387	376	367	375	1.2	2.1	-0.1	0.0	
Trucks	414	139	167	263	356	417	446	464	496	-8.7	7.8	2.3	1.1	
Rail	65	44	51	48	54	57	51	45	25	-2.4	0.6	-0.6	-7.0	
Aviation	36	18	20	42	49	57	64	72	81	-5.9	9.6	2.7	2.4	
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.4	0.6	0.2	

Source: PRIMES

Estonia: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3196	2889	3196	-273	-558	-436	-7.9	-16.2	-12.0
Solids	5798	2830	3261	2041	1166	867	-666	-1441	-1607	-24.6	-55.3	-64.9
Oil	0	2	331	0	0	0	0	0	0	-121.6	-39.7	260.9
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	450	500	712	1155	1723	2328	392	882	1171	51.4	105.0	101.2
Hydro	0	0	2	2	3	3	0	0	0	8.9	2.3	0.0
Biomass & Waste	450	500	706	1032	1496	1978	320	708	905	44.8	89.9	84.4
Wind	0	0	5	110	208	314	64	161	238	139.8	347.6	315.3
Solar and others	0	0	0	11	16	33	9	13	27	382.1	345.6	456.3
Geothermal	0	0	0	0	0	0	0	0	0	81.9	196.2	369.4
Net Imports	4456	1447	1463	2188	2145	1917	-414	-415	-747	-15.9	-16.2	-28.0
Solids	697	244	27	124	131	118	-4	-9	-15	-3.4	-6.4	-11.5
Oil	3139	626	867	1610	1635	1586	-163	-210	-367	-9.2	-11.4	-18.8
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-8.8	-10.9	-16.8
- Oil products	3139	626	867	1609	1634	1585	-163	-210	-366	-9.2	-11.4	-18.8
Natural gas	1222	662	800	691	694	620	-205	-104	-247	-22.9	-13.0	-28.5
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5211	4847	4911	-687	-973	-1181	-11.7	-16.7	-19.4
Solids	6703	3119	3255	2165	1297	986	-670	-1450	-1622	-23.6	-52.8	-62.2
Oil	2858	510	1090	1437	1448	1385	-163	-210	-366	-10.2	-12.7	-20.9
Natural gas	1222	662	800	691	694	620	-205	-104	-247	-22.9	-13.0	-28.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	1021	1529	2072	351	791	1054	52.3	107.1	103.5
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	41.5	26.8	20.1	-6.5	-20.4	-22.7			
Oil	26.9	10.8	19.4	27.6	29.9	28.2	0.4	1.4	-0.5			
Natural gas	11.5	14.1	14.2	13.3	14.3	12.6	-1.9	0.6	-1.6			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	19.6	31.5	42.2	8.2	18.9	25.5			
Gross Electricity Generation in GWh_e	17178	8511	10203	11003	12273	14614	-1939	-2349	-2474	-15.0	-16.1	-14.5
Self consumption and grid losses	2615	1247	1422	1374	1315	1533	-246	-639	-899	-15.2	-32.7	-37.0
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2403	2026	2141	-670	-925	-928	-21.8	-31.3	-30.2
Solids	5085	2213	2297	1998	1131	841	-650	-1420	-1580	-24.6	-55.7	-65.2
Oil (including refinery gas)	210	12	10	9	45	37	-33	2	-12	-79.0	5.8	-23.8
Gas (including derived gases)	357	226	227	196	232	202	-131	-5	-26	-39.9	-1.9	-11.5
Biomass & Waste	2	2	5	200	617	1061	144	497	689	254.7	412.9	185.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2285	783	769	430	349	229	-26	-55	-184	-5.6	-13.6	-44.6
Refineries	1	1	1	1	1	1	0	0	0	-8.8	-10.9	-16.8
Biofuels and hydrogen production	0	0	0	70	101	118	7	18	8	10.8	21.6	6.8
District heating	1755	485	511	352	241	106	-31	-71	-191	-8.1	-22.8	-64.3
Derived gases, cokeries etc.	529	297	257	7	5	3	-2	-1	-1	-17.0	-21.9	-24.4
Energy Branch Consumption	295	179	209	194	176	173	-26	-64	-93	-11.6	-26.8	-34.8
Non-Energy Uses	69	219	230	217	218	217	-1	0	0	-0.2	-0.2	-0.2
Final Energy Demand	6392	2445	2854	3329	3490	3657	-278	-361	-498	-7.7	-9.4	-12.0
by sector												
Industry	2742	531	654	817	861	952	-41	-72	-103	-4.8	-7.7	-9.7
- energy intensive industries	738	203	215	241	256	279	-10	-17	-20	-4.1	-6.1	-6.7
- other industrial sectors	2004	328	440	576	605	673	-31	-55	-83	-5.1	-8.3	-11.0
Residential	1482	984	977	942	992	988	-76	-70	-121	-7.5	-6.6	-10.9
Tertiary	1330	353	498	621	670	715	-94	-103	-132	-13.1	-13.3	-15.6
Transport	839	577	725	949	967	1003	-67	-117	-142	-6.6	-10.8	-12.4
by fuel												
Solids	1059	122	102	102	109	119	-6	-7	0	-5.3	-6.0	0.0
Oil	1803	748	960	1202	1179	1172	-113	-194	-314	-8.6	-14.1	-21.2
Gas	439	134	207	270	267	252	-22	-53	-127	-7.6	-16.5	-33.5
Electricity	608	506	584	692	787	941	-145	-146	-134	-17.3	-15.7	-12.5
Heat (from CHP and District Heating)	2086	511	547	482	502	500	-94	-90	-84	-16.4	-15.2	-14.4
Renewable energy forms	397	424	453	582	645	672	101	130	162	21.1	25.1	31.8
Other	0	0	0	0	0	1	0	0	0	6.8	0.6	1.7
RES in Gross Final Energy Consumption ^(A)		538	564	960	1425	1920	327	730	982	51.6	105.1	104.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	17.8	14.3	11.9	-4.2	-7.5	-8.8	-18.9	-34.2	-42.6
CO₂ Emissions (energy related)	39.2	14.1	15.2	14.4	10.8	9.1	-3.8	-6.9	-8.4	-20.8	-39.0	-48.0
Power generation/District heating	27.9	10.9	11.2	9.5	6.0	4.4	-3.3	-6.1	-7.1	-25.8	-50.3	-61.6
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.1	0.0	-0.1	-0.1	-16.6	-26.6	-37.0
Industry	4.6	0.8	0.8	1.1	1.1	1.0	-0.1	-0.3	-0.6	-11.6	-19.0	-37.8
Residential	2.0	0.3	0.4	0.3	0.3	0.3	0.0	-0.1	-0.1	-13.1	-15.4	-19.9
Tertiary	1.9	0.3	0.5	0.6	0.6	0.6	0.0	0.0	-0.1	-1.7	-5.3	-14.1
Transport	2.4	1.7	2.1	2.6	2.6	2.6	-0.2	-0.4	-0.5	-7.7	-13.3	-15.1
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.2	1.4	0.0	0.0	0.0	-2.5	-2.9	-2.5
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.3	2.3	1.3	-0.4	-0.5	-0.3	-13.6	-18.6	-20.9
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	39.5	31.8	26.4	-9.2	-16.6	-19.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Estonia: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	262.0	205.7	164.0	-34.6	-41.3	-39.4	-11.7	-16.7	-19.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.76	2.23	1.86	-0.32	-0.81	-1.03	-10.3	-26.8	-35.5
Import Dependency %	41.2	30.0	25.5	40.6	42.6	37.5	-2.2	0.0	-4.8			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	3.0	3.6	4.4	0.2	0.4	0.5	7.1	11.2	14.1
as % of GDP		22.2	16.8	15.3	15.4	14.8	1.0	1.5	1.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.6						
as % of GDP				1.05	1.59	1.86						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	49.0	43.6	37.6	-2.5	-3.6	-4.1	-4.8	-7.7	-9.7
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	37.2	33.4	26.4	-3.0	-2.3	-3.2	-7.5	-6.6	-10.9
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	68.4	62.4	52.0	-10.3	-9.6	-9.6	-13.1	-13.3	-15.6
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	28.5	27.0	26.2	-0.7	-1.2	0.0	-2.3	-4.1	0.1
Freight transport (toe/Mtkm)	41.2	18.0	18.8	20.4	20.0	19.4	-1.5	-2.5	-3.6	-6.8	-11.1	-15.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.54	0.32	0.21	-0.08	-0.22	-0.26	-12.3	-41.0	-55.1
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.40	1.32	1.25	-0.01	-0.07	-0.16	-0.6	-5.1	-11.1
Industry	1.67	1.51	1.28	1.36	1.27	1.09	-0.10	-0.18	-0.49	-7.1	-12.3	-31.1
Residential	1.33	0.29	0.36	0.33	0.31	0.31	-0.02	-0.03	-0.03	-6.1	-9.4	-10.1
Tertiary	1.42	0.77	0.94	0.97	0.90	0.87	0.11	0.08	0.01	13.2	9.3	1.7
Transport	2.89	2.92	2.94	2.77	2.69	2.62	-0.03	-0.08	-0.08	-1.2	-2.9	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	27.3	38.9	50.2	10.8	21.9	28.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.5	9.2	10.7	1.0	2.5	1.9			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11003	12273	14614	14614	-1939	-2349	-2474	-15.0	-16.1	-14.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	7867	5115	4190	4190	-2104	-6662	-8913	-21.1	-56.6	-68.0
Oil (including refinery gas)	51	42	40	195	166	166	-132	22	-22	-76.5	13.0	-11.9
Gas (including derived gases)	787	1000	872	1606	1383	1383	-1078	104	1	-55.3	6.9	0.1
Biomass-waste	57	158	922	2912	5197	5197	631	2311	3690	216.9	384.0	244.9
Hydro (pumping excluded)	5	22	28	29	30	30	2	1	0	8.9	2.3	0.0
Wind	1	54	1273	2415	3649	3649	742	1876	2770	139.8	347.6	315.3
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2940	3053	4047	4047	10	440	960	0.3	16.8	31.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	495	1043	1647	1647	285	831	1340	135.9	390.3	435.4
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	488	1036	1640	1640	285	831	1340	140.6	404.5	446.5
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2446	2010	2400	2400	-275	-391	-379	-10.1	-16.3	-13.7
of which cogeneration units	477	513	435	617	1002	1002	-98	-78	125	-18.4	-11.3	14.3
Solids fired	2738	2672	2039	955	491	491	-118	-685	-1014	-5.5	-41.8	-67.4
Gas fired	175	200	246	543	915	915	-234	-37	94	-48.8	-6.4	11.5
Oil fired	65	65	9	82	81	81	-33	4	-28	-78.9	5.8	-25.6
Biomass-waste fired	19	21	152	429	912	912	110	327	568	258.0	319.3	164.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	39.0	42.8	38.7	38.7	-7.1	-15.1	-18.3			
Efficiency of gross thermal power generation (%)	29.8	34.3	34.7	41.7	43.9	43.9	0.1	0.8	-1.4			
% of gross electricity from CHP	17.6	33.1	22.1	32.2	38.2	38.2	-4.6	4.8	13.4			
Carbon free gross electricity generation (%)	0.7	2.3	20.2	43.6	60.7	60.7	13.7	35.6	46.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	20.2	43.6	60.7	60.7	13.7	35.6	46.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.7	17.4	18.4	-0.3	-0.5	-0.7	-1.9	-2.9	-3.5
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.4	0.0	0.1	0.1	2.0	2.9	3.4
Rail	5.1	7.7	10.1	12.8	13.3	13.9	-0.4	-0.6	-0.7	-2.8	-4.2	-4.9
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	2.1	3.3	4.2
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	-0.1	-3.6	-4.8	-5.4
Freight transport activity (Gtkm)	0.6	0.4	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-0.9	-0.6	-0.6
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.2	24.9	26.8	-0.5	-0.9	-1.2	-2.3	-3.4	-4.3
Rail	4.5	3.9	5.8	10.1	11.5	13.2	-0.7	-1.1	-1.5	-6.8	-9.0	-10.3
Inland navigation	7.0	8.1	10.6	13.1	13.4	13.6	0.2	0.3	0.3	1.5	2.0	2.4
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	839	577	725	949	967	1003	-67	-117	-142	-6.6	-10.8	-12.4
Private cars and motorcycles	44	25	23	20	18	15	0	0	-1	-0.4	-1.7	-6.4
Trucks	273	307	338	387	376	375	-17	-27	-2	-4.3	-6.7	-0.5
Rail	414	167	263	417	446	496	-47	-82	-123	-10.1	-15.5	-19.9
Aviation	65	51	48	57	51	25	1	1	-2	1.1	1.1	-6.0
Inland navigation	36	20	42	57	64	81	-3	-8	-14	-5.6	-10.8	-14.9
Inland navigation	7	7	11	11	12	12	0	0	0	-1.3	-1.8	-3.1

Source: PRIMES

Finland: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	11860	13166	15001	16461	16921	20632	23051	24666	24932	2.4	1.2	3.1	0.8	
Solids	1581	2061	1207	2129	1643	1584	1456	1246	710	-2.7	3.1	-1.2	-6.9	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8214	1.5	0.4	4.0	-0.9	
Renewable energy sources	5273	6133	7959	8124	9225	10054	12601	14426	16008	4.2	1.5	3.2	2.4	
Hydro	934	1111	1261	1185	1208	1218	1221	1228	1234	3.0	-0.4	0.1	0.1	
Biomass & Waste	4338	5021	6691	6924	7922	8707	11154	12833	14174	4.4	1.7	3.5	2.4	
Wind	0	1	7	15	84	94	143	246	464		28.7	5.5	12.5	
Solar and others	0	0	1	1	11	35	83	118	136	3.8	34.8	22.4	5.0	
Geothermal	0	0	0	0	0	0	0	0	0			7.1	3.1	
Net Imports	18031	15542	18512	19163	18461	16157	13182	11333	10616	0.3	0.0	-3.3	-2.1	
Solids	4378	3774	3533	3338	3795	3125	2100	1363	1062	-2.1	0.7	-5.7	-6.6	
Oil	10477	8205	10535	10844	9557	9024	8351	7925	7687	0.1	-1.0	-1.3	-0.8	
- Crude oil and Feedstocks	8890	8548	12115	11017	11471	11145	10721	10444	10288	3.1	-0.5	-0.7	-0.4	
- Oil products	1587	-343	-1580	-173	-1914	-2121	-2370	-2519	-2601					
Natural gas	2261	2839	3422	3598	3818	2936	2236	1645	1401	4.2	1.1	-5.2	-4.6	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	34881	36287	35730	35495	35042	1.2	0.7	0.2	-0.2	
Solids	5327	5950	5087	4925	5438	4709	3556	2610	1772	-0.5	0.7	-4.2	-6.7	
Oil	9939	8344	9195	10482	9055	8522	7849	7421	7181	-0.8	-0.2	-1.4	-0.9	
Natural gas	2261	2839	3422	3598	3818	2936	2236	1645	1401	4.2	1.1	-5.2	-4.6	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	8214	1.5	0.4	4.0	-0.9	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9135	9956	12476	14281	15848	3.8	1.4	3.2	2.4	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.6	13.0	10.0	7.4	5.1					
Oil	34.3	28.8	28.3	30.4	26.0	23.5	22.0	20.9	20.5					
Natural gas	7.8	9.8	10.5	10.4	10.9	8.1	6.3	4.6	4.0					
Nuclear	17.3	17.1	17.9	17.4	17.4	24.8	25.2	25.3	23.4					
Renewable energy forms	19.0	21.2	24.5	23.3	26.2	27.4	34.9	40.2	45.2					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	76319	83336	92783	98996	107541	2.6	0.9	2.0	1.5	
Self consumption and grid losses	5547	6510	5449	5710	6402	7174	8126	9092	10531	-0.2	1.6	2.4	2.6	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6874	6162	6937	7436	8185	2.4	-0.1	0.1	1.7	
Solids	3216	3882	3168	2974	3533	2852	1814	919	337	-0.1	1.1	-6.5	-15.5	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8			
Gas (including derived gases)	1015	1581	2106	2384	2141	1348	892	545	415	7.6	0.2	-8.4	-7.4	
Biomass & Waste	926	996	1518	2073	1200	1962	4231	5971	7433	5.1	-2.3	13.4	5.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15297	15042	14570	14073	13516	2.4	0.0	-0.5	-0.7	
Refineries	10689	12029	13200	13194	11905	11585	11167	10894	10736	2.1	-1.0	-0.6	-0.4	
Biofuels and hydrogen production	0	0	0	0	101	247	378	422	485			14.1	2.5	
District heating	573	548	803	954	2028	1988	1923	1814	1419	3.4	9.7	-0.5	-3.0	
Derived gases, cokeries etc.	793	1451	1306	1325	1263	1223	1102	943	876	5.1	-0.3	-1.4	-2.3	
Energy Branch Consumption	781	965	1285	1228	1205	1186	1202	1244	1284	5.1	-0.6	0.0	0.7	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1233	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26069	25846	25397	25147	25142	1.1	0.8	-0.3	-0.1	
by sector														
Industry	9618	9988	12053	11988	12598	12648	12535	12721	12761	2.3	0.4	-0.1	0.2	
- energy intensive industries	7351	7628	9456	9067	9413	9392	9245	9372	9374	2.6	0.0	-0.2	0.1	
- other industrial sectors	2267	2359	2596	2921	3185	3256	3289	3349	3387	1.4	2.1	0.3	0.3	
Residential	5321	5418	4536	4846	4962	4832	4581	4330	4306	-1.6	0.9	-0.8	-0.6	
Tertiary	2479	2484	3127	3471	3488	3413	3398	3253	3202	2.3	1.1	-0.3	-0.6	
Transport	4309	4151	4443	4816	5021	4954	4883	4844	4873	0.3	1.2	-0.3	0.0	
by fuel														
Solids	1621	1277	1099	966	1031	993	950	942	820	-3.8	-0.6	-0.8	-1.5	
Oil	8100	7563	7507	7890	7202	6676	6200	5916	5775	-0.8	-0.4	-1.5	-0.7	
Gas	1501	1523	1328	1156	1502	1440	1016	702	671	-1.2	1.2	-3.8	-4.1	
Electricity	5068	5608	6487	6959	7315	7644	7826	8204	8898	2.5	1.2	0.7	1.3	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3795	3842	3962	3972	3610	3.8	3.2	0.4	-0.9	
Renewable energy forms	3522	3944	4957	4552	5224	5251	5441	5409	5367	3.5	0.5	0.4	-0.1	
Other	0	0	0	0	0	1	1	2	2			13.4	1.7	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8611	9262	11547	13031	14356		1.1	3.0	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.3	59.7	50.4	42.7	37.1	-0.3	-0.3	-3.0	-3.0	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	53.6	46.9	38.8	32.4	27.7	-0.1	0.0	-3.2	-3.3	
Power generation/District heating	17.8	21.8	20.2	20.5	21.5	16.9	11.6	7.3	3.9	1.3	0.6	-6.0	-10.3	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.1	1.9	1.6	1.4	7.0	-1.7	-1.5	-3.4	
Industry	14.1	12.4	12.5	11.8	10.8	10.2	8.5	7.2	6.4	-1.2	-1.4	-2.3	-2.8	
Residential	6.4	5.9	2.3	2.1	1.8	1.3	1.0	0.8	0.7	-9.6	-2.7	-5.6	-3.6	
Tertiary	2.1	1.7	3.0	3.0	2.8	2.5	2.2	2.3	2.2	3.8	-0.8	-2.1	-0.1	
Transport	12.7	12.2	13.1	14.2	14.5	14.0	13.4	13.2	13.1	0.3	1.1	-0.8	-0.3	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.8	3.6	3.4	3.2	0.1	-0.1	-0.9	-1.0	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.0	8.1	7.0	6.2	-1.2	-1.6	-2.9	-2.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	94.2	82.3	69.5	58.9	51.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Int. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	190.4	179.1	161.5	148.0	137.5	-0.8	-2.0	-1.6	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.29	1.08	0.91	0.79	-1.3	-0.7	-3.4	-3.1
Import Dependency %	61.1	53.1	55.8	54.7	52.2	43.9	36.4	31.5	29.9				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.1	21.4	24.4	28.1	31.0		3.2	2.5	2.4
as % of GDP			10.1	10.5	10.4	10.6	11.0	11.7	12.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	66.0	60.1	56.6	53.9	-2.9	-3.1	-2.0	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	81.9	73.2	64.3	56.7	53.3	-2.7	-2.0	-2.4	-1.9
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	88.1	77.9	70.6	61.9	56.9	1.0	-1.3	-2.2	-2.1
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.1	31.0	29.7	29.3	-0.3	0.3	-0.8	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.0	41.8	39.5	38.2	37.1	-1.7	0.3	-1.1	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.13	0.08	0.05	0.03	-1.6	-1.1	-7.2	-10.9
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.15	1.08	0.99	0.93	0.89	-2.3	-1.1	-1.4	-1.1
Industry	1.46	1.24	1.03	0.98	0.86	0.81	0.68	0.56	0.50	-3.4	-1.9	-2.3	-3.0
Residential	1.21	1.09	0.52	0.43	0.36	0.27	0.22	0.19	0.16	-8.1	-3.6	-4.8	-3.0
Tertiary	0.84	0.70	0.96	0.86	0.80	0.72	0.66	0.71	0.70	1.4	-1.9	-1.9	0.5
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	31.9	34.6	43.8	49.9	54.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.2	8.2	9.5				
Gross Electricity generation by source (in GWh)													
			69976	70536	76319	83336	92783	98996	107541		0.9	2.0	1.5
Nuclear energy			22475	23267	23470	36243	36243	36243	33794		0.4	4.4	-0.7
Solids			10359	9486	13683	9296	7417	4320	2592		2.8	-5.9	-10.0
Oil (including refinery gas)			444	419	444	350	267	266	0		0.0	-5.0	-49.1
Gas (including derived gases)			10776	11400	11855	7307	5350	4832	5260		1.0	-7.6	-0.2
Biomass-waste			11185	12010	11837	14874	27629	36165	46116		0.6	8.8	5.3
Hydro (pumping excluded)			14657	13782	14048	14162	14199	14283	14348		-0.4	0.1	0.1
Wind			78	170	975	1093	1659	2860	5396		28.7	5.5	12.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18315	18319	18926	19992	22581		0.7	0.3	1.8
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	3918		0.0	4.6	-0.7
<u>Renewable energy</u>			3057	3104	3456	3533	3825	4284	5212		1.2	1.0	3.1
Hydro (pumping excluded)			3016	3018	3097	3112	3137	3157	3171		0.3	0.1	0.1
Wind			38	82	352	407	665	1094	1996		24.9	6.6	11.6
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12168	10578	10893	11500	13450		0.7	-1.1	2.1
of which cogeneration units			7129	7583	6801	6841	8485	9170	10050		-0.5	2.2	1.7
Solids fired			5539	5687	5630	4395	2699	1958	1373		0.2	-7.1	-6.5
Gas fired			2479	2444	2753	2623	2403	2349	3892		1.1	-1.3	4.9
Oil fired			1341	1340	1341	590	533	448	176		0.0	-8.8	-10.5
Biomass-waste fired			1942	2247	2444	2970	5258	6745	8010		2.3	8.0	4.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.6	49.7	53.3	53.6	51.4				
Efficiency of gross thermal power generation (%)			40.7	38.0	47.3	44.4	50.4	52.7	56.7				
% of gross electricity from CHP			44.9	45.7	44.6	36.2	43.2	45.7	49.0				
Carbon free gross electricity generation (%)			69.2	69.8	66.0	79.7	86.0	90.5	92.7				
- nuclear			32.1	33.0	30.8	43.5	39.1	36.6	31.4				
- renewable energy forms			37.0	36.8	35.2	36.2	46.9	53.9	61.3				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.4	98.5	101.9	105.7	108.5	0.8	1.5	0.8	0.6
Public road transport	8.5	8.0	7.7	7.4	7.6	7.8	8.1	8.4	8.5	-1.0	-0.2	0.7	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.3	70.6	72.1	73.6	74.4	0.9	1.9	0.5	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.5	4.9	5.3	5.7	0.6	0.7	1.5	1.6
Aviation	5.3	6.1	7.9	8.6	9.7	10.9	12.1	13.6	15.1	4.1	2.1	2.3	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.1	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.3	42.8	43.6	44.8	45.7	1.7	0.0	0.3	0.5
Trucks	26.3	24.5	32.0	31.9	32.1	32.2	32.4	32.9	33.3	2.0	0.0	0.1	0.3
Rail	8.4	9.6	10.1	9.7	10.1	10.4	11.0	11.7	12.2	1.9	-0.1	0.9	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5021	4954	4883	4844	4873	0.3	1.2	-0.3	0.0
Public road transport	97	84	55	57	58	57	57	56	55	-5.4	0.4	-0.2	-0.3
Private cars and motorcycles	1840	1867	1904	2137	2280	2236	2209	2152	2163	0.3	1.8	-0.3	-0.2
Trucks	1699	1557	1715	1764	1766	1691	1624	1615	1626	0.1	0.3	-0.8	0.0
Rail	99	102	94	97	101	104	102	99	73	-0.6	0.8	0.1	-3.3
Aviation	459	408	505	565	624	677	703	734	769	1.0	2.1	1.2	0.9
Inland navigation	116	134	170	195	191	190	189	188	187	3.9	1.2	-0.1	-0.1

Source: PRIMES

Finland: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20632	23051	24932	1164	2478	3661	6.0	12.0	17.2
Solids	1581	1207	2129	1584	1456	710	-95	-297	-995	-5.7	-16.9	-58.4
Oil	0	37	205	0	0	0	0	0	0	-342.3	153.7	-149.8
Natural gas	0	0	0	0	0	0	0	0	0	0.0	0.0	5.6
Nuclear	5006	5799	6003	8994	8994	8214	0	0	433	0.0	0.0	5.6
Renewable energy sources	5273	7959	8124	10054	12601	16008	1259	2775	4222	14.3	28.2	35.8
Hydro	934	1261	1185	1218	1221	1234	24	19	0	2.0	1.6	0.0
Biomass & Waste	4338	6691	6924	8707	11154	14174	1172	2621	3785	15.6	30.7	36.4
Wind	0	7	15	94	143	464	37	71	336	66.1	98.2	261.9
Solar and others	0	1	1	35	83	136	26	64	101	298.0	331.0	297.1
Geothermal	0	0	0	0	0	0	0	0	0	74.2	141.3	220.1
Net Imports	18031	18512	19163	16157	13182	10616	-3056	-5358	-6715	-15.9	-28.9	-38.7
Solids	4378	3533	3338	3125	2100	1062	-1029	-1925	-2514	-24.8	-47.8	-70.3
Oil	10477	10535	10844	9024	8351	7687	-626	-965	-1371	-6.5	-10.4	-15.1
- Crude oil and Feedstocks	8890	12115	11017	11145	10721	10288	-379	-600	-875	-3.3	-5.3	-7.8
- Oil products	1587	-1580	-173	-2121	-2370	-2601	-247	-365	-496	13.2	18.2	23.6
Natural gas	2261	3422	3598	2936	2236	1401	-1387	-2438	-2787	-32.1	-52.2	-66.5
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	36287	35730	35042	-1892	-2879	-3054	-5.0	-7.5	-8.0
Solids	5327	5087	4925	4709	3556	1772	-1125	-2222	-3510	-19.3	-38.5	-66.4
Oil	9939	9195	10482	8522	7849	7181	-626	-964	-1370	-6.8	-10.9	-16.0
Natural gas	2261	3422	3598	2936	2236	1401	-1387	-2438	-2787	-32.1	-52.2	-66.5
Nuclear	5006	5799	6003	8994	8994	8214	0	0	433	0.0	0.0	5.6
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	9956	12476	15848	1246	2745	4180	14.3	28.2	35.8
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	13.0	10.0	5.1	-2.3	-5.0	-8.8			
Oil	34.3	28.3	30.4	23.5	22.0	20.5	-0.5	-0.9	-2.0			
Natural gas	7.8	10.5	10.4	8.1	6.3	4.0	-3.2	-5.8	-7.0			
Nuclear	17.3	17.9	17.4	24.8	25.2	23.4	1.2	1.9	3.0			
Renewable energy forms	19.0	24.5	23.3	27.4	34.9	45.2	4.6	9.7	14.6			
Gross Electricity Generation in GWh_e	54367	69976	70536	83336	92783	107541	-6209	-8222	-727	-6.9	-8.1	-0.7
Self consumption and grid losses	5547	5449	5710	7174	8126	10531	-538	-555	-113	-7.0	-6.4	-1.1
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6162	6937	8185	-836	-1448	-1387	-11.9	-17.3	-14.5
Solids	3216	3168	2974	2852	1814	337	-1143	-2080	-3243	-28.6	-53.4	-90.6
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	-100.0	-100.0
Gas (including derived gases)	1015	2106	2384	1348	892	415	-885	-1841	-2072	-39.6	-67.4	-83.3
Biomass & Waste	926	1518	2073	1962	4231	7433	1191	2473	3928	154.5	140.6	112.1
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Fuel Input to other conversion processes	12055	15309	15473	15042	14570	13516	-888	-1146	-1688	-5.6	-7.3	-11.1
Refineries	10689	13200	13194	11585	11167	10736	-380	-600	-875	-3.2	-5.1	-7.5
Biofuels and hydrogen production	0	0	0	247	378	485	22	67	34	10.0	21.5	7.6
District heating	573	803	954	1988	1923	1419	-579	-602	-782	-22.6	-23.8	-35.5
Derived gases, cokeries etc.	793	1306	1325	1223	1102	876	49	-11	-66	4.1	-1.0	-7.0
Energy Branch Consumption	781	1285	1228	1186	1202	1284	-76	-93	-108	-6.0	-7.2	-7.8
Non-Energy Uses	1441	896	1095	1212	1233	1258	0	0	0	0.0	0.0	0.0
Final Energy Demand	21727	24159	25121	25846	25937	25142	-1426	-2245	-2777	-5.2	-8.1	-9.9
by sector												
Industry	9618	12053	11988	12648	12535	12761	-290	-540	-401	-2.2	-4.1	-3.0
- energy intensive industries	7351	9456	9067	9392	9245	9374	-199	-407	-300	-2.1	-4.2	-3.1
- other industrial sectors	2267	2596	2921	3256	3289	3387	-91	-133	-101	-2.7	-3.9	-2.9
Residential	5321	4536	4846	4832	4581	4306	-423	-748	-1071	-8.0	-14.0	-19.9
Tertiary	2479	3127	3471	3413	3398	3202	-433	-507	-759	-11.2	-13.0	-19.2
Transport	4309	4443	4816	4954	4883	4873	-281	-449	-546	-5.4	-8.4	-10.1
by fuel												
Solids	1621	1099	966	993	950	820	-18	-112	-213	-1.7	-10.5	-20.6
Oil	8100	7507	7890	6676	6200	5775	-534	-797	-1124	-7.4	-11.4	-16.3
Gas	1501	1328	1156	1440	1016	671	-115	-300	-322	-7.4	-22.8	-32.4
Electricity	5068	6487	6959	7644	7826	8898	-484	-654	-45	-6.0	-7.7	-0.5
Heat (from CHP and District Heating)	1915	2780	3597	3842	3962	3610	-449	-742	-1182	-10.5	-15.8	-24.7
Renewable energy forms	3522	4957	4552	5251	5441	5367	174	361	110	3.4	7.1	2.1
Other	0	0	0	1	1	2	0	0	-1	5.3	4.7	-28.8
RES in Gross Final Energy Consumption ^(A)		7701	7458	9262	11547	14356	1024	2495	3651	12.4	27.6	34.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	59.7	50.4	37.1	-11.5	-20.1	-27.3	-16.2	-28.5	-42.4
CO₂ Emissions (energy related)	54.4	53.8	54.1	46.9	38.8	27.7	-9.6	-17.4	-24.6	-17.0	-31.0	-47.0
Power generation/District heating	17.8	20.2	20.5	16.9	11.6	3.9	-7.5	-13.6	-18.8	-30.9	-54.0	-82.8
Energy Branch	1.4	2.7	2.5	2.1	1.9	1.4	-0.2	-0.2	-0.7	-7.0	-11.4	-34.4
Industry	14.1	12.5	11.8	10.2	8.5	6.4	-0.3	-1.2	-1.7	-3.0	-12.0	-20.9
Residential	6.4	2.3	2.1	1.3	1.0	0.7	-0.3	-0.4	-0.8	-19.7	-26.9	-52.6
Tertiary	2.1	3.0	3.0	2.5	2.2	2.2	-0.4	-0.5	-0.8	-14.1	-17.9	-25.5
Transport	12.7	13.1	14.2	14.0	13.4	13.1	-0.9	-1.5	-1.8	-6.1	-10.2	-12.1
CO₂ Emissions (non energy related)	3.9	3.9	3.9	3.8	3.6	3.2	0.0	-0.3	-0.5	-1.2	-6.7	-12.5
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.0	8.1	6.2	-1.9	-2.5	-2.3	-17.2	-23.4	-26.8
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	82.3	69.5	51.1	-15.9	-27.7	-37.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	179.1	161.5	137.5	-9.3	-13.0	-12.0	-5.0	-7.5	-8.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.29	1.08	0.79	-0.19	-0.37	-0.58	-12.7	-25.4	-42.4
Import Dependency %	61.1	55.8	54.7	43.9	36.4	29.9	-5.8	-11.0	-15.0			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.4	24.4	31.0	0.7	1.0	2.5	3.4	4.2	8.8
as % of GDP		10.1	10.5	10.6	11.0	12.2	0.3	0.4	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.7	1.0	2.6						
as % of GDP				0.36	0.47	1.01						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	66.0	60.1	53.9	-1.5	-2.6	-1.7	-2.2	-4.1	-3.0
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	73.2	64.3	53.3	-6.4	-10.5	-13.2	-8.0	-14.0	-19.9
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	77.9	70.6	56.9	-9.9	-10.5	-13.5	-11.2	-13.0	-19.2
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.1	31.0	29.3	-0.7	-1.0	-1.4	-2.0	-3.3	-4.6
Freight transport (toe/Mtkm)	50.4	42.6	44.5	41.8	39.5	37.1	-2.4	-4.2	-4.5	-5.5	-9.6	-10.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.13	0.08	0.03	-0.04	-0.08	-0.11	-24.7	-48.4	-81.1
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.08	0.99	0.89	-0.01	-0.05	-0.09	-1.3	-4.6	-9.3
Industry	1.46	1.03	0.98	0.81	0.68	0.50	-0.01	-0.06	-0.11	-0.7	-8.2	-18.4
Residential	1.21	0.52	0.43	0.27	0.22	0.16	-0.04	-0.04	-0.11	-12.7	-15.0	-40.8
Tertiary	0.84	0.96	0.86	0.72	0.66	0.70	-0.02	-0.04	-0.06	-3.2	-5.7	-7.8
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.06	-0.06	-0.8	-2.0	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	34.6	43.8	54.8	5.5	12.2	17.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.2	9.5	0.7	1.8	1.7			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	83336	92783	107541	107541	-6209	-8222	-727	-6.9	-8.1	-0.7
Nuclear energy	22475	23267	36243	36243	33794	33794	0	0	1973	0.0	0.0	6.2
Solids	10359	9486	9296	7417	2592	2592	-5206	-7763	-12094	-35.9	-51.1	-82.4
Oil (including refinery gas)	444	419	350	267	0	0	-83	-62	-99	-19.2	-18.7	-99.7
Gas (including derived gases)	10776	11400	7307	5350	5260	5260	-4972	-11207	-11524	-40.5	-67.7	-68.7
Biomass-waste	11185	12010	14874	27629	46116	46116	3342	9767	17113	29.0	54.7	59.0
Hydro (pumping excluded)	14657	13782	14162	14199	14348	14348	276	220	0	2.0	1.6	0.0
Wind	78	170	1093	1659	5396	5396	435	822	3905	66.1	98.2	261.9
Solar	2	3	11	18	35	35	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	17044	17512	18319	18926	22581	22581	-286	-1213	1166	-1.5	-6.0	5.4
<u>Nuclear energy</u>	2687	2690	4207	4207	3918	3918	0	0	228	0.0	0.0	6.2
<u>Renewable energy</u>	3057	3104	3533	3825	5212	5212	181	378	1456	5.4	11.0	38.8
Hydro (pumping excluded)	3016	3018	3112	3137	3171	3171	40	40	40	1.3	1.3	1.3
Wind	38	82	407	665	1996	1996	141	338	1416	52.8	103.6	244.1
Solar	3	4	14	23	44	44	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10578	10893	13450	13450	-467	-1592	-518	-4.2	-12.8	-3.7
of which cogeneration units	7129	7583	6841	8485	10050	10050	-372	-572	-639	-5.2	-6.3	-6.0
Solids fired	5539	5687	4395	2699	1373	1373	-652	-1144	-1559	-12.9	-29.8	-53.2
Gas fired	2479	2444	2623	2403	3892	3892	-368	-2015	-1651	-12.3	-45.6	-29.8
Oil fired	1341	1340	590	533	176	176	-110	-134	-189	-15.7	-20.0	-51.8
Biomass-waste fired	1942	2247	2970	5258	8010	8010	664	1701	2880	28.8	47.8	56.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.7	53.3	51.4	51.4	-2.9	-1.4	-3.2			
Efficiency of gross thermal power generation (%)	40.7	38.0	44.4	50.4	56.7	56.7	-3.2	-0.8	2.3			
% of gross electricity from CHP	44.9	45.7	36.2	43.2	49.0	49.0	-2.5	-3.4	-4.4			
Carbon free gross electricity generation (%)	69.2	69.8	79.7	86.0	92.7	92.7	10.0	17.7	21.9			
- nuclear	32.1	33.0	43.5	39.1	31.4	31.4	3.0	3.2	2.0			
- renewable energy forms	37.0	36.8	36.2	46.9	61.3	61.3	7.0	14.5	19.8			
Transport sector												
Passenger transport activity (Gpkm)												
	74.8	81.0	88.2	98.5	101.9	108.5	-1.8	-2.6	-3.4	-1.8	-2.5	-3.0
Public road transport	8.5	7.7	7.4	7.8	8.1	8.5	0.2	0.2	0.3	2.1	3.0	3.5
Private cars and motorcycles	51.9	56.6	63.4	70.6	72.1	74.4	-1.6	-2.4	-3.0	-2.2	-3.2	-3.9
Rail	3.7	3.9	4.0	4.5	4.9	5.7	0.1	0.1	0.2	2.3	2.9	4.4
Aviation	5.3	7.9	8.6	10.9	12.1	15.1	-0.4	-0.6	-0.8	-3.4	-4.7	-5.2
Inland navigation	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.9	-0.8	-0.8
Freight transport activity (Gtkm)												
	35.8	42.4	41.8	42.8	43.6	45.7	-1.2	-1.7	-2.0	-2.7	-3.7	-4.2
Trucks	26.3	32.0	31.9	32.2	32.4	33.3	-1.6	-2.2	-2.7	-4.7	-6.4	-7.6
Rail	8.4	10.1	9.7	10.4	11.0	12.2	0.4	0.5	0.7	4.0	5.2	6.3
Inland navigation	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.3
Energy demand in transport (ktoe)												
	4309	4443	4816	4954	4883	4873	-281	-449	-546	-5.4	-8.4	-10.1
Public road transport	97	55	57	57	57	55	0	-1	-4	-0.6	-2.3	-6.8
Private cars and motorcycles	1840	1904	2137	2236	2209	2163	-92	-137	-179	-3.9	-5.9	-7.6
Trucks	1699	1715	1764	1691	1624	1626	-161	-259	-286	-8.7	-13.7	-15.0
Rail	99	94	97	104	102	73	2	0	-2	2.2	0.3	-3.0
Aviation	459	505	565	677	703	769	-28	-48	-68	-4.0	-6.4	-8.2
Inland navigation	116	170	195	190	189	187	-3	-4	-6	-1.4	-2.1	-3.4

Source: PRIMES

France: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	110428	126844	131806	135848	139133	149930	156081	160771	159622	1.8	0.5	1.2	0.2	
Solids	7625	5359	2267	383	393	216	11	0	0	-11.4	-16.1	-29.9	-29.8	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	117918	2.8	0.9	0.5	-0.4	
Renewable energy sources	15778	17903	18065	16695	22150	27440	33673	37639	41703	1.4	2.1	4.3	2.2	
Hydro	4635	6322	5822	4491	5873	5845	5891	6074	6110	2.3	0.1	0.0	0.4	
Biomass & Waste	11014	11434	12087	11968	15116	18464	23048	25207	26231	0.9	2.3	4.3	1.3	
Wind	0	0	7	82	762	1480	2263	3768	6532		60.7	11.5	11.2	
Solar and others	19	15	26	24	219	1374	2212	2354	2638	2.8	23.9	26.0	1.8	
Geothermal	110	132	124	130	180	278	259	236	192	1.2	3.8	3.7	-2.9	
Net Imports	120027	116049	133463	143600	138029	126986	120751	116907	111191	1.1	0.3	-1.3	-0.8	
Solids	13004	9010	13201	13660	13270	7095	6794	6809	5743	0.2	0.1	-6.5	-1.7	
Oil	86558	85551	90452	94460	92385	90424	86885	85059	83343	0.4	0.2	-0.6	-0.4	
- Crude oil and Feedstocks	76007	78951	84375	84707	84831	83896	82208	81309	80459	1.0	0.1	-0.3	-0.2	
- Oil products	10551	6600	6077	9753	7553	6528	4677	3750	2884	-5.4	2.2	-4.7	-4.7	
Natural gas	24371	27493	35778	40720	37675	34653	31456	28105	24197	3.9	0.5	-1.8	-2.6	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274251	273869	273673	274397	267413	1.3	0.6	0.0	-0.2	
Solids	19955	15287	15240	14428	13662	7310	6805	6809	5744	-2.7	-1.1	-6.7	-1.7	
Oil	87673	85826	88790	92086	89474	87377	83726	81779	79943	0.1	0.1	-0.7	-0.5	
Natural gas	26032	29577	35766	40996	37675	34653	31456	28105	24197	3.2	0.5	-1.8	-2.6	
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	117918	2.8	0.9	0.5	-0.4	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	22080	27355	33567	37523	41582	1.4	2.0	4.3	2.2	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	5.0	2.7	2.5	2.5	2.1					
Oil	38.7	35.8	34.3	33.4	32.6	31.9	30.6	29.8	29.9					
Natural gas	11.5	12.3	13.8	14.9	13.7	12.7	11.5	10.2	9.0					
Nuclear	35.8	40.6	41.4	42.3	42.5	44.6	44.7	44.9	44.1					
Renewable energy forms	7.0	7.5	7.0	6.0	8.1	10.0	12.3	13.7	15.5					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	586389	599871	626773	678254	725304	2.6	0.9	0.7	1.5	
Self consumption and grid losses	48047	53203	56438	59733	57987	57992	60743	71919	82239	1.6	0.3	0.5	3.1	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	10489	5448	7662	10889	11251	1.7	-2.2	-3.1	3.9	
Solids	7334	5441	6231	6402	6171	282	439	744	248	-1.6	-0.1	-23.2	-5.6	
Oil (including refinery gas)	1921	605	1272	1653	0	0	0	13	1	-4.0				
Gas (including derived gases)	1423	1216	4062	6291	2561	1590	842	924	899	11.1	-4.5	-10.5	0.7	
Biomass & Waste	439	1224	1565	1640	1757	3575	6381	9208	10104	13.6	1.2	13.8	4.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	95376	95557	94538	93767	92906	0.8	-0.2	-0.1	-0.2	
Refineries	79634	83057	90084	87693	86416	85529	83881	83032	82224	1.2	-0.4	-0.3	-0.2	
Biofuels and hydrogen production	0	155	328	434	2233	3614	5152	5654	6001		21.1	8.7	1.5	
District heating	1019	605	312	273	262	259	256	223	204	-11.1	-1.7	-0.2	-2.2	
Derived gases, cokeries etc.	8896	7079	6668	5837	6465	6156	5250	4858	4477	-2.8	-0.3	-2.1	-1.6	
Energy Branch Consumption	9230	10345	10689	10095	9245	7409	7020	7275	7581	1.5	-1.4	-2.7	0.8	
Non-Energy Uses	13272	16593	15672	15786	16411	17110	17690	18243	18734	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	15998	160256	158630	156870	154814	1.1	0.5	-0.1	-0.2	
by sector														
Industry	36205	36949	36579	35580	36265	37237	37373	37294	37525	0.1	-0.1	0.3	0.0	
- energy intensive industries	24279	21310	22143	20671	20793	20942	20616	20264	20107	-0.9	-0.6	-0.1	-0.2	
- other industrial sectors	11926	15639	14436	14909	15472	16295	16757	17030	17418	1.9	0.7	0.8	0.4	
Residential	36375	36198	42516	45491	46033	45358	44330	42703	40926	1.6	0.8	-0.4	-0.8	
Tertiary	21726	24164	21620	25696	26581	25394	24699	24064	23202	0.0	2.1	-0.7	-0.6	
Transport	41908	44125	51599	49756	51119	52266	52228	52808	53161	2.1	-0.1	0.2	0.2	
by fuel														
Solids	9017	6905	5775	4685	4061	3770	3696	3624	3233	-4.4	-3.5	-0.9	-1.3	
Oil	67377	67964	71964	71245	72028	69833	66004	63950	61928	0.7	0.0	-0.9	-0.6	
Gas	23400	27098	30880	33902	32905	30495	27865	24449	21184	2.8	0.6	-1.6	-2.7	
Electricity	25960	29456	33096	36330	37799	40430	43348	48141	52272	2.5	1.3	1.4	1.9	
Heat (from CHP and District Heating)	774	459	237	207	230	233	242	227	213	-11.1	-0.3	0.5	-1.3	
Renewable energy forms	9686	9553	10364	10153	12972	15486	17460	16461	15967	0.7	2.3	3.0	-0.9	
Other	0	0	0	0	4	8	15	17	17			14.5	1.7	
RES in Gross Final Energy Consumption (A)			16928	15420	21175	26028	31697	35254	39018		2.3	4.1	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	529.8	479.9	453.2	429.2	403.4	-0.1	-0.6	-1.6	-1.2	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	358.7	318.6	297.2	282.3	262.3	0.6	-0.4	-1.9	-1.2	
Power generation/District heating	40.1	27.6	39.6	46.7	31.7	6.2	5.0	6.4	4.3	-0.1	-2.2	-16.8	-1.6	
Energy Branch	17.1	19.1	19.6	16.6	14.1	13.2	11.4	9.8	7.4	1.4	-3.2	-2.1	-4.3	
Industry	79.1	76.1	70.1	66.0	67.0	66.0	62.0	60.4	56.9	-1.2	-0.5	-0.8	-0.9	
Residential	55.2	52.2	61.5	64.8	61.6	54.4	48.2	38.6	30.2	1.1	0.0	-2.4	-4.6	
Tertiary	39.2	40.9	32.1	39.2	38.9	33.6	29.4	25.9	22.8	-2.0	2.0	-2.8	-2.5	
Transport	122.1	129.0	150.6	145.2	145.3	145.3	141.1	141.2	140.8	2.1	-0.4	-0.3	0.0	
CO ₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.8	30.0	29.3	28.6	28.1	-1.8	0.0	-0.5	-0.4	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	131.3	126.7	118.3	113.0	-1.1	-1.1	-1.0	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	93.8	85.0	80.2	76.0	71.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										France: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.7	125.7	112.4	102.3	92.0	-0.7	-1.3	-2.4	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.31	1.16	1.09	1.03	0.98	-0.8	-1.0	-1.8	-1.0
Import Dependency %	52.4	47.9	50.9	51.6	49.8	45.9	43.6	42.1	41.1				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	164.3	184.9	204.3	218.7	234.6		1.6	2.2	1.4
as % of GDP			8.9	8.6	8.5	8.5	8.4	8.2	8.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.0	75.1	67.3	60.9	56.6	-1.5	-1.8	-2.1	-1.7
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.1	78.4	69.9	62.1	55.5	-0.1	-1.3	-2.3	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	85.4	74.3	65.6	58.2	-2.3	0.1	-3.1	-2.4
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.4	27.5	25.9	24.1	-0.2	-1.8	-1.1	-1.3
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	72.6	69.1	66.5	64.4	0.8	0.7	-0.8	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.05	0.01	0.01	0.01	0.01	-2.4	-3.1		
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.96	1.87	1.77	1.70	1.62	-0.5	-0.5	-1.0	-0.9
Industry	2.18	2.06	1.92	1.85	1.85	1.77	1.66	1.62	1.52	-1.3	-0.4	-1.1	-0.9
Residential	1.52	1.44	1.45	1.43	1.34	1.20	1.09	0.90	0.74	-0.5	-0.8	-2.0	-3.8
Tertiary	1.81	1.69	1.48	1.53	1.46	1.32	1.19	1.08	0.98	-2.0	-0.1	-2.1	-1.9
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.70	2.67	2.65	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	12.8	15.8	19.3	21.7	24.2				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.3	6.8	9.8	10.7	11.4				
Gross Electricity generation by source (in GWh)													
			536004	570542	586389	599871	626773	678254	725304		0.9	0.7	1.5
Nuclear energy			415087	451448	451980	475395	475869	482785	498828		0.9	0.5	0.5
Solids			25644	27018	26211	1702	2598	4328	1414		0.2	-20.6	-5.9
Oil (including refinery gas)			6896	7042	1980	1559	1517	716	479		-11.7	-2.6	-10.9
Gas (including derived gases)			16214	26341	21622	19775	18073	24578	21175		2.9	-1.8	1.6
Biomass-waste			4381	5496	6927	15711	32454	49611	54283		4.7	16.7	5.3
Hydro (pumping excluded)			67698	52224	68287	67959	68504	70630	71050		0.1	0.0	0.4
Wind			77	959	8863	17208	26317	43809	75956		60.7	11.5	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1262	1499	1627			10.6	2.6
Net Generation Capacity in MW_e			111945	113154	114663	118481	122048	129767	151545		0.2	0.6	2.2
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	56219	57919		0.0	0.3	-1.1
<u>Renewable energy</u>			25092	26102	29192	32539	36344	43309	55574		1.5	2.2	4.3
Hydro (pumping excluded)			25016	25313	25366	25420	25484	25709	25793		0.1	0.0	0.1
Wind			66	756	3518	6762	9998	16493	28394		48.8	11.0	11.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	655	778	844			10.6	2.6
<u>Thermal power</u>			24306	24482	22660	21375	21017	30238	38052		-0.7	-0.7	6.1
of which cogeneration units			4205	5546	4841	6095	8450	12942	14191		1.4	5.7	5.3
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	9336	8720	8522	14918	22770		7.8	-0.9	10.3
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	1706	3515	6562	9985	11442		7.1	14.4	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	56.0	55.7	56.5	57.5	52.5				
Efficiency of gross thermal power generation (%)			34.8	35.5	46.5	61.2	61.3	62.6	59.1				
% of gross electricity from CHP			3.1	2.9	4.8	6.1	8.3	10.9	10.4				
Carbon free gross electricity generation (%)			90.9	89.4	91.5	96.2	96.5	95.6	96.8				
- nuclear			77.4	79.1	77.1	79.2	75.9	71.2	68.8				
- renewable energy forms			13.5	10.3	14.4	16.9	20.5	24.5	28.0				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	994.2	1052.2	1109.0	1173.4	1237.8	1.7	1.2	1.1	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	50.2	54.4	58.3	62.1	0.3	1.0	1.5	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	810.6	836.7	869.1	898.7	1.7	0.9	0.7	0.7
Rail	73.9	64.6	80.7	89.7	99.5	113.4	126.4	138.6	152.1	0.9	2.1	2.4	1.9
Aviation	26.1	34.1	46.0	53.1	62.0	74.2	87.6	103.2	120.5	5.8	3.0	3.5	3.2
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.2	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	273.4	293.6	313.7	337.5	362.3	2.4	0.2	1.4	1.5
Trucks	153.5	178.2	204.0	205.3	228.6	247.9	265.7	286.5	307.2	2.9	1.1	1.5	1.5
Rail	50.7	48.1	55.3	40.7	35.9	36.8	38.9	41.8	45.8	0.9	-4.2	0.8	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.9	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	51119	52266	52228	52808	53161	2.1	-0.1	0.2	0.2
Public road transport	384	403	417	424	424	436	448	435	422	0.8	0.2	0.5	-0.6
Private cars and motorcycles	23233	22171	24945	23052	22732	22436	21806	21349	20350	0.7	-0.9	-0.4	-0.7
Trucks	12587	14909	17407	18419	19446	20278	20670	21514	22515	3.3	1.1	0.6	0.9
Rail	1150	1220	1373	1264	1172	1174	1127	1052	945	1.8	-1.6	-0.4	-1.7
Aviation	3839	4690	6683	6291	7047	7650	7877	8148	8613	5.7	0.5	1.1	0.9
Inland navigation	714	731	775	305	297	293	301	310	317	0.8	-9.1	0.1	0.5

Source: PRIMES

France: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	149930	156081	159622	5681	8813	17818	3.9	6.0	12.6
Solids	7625	2267	383	216	11	0	0	-4	-14	0.0	-26.7	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0	-100.0	-158.1	
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	117918	0	0	4733	0.0	0.0	4.2
Renewable energy sources	15778	18065	16695	27440	33673	41703	5681	8817	13099	26.1	35.5	45.8
Hydro	4635	5822	4491	5845	5891	6110	393	324	0	7.2	5.8	0.0
Biomass & Waste	11014	12087	11968	18464	23048	26231	3817	6301	6713	26.1	37.6	34.4
Wind	0	7	82	1480	2263	6532	331	464	4510	28.8	25.8	223.1
Solar and others	19	26	24	1374	2212	2638	996	1607	1816	263.9	265.7	221.2
Geothermal	110	124	130	278	259	192	143	121	59	106.3	88.1	44.4
Net Imports	120027	133463	143600	126986	120751	111191	-20950	-29211	-38389	-14.2	-19.5	-25.7
Solids	13004	13201	13660	7095	6794	5743	-6855	-6511	-1719	-49.1	-48.9	-23.0
Oil	86558	90452	94460	90424	86885	83343	-6402	-10640	-16371	-6.6	-10.9	-16.4
- Crude oil and Feedstocks	76007	84375	84707	83896	82208	80459	-3954	-6240	-9866	-4.5	-7.1	-10.9
- Oil products	10551	6077	9753	6528	4677	2884	-2448	-4400	-6505	-27.3	-48.5	-69.3
Natural gas	24371	35778	40720	34653	31456	24197	-7675	-12031	-20268	-18.1	-27.7	-45.6
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	273869	273673	267413	-15267	-20393	-20562	-5.3	-6.9	-7.1
Solids	19955	15240	14428	7310	6805	5744	-6855	-6515	-1733	-48.4	-48.9	-23.2
Oil	87673	88790	92086	87377	83726	79943	-6400	-10635	-16362	-6.8	-11.3	-17.0
Natural gas	26032	35766	40996	34653	31456	24197	-7675	-12031	-20268	-18.1	-27.7	-45.6
Nuclear	81018	107093	116474	122274	122397	117918	0	0	4733	0.0	0.0	4.2
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	27355	33567	41582	5663	8788	13068	26.1	35.5	45.8
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	2.7	2.5	2.1	-2.2	-2.0	-0.4			
Oil	38.7	34.3	33.4	31.9	30.6	29.9	-0.5	-1.5	-3.5			
Natural gas	11.5	13.8	14.9	12.7	11.5	9.0	-2.0	-3.3	-6.4			
Nuclear	35.8	41.4	42.3	44.6	44.7	44.1	2.4	3.1	4.8			
Renewable energy forms	7.0	7.0	6.0	10.0	12.3	15.5	2.5	3.8	5.6			
Gross Electricity Generation in GWh_e	416667	536004	570542	599871	626773	725304	-25178	-10477	93730	-4.0	-1.6	14.8
Self consumption and grid losses	48047	56438	59733	57992	60743	82239	-5741	-4112	13004	-9.0	-6.3	18.8
Fuel Inputs to Thermal Power Generation	11117	13129	15985	5448	7662	11251	-7072	-5471	2672	-56.5	-41.7	31.1
Solids	7334	6231	6402	282	439	248	-6594	-6002	-1040	-95.9	-93.2	-80.8
Oil (including refinery gas)	1921	1272	1653	0	0	1	0	-13	-2	-100.0	-77.2	
Gas (including derived gases)	1423	4062	6291	1590	842	899	-2879	-3469	-2196	-64.4	-80.5	-71.0
Biomass & Waste	439	1565	1640	3575	6381	10104	2400	4012	5910	204.3	169.4	140.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	95557	94538	92906	-3633	-5559	-9991	-3.7	-5.6	-9.7
Refineries	79634	90084	87693	85529	83881	82224	-3954	-6240	-9865	-4.4	-6.9	-10.7
Biofuels and hydrogen production	0	328	434	3614	5152	6001	376	976	388	11.6	23.4	6.9
District heating	1019	312	273	259	256	204	-32	-48	-108	-11.0	-15.7	-34.6
Derived gases, cokeries etc.	8896	6668	5837	6156	5250	4477	-23	-248	-405	-0.4	-4.5	-8.3
Energy Branch Consumption	9230	10689	10095	7409	7020	7581	-613	-722	-184	-7.6	-9.3	-2.4
Non-Energy Uses	13272	15672	15786	17110	17690	18734	0	1	3	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	160256	158630	154814	-10243	-15802	-24620	-6.0	-9.1	-13.7
by sector												
Industry	36205	36579	35580	37237	37373	37525	-494	-1274	-2268	-1.3	-3.3	-5.7
- energy intensive industries	24279	22143	20671	20942	20616	20107	-177	-597	-1043	-0.8	-2.8	-4.9
- other industrial sectors	11926	14436	14909	16295	16757	17418	-317	-677	-1225	-1.9	-3.9	-6.6
Residential	36375	42516	45491	45358	44330	40926	-2678	-3907	-7398	-5.6	-8.1	-15.3
Tertiary	21726	21620	25696	25394	24699	23202	-4145	-5488	-7359	-14.0	-18.2	-24.1
Transport	41908	51599	49756	52266	52228	53161	-2926	-5132	-7595	-5.3	-8.9	-12.5
by fuel												
Solids	9017	5775	4685	3770	3696	3233	-274	-456	-581	-6.8	-11.0	-15.2
Oil	67377	71964	71245	69833	66004	61928	-6206	-10343	-15243	-8.2	-13.5	-19.8
Gas	23400	30880	33902	30495	27865	21184	-4584	-7996	-16888	-13.1	-22.3	-44.4
Electricity	25960	33096	36330	40430	43348	52272	-1652	-512	6972	-3.9	-1.2	15.4
Heat (from CHP and District Heating)	774	237	207	233	242	213	-29	-35	-80	-11.1	-12.7	-27.4
Renewable energy forms	9686	10364	10153	15486	17460	15967	2502	3540	1203	19.3	25.4	8.1
Other	0	0	0	8	15	17	1	1	-1	11.7	4.1	-4.6
RES in Gross Final Energy Consumption ^(A)	16928	15420	26028	31697	39018	5249	8365	12109	25.3	35.9	45.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	479.9	453.2	403.4	-75.8	-102.5	-119.8	-13.6	-18.4	-22.9
CO₂ Emissions (energy related)	352.9	373.5	378.4	318.6	297.2	262.3	-64.2	-85.6	-102.9	-16.8	-22.4	-28.2
Power generation/District heating	40.1	39.6	46.7	6.2	5.0	4.3	-32.7	-31.8	-9.4	-84.1	-86.3	-68.6
Energy Branch	17.1	19.6	16.6	13.2	11.4	7.4	-0.7	-1.7	-5.3	-5.2	-13.1	-41.8
Industry	79.1	70.1	66.0	66.0	62.0	56.9	-3.1	-6.3	-11.5	-4.5	-9.3	-16.8
Residential	55.2	61.5	64.8	54.4	48.2	30.2	-9.4	-15.2	-32.8	-14.8	-24.0	-52.0
Tertiary	39.2	32.1	39.2	33.6	29.4	22.8	-8.1	-11.9	-18.2	-19.5	-28.8	-44.4
Transport	122.1	150.6	145.2	145.3	141.1	140.8	-10.0	-18.6	-25.9	-6.5	-11.7	-15.5
CO ₂ Emissions (non energy related)	36.8	30.7	31.1	30.0	29.3	28.1	-0.3	-1.0	-2.0	-1.1	-3.4	-6.6
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	131.3	126.7	113.0	-11.3	-15.8	-14.9	-8.0	-11.1	-11.7
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	85.0	80.2	71.4	-13.4	-18.2	-21.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							France: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	125.7	112.4	92.0	-7.0	-8.4	-7.1	-5.3	-6.9	-7.1
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.16	1.09	0.98	-0.16	-0.22	-0.29	-12.1	-16.6	-22.7
Import Dependency %	52.4	50.9	51.6	45.9	43.6	41.1	-4.8	-6.8	-10.3			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	184.9	204.3	234.6	7.0	9.2	14.1	3.9	4.7	6.4
as % of GDP		8.9	8.6	8.5	8.4	8.1	0.3	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				7.2	9.6	14.5						
as % of GDP				0.33	0.39	0.50						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.1	67.3	56.6	-1.0	-2.3	-3.4	-1.3	-3.3	-5.7
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	78.4	69.9	55.5	-4.6	-6.2	-10.0	-5.6	-8.1	-15.3
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	85.4	74.3	58.2	-13.9	-16.5	-18.5	-14.0	-18.2	-24.1
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.4	27.5	24.1	-0.8	-1.4	-1.7	-2.6	-4.7	-6.7
Freight transport (toe/Mtkm)	65.0	70.2	76.8	72.6	69.1	64.4	-3.4	-6.3	-9.3	-4.5	-8.3	-12.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.01	0.01	0.01	-0.05	-0.05	-0.02	-83.4	-86.1	-72.6
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.87	1.77	1.62	-0.07	-0.14	-0.27	-3.5	-7.2	-14.3
Industry	2.18	1.92	1.85	1.77	1.66	1.52	-0.06	-0.11	-0.20	-3.3	-6.2	-11.7
Residential	1.52	1.45	1.43	1.20	1.09	0.74	-0.13	-0.23	-0.56	-9.7	-17.3	-43.3
Tertiary	1.81	1.48	1.53	1.32	1.19	0.98	-0.09	-0.18	-0.36	-6.3	-13.0	-26.7
Transport	2.91	2.92	2.92	2.78	2.70	2.65	-0.03	-0.08	-0.09	-1.2	-3.0	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	15.8	19.3	24.2	3.9	6.4	9.6			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	6.8	9.8	11.4	1.0	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	415087	451448	475395	475869	498828		0	0	21512	0.0	0.0	4.5
Solids	25644	27018	1702	2598	1414		-30236	-27370	-5915	-94.7	-91.3	-80.7
Oil (including refinery gas)	6896	7042	1559	1517	479		-163	-123	-3004	-9.5	-7.5	-86.2
Gas (including derived gases)	16214	26341	19775	18073	21175		-13286	-13889	-7026	-40.2	-43.5	-24.9
Biomass-waste	4381	5496	15711	32454	54283		10087	20943	34552	179.3	182.0	175.1
Hydro (pumping excluded)	67698	52224	67959	68504	71050		4572	3767	0	7.2	5.8	0.0
Wind	77	959	17208	26317	75956		3848	5396	52447	28.8	25.8	223.1
Solar	6	15	99	181	492		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	1262	1627		0	799	1165	0.0	172.7	251.8
Net Generation Capacity in MW_e	111945	113154	118481	122048	151545		302	3853	36460	0.3	3.3	31.7
<u>Nuclear energy</u>	62547	62570	64567	64687	57919		0	0	2547	0.0	0.0	4.6
<u>Renewable energy</u>	25092	26102	32539	36344	55574		1155	2484	20266	3.7	7.3	57.4
Hydro (pumping excluded)	25016	25313	25420	25484	25793		14	14	16	0.1	0.1	0.1
Wind	66	756	6762	9998	28394		1140	2055	19646	20.3	25.9	224.6
Solar	11	33	117	207	542		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	655	844		0	415	604	0.0	172.7	251.8
<u>Thermal power</u>	24306	24482	21375	21017	38052		-853	1370	13647	-3.8	7.0	55.9
of which cogeneration units	4205	5546	6095	8450	14191		-1402	432	2682	-18.7	5.4	23.3
Solids fired	9912	9150	4039	3774	2454		0	0	0	0.0	0.0	0.0
Gas fired	4408	5210	8720	8522	22770		-2808	-2820	9270	-24.4	-24.9	68.7
Oil fired	9128	8975	5100	2160	1387		0	0	-2795	0.0	0.0	-66.8
Biomass-waste fired	860	1147	3515	6562	11442		1955	4190	7172	125.3	176.7	168.0
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	52.2	54.9	55.7	56.5	52.5		-2.4	-2.7	-7.6			
Efficiency of gross thermal power generation (%)	34.8	35.5	61.2	61.3	59.1		11.5	12.2	0.2			
% of gross electricity from CHP	3.1	2.9	6.1	8.3	10.4		-0.2	1.8	2.3			
Carbon free gross electricity generation (%)	90.9	89.4	96.2	96.5	96.8		6.8	6.4	3.0			
- nuclear	77.4	79.1	79.2	75.9	68.8		3.2	1.2	-6.8			
- renewable energy forms	13.5	10.3	16.9	20.5	28.0		3.6	5.2	9.8			
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1052.2	1109.0	1237.8	-17.8	-27.6	-35.7	-1.7	-2.4	-2.8
Public road transport	41.3	42.4	44.0	50.2	54.4	62.1	1.1	1.6	2.1	2.1	3.0	3.5
Private cars and motorcycles	599.7	713.2	749.5	810.6	836.7	898.7	-19.6	-30.1	-40.3	-2.4	-3.5	-4.3
Rail	73.9	80.7	89.7	113.4	126.4	152.1	3.5	5.3	9.4	3.1	4.4	6.6
Aviation	26.1	46.0	53.1	74.2	87.6	120.5	-2.7	-4.4	-6.9	-3.5	-4.7	-5.4
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-1.1	-1.0	-1.1
Freight transport activity (Gtkm)	211.8	268.4	254.9	293.6	313.7	362.3	-7.4	-11.5	-15.7	-2.5	-3.5	-4.1
Trucks	153.5	204.0	205.3	247.9	265.7	307.2	-9.7	-14.5	-20.1	-3.8	-5.2	-6.1
Rail	50.7	55.3	40.7	36.8	38.9	45.8	2.1	2.9	4.2	6.1	8.0	10.2
Inland navigation	7.6	9.1	8.9	8.9	9.0	9.3	0.1	0.2	0.2	1.4	2.0	2.4
Energy demand in transport (ktoe)	41908	51599	49756	52266	52228	53161	-2926	-5132	-7595	-5.3	-8.9	-12.5
Public road transport	384	417	424	436	448	422	-1	-8	-31	-0.3	-1.8	-6.9
Private cars and motorcycles	23233	24945	23052	22436	21806	20350	-925	-1383	-1525	-4.0	-6.0	-7.0
Trucks	12587	17407	18419	20278	20670	22515	-1594	-2866	-4542	-7.3	-12.2	-16.8
Rail	1150	1373	1264	1174	1127	945	22	19	7	1.9	1.7	0.8
Aviation	3839	6683	6291	7650	7877	8613	-425	-890	-1500	-5.3	-10.1	-14.8
Inland navigation	714	775	305	293	301	317	-2	-4	-5	-0.8	-1.3	-1.4

Source: PRIMES

Germany: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	115714	109084	94414	90322	91782	-3.3	-1.4	-2.0	-0.3	
Solids	125210	78868	59628	56514	42683	39364	33126	37300	36676	-7.2	-3.3	-2.5	1.0	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	22950	29053	39292	43021	46606	5.4	8.0	5.5	1.7	
Hydro	1498	1873	1869	1684	1811	1848	1853	1870	1889	2.2	-0.3	0.2	0.2	
Biomass & Waste	4797	5351	7877	12190	16220	20025	26446	28388	30095	5.1	7.5	5.0	1.3	
Wind	6	147	804	2341	3660	4177	6224	7882	9341	62.9	16.4	5.5	4.1	
Solar and others	11	41	96	365	1021	2602	4368	4497	4931	24.3	26.7	15.6	1.2	
Geothermal	7	9	10	138	239	400	401	384	350	3.4	37.7	5.3	-1.3	
Net Imports	164822	195060	204678	214351	206498	203308	205346	202006	197640	2.2	0.1	-0.1	-0.4	
Solids	2881	10931	21576	26781	31599	36323	41421	41455	41918	22.3	3.9	2.7	0.1	
Oil	120126	130810	125974	122228	109985	105387	101750	99302	95309	0.5	-1.3	-0.8	-0.7	
- Crude oil and Feedstocks	88505	101168	101801	113120	108946	106713	105052	104901	102870	1.4	0.7	-0.4	-0.2	
- Oil products	31621	29643	24173	9108	1039	-1326	-3302	-5599	-7560	-2.7	-27.0			
Natural gas	41747	52904	56865	65734	64378	60660	60812	59815	58962	3.1	1.2	-0.6	-0.3	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319656	309761	297053	289550	286583	-0.4	-0.6	-0.7	-0.4	
Solids	131510	92177	83727	82805	74282	75687	74547	78755	78594	-4.4	-1.2	0.0	0.5	
Oil	124248	133627	129918	123409	110290	105286	101242	96523	92469	0.4	-1.6	-0.9	-0.9	
Natural gas	54976	67298	71853	80856	77878	72660	71812	69815	67462	2.7	0.8	-0.8	-0.6	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	22950	29053	39292	43021	46606	5.4	8.0	5.5	1.7	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.2	24.4	25.1	27.2	27.4					
Oil	35.0	39.5	38.2	35.7	34.5	34.0	34.1	33.3	32.3					
Natural gas	15.5	19.9	21.1	23.4	24.4	23.5	24.2	24.1	23.5					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.4	3.0	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	7.2	9.4	13.2	14.9	16.3					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	584856	588227	587863	629103	682655	0.4	0.3	0.1	1.5	
Self consumption and grid losses	65998	62673	74099	72965	66991	66833	66515	74942	81569	1.2	-1.0	-0.1	2.1	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72546	75281	81947	91283	94341	-0.9	-1.6	1.2	1.4	
Solids	75843	69147	68066	66172	57938	59897	59787	64761	65531	-1.1	-1.6	0.3	0.9	
Oil (including refinery gas)	2871	2083	1108	2038	198	70	114	111	50	-9.1	-15.8	-5.3	-7.9	
Gas (including derived gases)	12676	11982	12906	19233	10367	10311	12257	13723	14037	0.2	-2.2	1.7	1.4	
Biomass & Waste	1824	2665	3174	5102	4010	4960	9737	12628	14660	5.7	2.4	9.3	4.2	
Geothermal heat	0	0	0	0	33	42	51	60	63			4.6	2.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	140427	138056	136130	131801	128760	-1.8	0.3	-0.3	-0.6	
Refineries	106658	116715	119856	127082	119338	116659	114306	111523	109021	1.2	0.0	-0.4	-0.5	
Biofuels and hydrogen production	0	31	222	1942	4309	6033	7924	7734	7832		34.5	6.3	-0.1	
District heating	6389	3638	1435	873	3291	2678	2380	1934	2035	-13.9	8.7	-3.2	-1.6	
Derived gases, cokeries etc.	51565	19819	15423	14625	13489	12686	11520	10609	9872	-11.4	-1.3	-1.6	-1.5	
Energy Branch Consumption	15384	14906	14242	15144	13262	12473	11623	11471	11322	-0.8	-0.7	-1.3	-0.3	
Non-Energy Uses	23249	22912	25272	24779	24685	24697	24631	24206	23794	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	223379	220163	215010	217741	213586	210683	205669	202933	-0.4	-0.1	-0.3	-0.4	
by sector														
Industry	72116	61981	59715	56706	57105	55632	53115	52335	52213	-1.9	-0.4	-0.7	-0.2	
- energy intensive industries	49422	42778	40359	38652	38661	37592	35464	34389	33827	-2.0	-0.4	-0.9	-0.5	
- other industrial sectors	22693	19203	19356	18053	18444	18040	17651	17946	18386	-1.6	-0.5	-0.4	0.4	
Residential	58400	62212	61905	65931	65885	64033	64632	62834	62006	0.6	0.6	-0.2	-0.4	
Tertiary	39361	35275	32547	33416	32034	30650	29942	29210	28358	-1.9	-0.2	-0.7	-0.5	
Transport	58494	62910	65997	61958	62718	63271	62994	61290	60355	1.2	-0.5	0.0	-0.4	
by fuel														
Solids	38693	14917	10951	9639	9991	9785	9274	8894	8260	-11.9	-0.9	-0.7	-1.2	
Oil	96422	104474	98052	87411	80538	76004	71836	68190	65469	0.2	-1.9	-1.1	-0.9	
Gas	42724	52595	58030	61814	64069	60305	58130	54980	51677	3.1	1.0	-1.0	-1.2	
Electricity	38391	38912	41496	44497	43674	44517	45236	48297	52371	0.8	0.5	0.4	1.5	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7438	7315	7481	7500	7265	-2.9	0.9	0.1	-0.3	
Renewable energy forms	2991	2734	4804	7222	12027	15651	18706	17786	17867	4.9	9.6	4.5	-0.5	
Other	0	0	0	0	5	9	19	21	23			15.5	1.5	
RES in Gross Final Energy Consumption (A)			8812	13195	21291	27132	36174	39474	42835		9.2	5.4	1.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	925.2	888.5	860.0	839.0	805.8	-1.7	-1.2	-0.7	-0.6	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	729.1	708.9	691.9	693.1	677.1	-1.5	-1.2	-0.5	-0.2	
Power generation/District heating	375.1	328.9	316.2	325.0	269.3	275.1	278.5	301.3	304.8	-1.7	-1.6	0.3	0.9	
Energy Branch	26.2	27.7	27.1	28.9	23.4	20.9	20.4	19.0	18.1	0.3	-1.4	-1.4	-1.2	
Industry	170.5	130.6	118.3	105.6	103.3	99.1	91.7	88.9	85.7	-3.6	-1.4	-1.2	-0.7	
Residential	134.3	127.4	117.7	120.0	113.1	101.6	96.5	88.0	79.5	-1.3	-0.4	-1.6	-1.9	
Tertiary	84.7	64.1	53.1	51.1	48.8	43.4	40.9	37.0	33.6	-4.6	-0.8	-1.8	-1.9	
Transport	168.9	181.9	190.9	174.3	171.2	168.7	163.8	158.9	155.3	1.2	-1.1	-0.4	-0.5	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.4	77.5	75.7	74.4	72.3	-0.2	-0.8	-0.1	-0.5	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	102.2	92.4	71.6	56.5	-3.7	-1.1	-2.6	-4.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.6	71.6	69.3	67.7	65.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Germany: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.4	114.2	101.5	92.9	87.4	-2.1	-1.9	-2.4	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.28	2.29	2.33	2.39	2.36	-1.1	-0.6	0.2	0.1
Import Dependency %	46.1	57.3	59.8	61.6	64.1	65.1	68.5	69.1	68.3				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	258.9	281.2	304.9	314.0	323.0		2.6	1.7	0.6
as % of GDP			9.2	10.5	10.5	10.4	10.4	10.1	9.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	71.0	62.4	57.4	54.3	-2.8	-2.2	-2.4	-1.4
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.6	86.4	81.3	74.5	70.0	-1.3	-0.3	-1.7	-1.5
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.1	72.4	65.1	59.4	54.6	-4.3	-1.7	-2.5	-1.7
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	35.9	33.8	30.8	29.0	-1.2	-1.6	-1.1	-1.5
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	30.7	29.3	28.4	27.5	0.6	-2.4	-1.0	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.40	0.40	0.41	0.42	0.39	-1.4	-2.0	0.3	-0.3
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	2.00	1.93	1.87	1.81	1.74	-1.1	-0.8	-0.7	-0.7
Industry	2.36	2.11	1.98	1.86	1.81	1.78	1.73	1.70	1.64	-1.8	-0.9	-0.5	-0.5
Residential	2.30	2.05	1.90	1.82	1.72	1.59	1.49	1.40	1.28	-1.9	-1.0	-1.4	-1.5
Tertiary	2.15	1.82	1.63	1.53	1.52	1.42	1.37	1.27	1.19	-2.7	-0.7	-1.1	-1.4
Transport	2.89	2.89	2.89	2.81	2.73	2.67	2.60	2.59	2.57	0.0	-0.6	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	9.5	12.3	16.7	18.6	20.4				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	6.9	9.7	12.8	13.2	13.7				
Gross Electricity generation by source (in GWh)													
			567219	613054	584856	588227	587863	629103	682655		0.3	0.1	1.5
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6	
Solids			286571	262420	294581	305880	305984	335777	359369		0.3	0.4	1.6
Oil (including refinery gas)			5476	23814	1040	1481	6774	6594	6133		-15.3	20.6	-1.0
Gas (including derived gases)			64676	96524	74750	79167	94856	107659	111114		1.5	2.4	1.6
Biomass-waste			9782	19186	17606	26896	48172	61117	70494		6.1	10.6	3.9
Hydro (pumping excluded)			21728	19577	21059	21488	21546	21748	21960		-0.3	0.2	0.2
Wind			9350	27224	42553	48573	72374	91653	108621		16.4	5.5	4.1
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0
Geothermal and other renewables			0	0	38	49	60	70	73			4.6	2.1
Net Generation Capacity in MW_e			112509	122874	130698	129202	138222	149211	158398		1.5	0.6	1.4
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5	
<u>Renewable energy</u>			9611	23545	30334	33045	42337	49704	53323		12.2	3.4	2.3
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2
Wind			6113	18428	23976	25689	34243	41046	44196		14.6	3.6	2.6
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	84755	83992	91780	99507	105075		0.4	0.8	1.4
of which cogeneration units			40073	37870	29258	28944	34300	33989	32350		-3.1	1.6	-0.6
Solids fired			47883	45326	47623	48788	47592	49020	50435		-0.1	0.0	0.6
Gas fired			24817	24439	27678	27850	33230	38041	40818		1.1	1.8	2.1
Oil fired			7114	6403	5466	1860	2114	1705	1581		-2.6	-9.1	-2.9
Biomass-waste fired			1783	2481	3982	5485	8833	10727	12227		8.4	8.3	3.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	7	9	11	13	14			4.5	2.1
Avg. Load factor of net power capacity (%)			53.7	53.1	47.7	48.8	45.7	45.1	46.2				
Efficiency of gross thermal power generation (%)			37.0	37.4	46.0	47.2	47.8	48.2	49.9				
% of gross electricity from CHP			16.9	15.5	20.4	21.0	26.5	26.3	24.5				
Carbon free gross electricity generation (%)			37.1	37.6	36.7	34.3	30.7	28.5	30.2				
- nuclear			29.9	26.6	22.4	17.2	5.8	0.0	0.0				
- renewable energy forms			7.2	11.0	14.3	17.1	24.9	28.5	30.2				
Transport sector													
Passenger transport activity (Gpkm)													
	889.5	1041.7	1081.9	1142.4	1224.8	1310.1	1381.2	1451.3	1508.1	2.0	1.2	1.2	0.9
Public road transport	73.1	68.5	69.0	68.2	67.1	70.9	76.2	80.7	84.9	-0.6	-0.3	1.3	1.1
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1034.1	1072.7	1107.5	1131.7	2.0	1.3	0.9	0.5
Rail	76.1	85.4	90.0	90.2	94.0	101.3	110.3	123.7	138.5	1.7	0.4	1.6	2.3
Aviation	34.3	46.2	62.0	70.5	83.8	101.4	119.6	136.8	150.3	6.1	3.1	3.6	2.3
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-1.0	0.6	0.7
Freight transport activity (Gtkm)													
	352.9	371.3	424.7	463.9	497.9	528.4	554.8	581.5	604.5	1.9	1.6	1.1	0.9
Trucks	196.4	237.8	280.7	310.1	327.5	344.3	362.5	382.8	400.7	3.6	1.6	1.0	1.0
Rail	101.7	69.5	77.5	89.7	103.6	113.2	117.0	119.3	120.9	-2.7	2.9	1.2	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.9	75.3	79.4	83.0	1.9	0.0	1.2	1.0
Energy demand in transport (ktoe)													
	58494	62910	65997	61958	62718	63271	62994	61290	60355	1.2	-0.5	0.0	-0.4
Public road transport	656	611	612	529	478	472	478	474	485	-0.7	-2.4	0.0	0.2
Private cars and motorcycles	38247	40001	39981	36421	36046	35373	34156	31628	30498	0.4	-1.0	-0.5	-1.1
Trucks	11518	13643	15834	14528	14193	14062	14162	14540	14906	3.2	-1.1	0.0	0.5
Rail	2111	2126	1946	1858	2015	2067	2003	1860	1591	-0.8	0.3	-0.1	-2.3
Aviation	5307	5975	7345	8304	9658	10956	11840	12420	12495	3.3	2.8	2.1	0.5
Inland navigation	656	554	279	318	327	341	355	369	380	-8.2	1.6	0.8	0.7

Germany: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	109084	94414	91782	-297	6400	13547	-0.3	7.3	17.3
Solids	125210	59628	56514	39364	33126	36676	-4902	-4872	-376	-11.1	-12.8	-1.0
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	29053	39292	46606	4605	11271	13923	18.8	40.2	42.6
Hydro	1498	1869	1684	1848	1853	1889	60	53	0	3.4	2.9	0.0
Biomass & Waste	4797	7877	12190	20025	26446	30095	2794	7368	8405	16.2	38.6	38.8
Wind	6	804	2341	4177	6224	9341	0	581	2044	0.0	10.3	28.0
Solar and others	11	96	365	2602	4368	4931	1526	3062	3344	141.7	234.5	210.7
Geothermal	7	10	138	400	401	350	226	207	130	129.1	106.9	59.1
Net Imports	164822	204678	214351	203308	205346	197640	-21968	-33992	-47451	-9.8	-14.2	-19.4
Solids	2881	21576	26781	36323	41421	41918	-2379	-6805	-7548	-6.1	-14.1	-15.3
Oil	120126	125974	122228	105387	101750	95309	-8838	-12420	-17367	-7.7	-10.9	-15.4
- Crude oil and Feedstocks	88505	101801	113120	106713	105052	102870	-4408	-6245	-8984	-4.0	-5.6	-8.0
- Oil products	31621	24173	9108	-1326	-3302	-7560	-4429	-6175	-8383	-142.7	-214.9	-1018.7
Natural gas	41747	56865	65734	60660	60812	58962	-10752	-14767	-22537	-15.1	-19.5	-27.7
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	309761	297053	286583	-22263	-27585	-33894	-6.7	-8.5	-10.6
Solids	131510	83727	82805	75687	74547	78594	-7281	-11676	-7924	-8.8	-13.5	-9.2
Oil	124248	129918	123409	105286	101242	92469	-8836	-12413	-17356	-7.7	-10.9	-15.8
Natural gas	54976	71853	80856	72660	71812	67462	-10752	-14767	-22537	-12.9	-17.1	-25.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	29053	39292	46606	4605	11271	13923	18.8	40.2	42.6
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	24.4	25.1	27.4	-0.6	-1.5	0.4			
Oil	35.0	38.2	35.7	34.0	34.1	32.3	-0.4	-0.9	-2.0			
Natural gas	15.5	21.1	23.4	23.5	24.2	23.5	-1.7	-2.5	-4.5			
Nuclear	10.6	12.9	12.2	8.4	3.0	0.0	0.6	0.3	0.0			
Renewable energy forms	1.8	3.1	4.8	9.4	13.2	16.3	2.0	4.6	6.1			
Gross Electricity Generation in GWh_e	547549	567219	613054	588227	587863	682655	-76036	-84915	-11163	-11.4	-12.6	-1.6
Self consumption and grid losses	65998	74099	72965	66833	66515	81569	-8871	-10142	741	-11.7	-13.2	0.9
Fuel Inputs to Thermal Power Generation	93214	85253	92546	75281	81947	94341	-13823	-16634	-6620	-15.5	-16.9	-6.6
Solids	75843	68066	66172	59897	59787	65531	-7840	-11576	-6235	-11.6	-16.2	-8.7
Oil (including refinery gas)	2871	1108	2038	70	114	50	-2061	-2009	-1696	-96.7	-94.6	-97.1
Gas (including derived gases)	12676	12906	19233	10311	12257	14037	-3952	-7068	-6338	-27.7	-36.6	-31.1
Biomass & Waste	1824	3174	5102	4960	9737	14660	7	4004	7649	0.1	69.8	109.1
Geothermal heat	0	0	0	42	51	63	22	15	0	105.0	40.9	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	138056	136130	128760	-3112	-4035	-9833	-2.2	-2.9	-7.1
Refineries	106658	119856	127082	116659	114306	109021	-4440	-6298	-9037	-3.7	-5.2	-7.7
Biofuels and hydrogen production	0	222	1942	6033	7924	7832	597	1488	294	11.0	23.1	3.9
District heating	6389	1435	873	2678	2380	2035	-220	82	-1721	-7.6	3.6	-45.8
Derived gases, cokeries etc.	51565	15423	14625	12686	11520	9872	951	692	631	8.1	6.4	6.8
Energy Branch Consumption	15384	14242	15144	12473	11623	11322	-772	-1092	-1093	-5.8	-8.6	-8.8
Non-Energy Uses	23249	25272	24779	24697	24631	23794	-87	-151	-167	-0.4	-0.6	-0.7
Final Energy Demand	228372	220163	218010	215366	210683	202933	-14634	-18776	-28933	-6.4	-8.2	-12.5
by sector												
Industry	72116	59715	56706	55632	53115	52213	-474	-1890	-2395	-0.8	-3.4	-4.4
- energy intensive industries	49422	40359	38652	37592	35464	33827	146	-922	-1366	0.4	-2.5	-3.9
- other industrial sectors	22693	19356	18053	18040	17651	18386	-620	-968	-1029	-3.3	-5.2	-5.3
Residential	58400	61905	65931	64033	64632	62006	-5166	-5279	-9611	-7.5	-7.6	-13.4
Tertiary	39361	32547	33416	30650	29942	28358	-5832	-6573	-7918	-16.0	-18.0	-21.8
Transport	58494	65997	61958	63271	62994	60355	-3163	-5035	-9010	-4.8	-7.4	-13.0
by fuel												
Solids	38693	10951	9639	9785	9274	8260	26	-466	-538	0.3	-4.8	-6.1
Oil	96422	98052	87411	76004	71836	65469	-5691	-9694	-15299	-7.0	-11.9	-18.9
Gas	42724	58030	61814	60305	58130	51677	-6176	-7042	-14455	-9.3	-10.8	-21.9
Electricity	38391	41496	44497	44517	45236	52371	-5752	-6389	-949	-11.4	-12.4	-1.8
Heat (from CHP and District Heating)	9150	6831	7428	7315	7481	7265	-916	-1151	-1496	-11.1	-13.3	-17.1
Renewable energy forms	2991	4804	7222	15651	18706	17867	3874	5964	3810	32.9	46.8	27.1
Other	0	0	0	9	19	23	1	1	-7	11.4	7.7	-22.8
RES in Gross Final Energy Consumption ^(A)		8812	13195	27132	36174	42835	5260	10488	12860	24.0	40.8	42.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	888.5	860.0	805.8	-94.5	-139.4	-154.8	-9.6	-13.9	-16.1
CO₂ Emissions (energy related)	959.8	823.3	804.8	708.9	691.9	677.1	-81.6	-118.9	-136.0	-10.3	-14.7	-16.7
Power generation/District heating	375.1	316.2	325.0	275.1	278.5	304.8	-48.2	-69.5	-51.5	-14.9	-20.0	-14.4
Energy Branch	26.2	27.1	28.9	20.9	20.4	18.1	-2.4	-2.4	-3.1	-10.1	-10.6	-14.4
Industry	170.5	118.3	105.6	99.1	91.7	85.7	4.3	2.7	3.0	4.5	3.0	3.6
Residential	134.3	117.7	120.0	101.6	96.5	79.5	-15.8	-20.9	-39.4	-13.5	-17.8	-33.1
Tertiary	84.7	53.1	51.1	43.4	40.9	33.6	-8.6	-9.8	-15.4	-16.5	-19.3	-31.4
Transport	168.9	190.9	174.3	168.7	163.8	155.3	-11.0	-19.1	-29.6	-6.1	-10.4	-16.0
CO ₂ Emissions (non energy related)	84.5	82.9	75.8	77.5	75.7	72.3	1.5	-1.4	-4.4	2.0	-1.8	-5.7
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	102.2	92.4	56.5	-14.4	-19.1	-14.4	-12.4	-17.1	-20.3
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	71.6	69.3	65.0	-7.6	-11.2	-12.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Germany: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	114.2	101.5	87.4	-8.2	-9.4	-10.3	-6.7	-8.5	-10.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.29	2.33	2.36	-0.09	-0.17	-0.17	-3.9	-6.7	-6.9
Import Dependency %	46.1	59.8	61.6	65.1	68.5	68.3	-2.2	-4.6	-7.5			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	281.2	304.9	323.0	10.4	16.2	17.4	3.8	5.6	5.7
as % of GDP		9.2	10.5	10.4	10.4	9.9	0.4	0.6	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				10.7	16.6	18.0						
as % of GDP				0.39	0.57	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	71.0	62.4	54.3	-0.6	-2.2	-2.5	-0.8	-3.4	-4.4
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	86.4	81.3	70.0	-7.0	-6.6	-10.8	-7.5	-7.6	-13.4
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	72.4	65.1	54.6	-13.8	-14.3	-15.2	-16.0	-18.0	-21.8
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	35.9	33.8	29.0	-0.8	-1.2	-3.3	-2.2	-3.4	-10.2
Freight transport (toe/Mtkm)	39.2	41.5	35.3	30.7	29.3	27.5	-1.4	-2.4	-2.7	-4.5	-7.6	-8.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.40	0.41	0.39	-0.02	-0.04	-0.05	-4.0	-8.3	-11.2
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.93	1.87	1.74	-0.01	-0.05	-0.13	-0.6	-2.7	-7.1
Industry	2.36	1.98	1.86	1.78	1.73	1.64	0.09	0.11	0.13	5.4	6.7	8.4
Residential	2.30	1.90	1.82	1.59	1.49	1.28	-0.11	-0.19	-0.38	-6.5	-11.1	-22.8
Tertiary	2.15	1.63	1.53	1.42	1.37	1.19	-0.01	-0.02	-0.17	-0.6	-1.6	-12.3
Transport	2.89	2.89	2.81	2.67	2.60	2.57	-0.04	-0.09	-0.09	-1.4	-3.3	-3.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	12.3	16.7	20.4	3.0	5.8	7.8			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	9.7	12.8	13.7	1.4	3.2	2.5			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	567219	613054	588227	587863	626555	626555	-76056	-84915	-11163	-11.4	-12.6	-1.6
Solids	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	0.0
Oil (including refinery gas)	286571	262420	305880	305984	359369	359369	-40074	-61564	-29856	-11.6	-16.7	-7.7
Gas (including derived gases)	5476	23814	1481	6774	6133	6133	-14340	-9661	-8816	-90.6	-58.8	-59.0
Biomass-waste	64676	96524	79167	94856	111114	111114	-22816	-39631	-30562	-22.4	-29.5	-21.6
Hydro (pumping excluded)	9782	19186	26896	48172	70494	70494	470	18553	34309	1.8	62.6	94.8
Wind	21728	19577	21488	21546	21960	21960	698	612	0	3.4	2.9	0.0
Solar	9350	27224	48573	72374	108621	108621	0	6757	23762	0.0	10.3	28.0
Geothermal and other renewables	60	1282	3366	3997	4891	4891	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW _e	0	0	49	60	73	73	25	17	0	105.0	40.9	0.0
Nuclear energy	112509	122874	129202	138222	158398	158398	-13565	-12794	6353	-9.5	-8.5	4.2
Renewable energy	21301	20680	12165	4105	0	0	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	9611	23545	33045	42337	53323	53323	-17	1797	8941	-0.1	4.4	20.1
Wind	3408	3580	3732	3790	3862	3862	0	0	0	0.0	0.0	0.0
Solar	6113	18428	25689	34243	44196	44196	-17	1797	8941	-0.1	5.5	25.4
Other renewables (tidal etc.)	90	1537	3624	4303	5266	5266	0	0	0	0.0	0.0	0.0
Thermal power	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
of which cogeneration units	81597	78649	83992	91780	105075	105075	-13547	-14592	-2588	-13.9	-13.7	-2.4
Solids fired	40073	37870	28944	34300	32350	32350	-5192	-6530	-3850	-15.2	-16.0	-10.6
Gas fired	47883	45326	48788	47592	50435	50435	-4170	-5908	-1720	-7.9	-11.0	-3.3
Oil fired	24817	24439	27850	33230	40818	40818	-7877	-9995	-5595	-22.0	-23.1	-12.1
Biomass-waste fired	7114	6403	1860	2114	1581	1581	-3260	-2264	-1757	-63.7	-51.7	-52.6
Fuel Cells	1783	2481	5485	8833	12227	12227	1754	3572	6483	47.0	67.9	112.9
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	9	11	14	14	5	3	0	103.5	40.5	0.0
Avg. Load factor of net power capacity (%)		53.7	53.1	48.8	45.7	46.2	-1.0	-2.0	-2.6			
Efficiency of gross thermal power generation (%)		37.0	37.4	47.2	47.8	49.9	-0.1	0.0	0.3			
% of gross electricity from CHP		16.9	15.5	21.0	26.5	24.5	-1.3	-2.4	-4.0			
Carbon free gross electricity generation (%)		37.1	37.6	34.3	30.7	30.2	4.1	7.7	8.9			
- nuclear		29.9	26.6	17.2	5.8	0.0	2.0	0.7	0.0			
- renewable energy forms		7.2	11.0	17.1	24.9	30.2	2.1	7.0	8.9			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	889.5	1081.9	1142.4	1310.1	1381.2	1508.1	-26.1	-40.8	-51.0	-2.0	-2.9	-3.3
Private cars and motorcycles	73.1	69.0	68.2	70.9	76.2	84.9	1.5	2.2	2.8	2.1	3.0	3.5
Rail	702.1	858.2	911.1	1034.1	1072.7	1131.7	-25.8	-39.2	-48.4	-2.4	-3.5	-4.1
Aviation	76.1	90.0	90.2	101.3	110.3	138.5	1.8	1.9	2.7	1.8	1.8	2.0
Inland navigation	34.3	62.0	70.5	101.4	119.6	150.3	-3.6	-5.8	-8.2	-3.4	-4.6	-5.2
Freight transport activity (Gtkm)	3.8	2.7	2.5	2.5	2.5	2.7	0.0	0.0	0.0	-0.5	-0.2	-0.2
Freight transport activity (Gtkm)												
Trucks	352.9	424.7	463.9	528.4	554.8	604.5	-12.4	-19.2	-25.3	-2.3	-3.3	-4.0
Rail	196.4	280.7	310.1	344.3	362.5	400.7	-17.0	-25.3	-32.5	-4.7	-6.5	-7.5
Inland navigation	101.7	77.5	89.7	113.2	117.0	120.9	4.2	5.3	6.1	3.9	4.8	5.4
Energy demand in transport (ktoe)	54.8	66.5	64.1	70.9	75.3	83.0	0.4	0.8	1.0	0.6	1.0	1.2
Energy demand in transport (ktoe)												
Public road transport	58494	65997	61958	63271	62994	60355	-3163	-5035	-9010	-4.8	-7.4	-13.0
Private cars and motorcycles	656	612	529	472	478	485	-2	-11	-31	-0.4	-2.3	-6.0
Trucks	38247	39981	36421	35373	34156	30498	-1494	-2190	-4774	-4.1	-6.0	-13.5
Rail	11518	15834	14528	14062	14162	14906	-1197	-2052	-2552	-7.8	-12.7	-14.6
Aviation	2111	1946	1858	2067	2003	1591	30	97	155	1.4	5.1	10.8
Inland navigation	5307	7345	8304	10956	11840	12495	-499	-875	-1802	-4.4	-6.9	-12.6
Inland navigation	656	279	318	341	355	380	-1	-2	-7	-0.3	-0.7	-1.7

Source: PRIMES

Greece: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9152	9740	10010	10315	10899	6036	5387	5917	6219	0.9	0.9	-6.8	1.4	
Solids	7077	7911	8222	8538	8305	2561	1072	1045	1035	1.5	0.1	-18.5	-0.4	
Oil	832	459	280	100	97	99	97	0	0	-10.3	-10.1	0.0		
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2469	3376	4218	4872	5184	2.9	5.3	5.5	2.1	
Hydro	152	303	318	431	424	427	435	439	442	7.6	2.9	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2793	2839	1.2	4.2	4.6	1.8	
Wind	0	3	39	109	254	486	694	862	1079	74.8	20.7	10.6	4.5	
Solar and others	56	82	99	102	250	501	618	674	708	5.8	9.7	9.5	1.4	
Geothermal	3	3	2	1	19	60	92	104	117	-4.7	27.9	17.3	2.4	
Net Imports	15415	18207	21982	23336	24834	28214	29063	29415	29312	3.6	1.2	1.6	0.1	
Solids	988	925	768	371	226	1065	1066	1151	1345	-2.5	-11.5	16.8	2.4	
Oil	14366	17214	19527	20307	20617	21135	20374	19923	19431	3.1	0.5	-0.1	-0.5	
- Crude oil and Feedstocks	14757	16955	20439	19352	20472	20960	20579	20395	20143	3.3	0.0	0.1	-0.2	
- Oil products	-391	259	-912	955	145	174	-205	-471	-712					
Natural gas	0	0	1689	2332	3691	5428	6119	6634	6823		8.1	5.2	1.1	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	32626	30929	30958	31701	31792	2.4	1.5	-0.5	0.3	
Solids	8091	8783	9040	8952	8531	3626	2139	2196	2380	1.1	-0.6	-12.9	1.1	
Oil	12883	13952	15929	17951	17607	17914	16979	16292	15693	2.1	1.0	-0.4	-0.8	
Natural gas	138	44	1705	2354	3720	5428	6119	6634	6823	28.6	8.1	5.1	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2501	3722	5505	6384	6721	2.9	5.5	8.2	2.0	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.1	11.7	6.9	6.9	7.5					
Oil	57.8	57.7	56.6	57.5	54.0	57.9	54.8	51.4	49.4					
Natural gas	0.6	0.2	6.1	7.5	11.4	17.6	19.8	20.9	21.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	7.7	12.0	17.8	20.1	21.1					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62483	61305	65332	72875	79449	4.4	1.6	0.4	2.0	
Self consumption and grid losses	5818	6451	8431	10125	9867	8569	8785	9888	10797	3.8	1.6	-1.2	2.1	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11806	9074	8700	9522	9987	3.0	0.2	-3.0	1.4	
Solids	6890	7810	8234	8693	8191	3294	1853	1932	2121	1.8	-0.1	-13.8	1.4	
Oil (including refinery gas)	1708	2075	2036	2053	1027	1409	1198	1062	1051	1.8	-6.6	1.6	-1.3	
Gas (including derived gases)	18	14	1280	1605	2474	3906	4762	5309	5535	53.1	6.8	6.8	1.5	
Biomass & Waste	0	38	64	52	97	408	797	1118	1167		4.2	23.5	3.9	
Geothermal heat	0	0	0	0	17	58	90	101	113			17.9	2.3	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21225	21911	21771	21592	21394	3.0	-0.6	0.3	-0.2	
Refineries	16621	17860	22404	21415	20912	21394	21013	20736	20479	3.0	-0.7	0.0	-0.3	
Biofuels and hydrogen production	0	0	0	0	251	465	715	828	897			11.0	2.3	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	62	52	43	28	19	-8.8	7.4	-3.6	-7.9	
Energy Branch Consumption	1196	1174	1637	1758	1619	1535	1543	1565	1542	3.2	-0.1	-0.5	0.0	
Non-Energy Uses	651	441	689	711	702	701	712	721	719	0.6	0.2	0.1	0.1	
Final Energy Demand	14509	15801	18513	20742	22525	23229	23617	23846	23743	2.5	2.0	0.5	0.1	
by sector														
Industry	3942	4107	4437	4132	4058	4113	4133	4090	4085	1.2	-0.9	0.2	-0.1	
- energy intensive industries	2534	2489	2693	2526	2524	2579	2606	2601	2587	0.6	-0.6	0.3	-0.1	
- other industrial sectors	1408	1618	1744	1607	1534	1534	1526	1490	1498	2.2	-1.3	0.0	-0.2	
Residential	3048	3323	4470	5467	6256	6642	6865	6971	6913	3.9	3.4	0.9	0.1	
Tertiary	1711	1940	2410	3075	3254	3198	3210	3254	3251	3.5	3.0	-0.1	0.1	
Transport	5808	6431	7196	8068	8957	9277	9409	9531	9495	2.2	2.2	0.5	0.1	
by fuel														
Solids	1053	1074	888	446	321	316	272	255	253	-1.7	-9.7	-1.6	-0.7	
Oil	10041	10799	12584	14219	14987	14979	14733	14382	13836	2.3	1.8	-0.2	-0.6	
Gas	15	14	257	585	935	1153	1044	1005	961	33.0	13.8	1.1	-0.8	
Electricity	2448	2931	3710	4377	4615	4598	4903	5436	5906	4.2	2.2	0.6	1.9	
Heat (from CHP and District Heating)	0	0	28	49	39	41	61	71	81		3.3	4.6	3.0	
Renewable energy forms	952	982	1046	1066	1627	2141	2601	2694	2703	0.9	4.5	4.8	0.4	
Other	0	0	0	0	1	1	3	3	3			17.0	1.2	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2419	3516	4605	5133	5465		5.3	6.6	1.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.6	108.2	99.5	98.0	96.9	2.0	0.2	-2.5	-0.3	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	95.0	79.4	71.9	71.3	70.6	2.3	0.6	-2.7	-0.2	
Power generation/District heating	34.1	39.0	43.7	46.3	43.1	27.1	22.4	23.5	24.8	2.5	-0.1	-6.3	1.0	
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.1	1.6	1.0	0.9	2.9	-0.8	-6.9	-5.3	
Industry	9.4	10.0	10.1	8.6	7.7	7.4	6.7	6.4	6.2	0.7	-2.6	-1.4	-0.8	
Residential	4.6	4.7	7.4	9.6	10.8	11.3	11.2	10.5	9.4	4.9	3.9	0.4	-1.8	
Tertiary	3.3	3.2	3.4	4.2	4.4	4.3	4.0	3.8	3.6	0.1	2.7	-0.9	-1.1	
Transport	17.2	19.0	21.2	23.8	25.8	26.3	26.0	26.1	25.8	2.1	2.0	0.1	-0.1	
CO₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.2	9.5	9.6	9.6	1.2	0.8	0.7	0.1	
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	19.6	18.0	17.2	16.7	1.3	-1.6	-2.7	-0.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	124.0	105.1	96.7	95.3	94.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Greece: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.5	123.5	108.9	100.4	93.2	0.0	-2.4	-3.2	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.91	2.57	2.32	2.25	2.22	-0.1	-0.8	-2.2	-0.4
Import Dependency %	62.1	65.7	69.3	68.5	69.5	82.4	84.4	83.3	82.5				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	27.1	31.3	34.1	35.9		4.1	3.2	1.4
as % of GDP			10.5	10.2	10.6	10.8	11.0	10.8	10.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	63.8	58.0	53.8	50.9	1.1	-3.4	-1.9	-1.3
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.8	91.3	84.0	77.3	71.3	1.6	-0.1	-1.6	-1.6
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.7	78.5	69.6	63.3	58.4	1.2	-0.8	-2.8	-1.7
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.0	29.6	28.4	27.0	-2.0	-0.8	-1.0	-0.9
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	93.1	86.7	83.8	81.9	-1.1	-1.4	-1.4	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.44	0.34	0.32	0.31	-1.9	-1.7	-6.8	-1.0
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.17	2.12	2.03	1.96	1.89	-0.4	-0.5	-0.6	-0.7
Industry	2.39	2.43	2.28	2.09	1.91	1.80	1.62	1.56	1.51	-0.5	-1.8	-1.6	-0.7
Residential	1.51	1.43	1.66	1.76	1.73	1.70	1.63	1.51	1.36	0.9	0.4	-0.6	-1.8
Tertiary	1.96	1.65	1.40	1.36	1.36	1.34	1.26	1.16	1.11	-3.3	-0.3	-0.8	-1.3
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.3	14.7	18.9	20.8	22.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.1	8.0	8.8				
Gross Electricity generation by source (in GWh)													
			53415	59416	62483	61305	65332	72875	79449		1.6	0.4	2.0
Nuclear energy			0	0	0	0	0	0	0				
Solids			33790	35982	34354	16091	10080	10548	11680		0.2	-11.5	1.5
Oil (including refinery gas)			8979	8858	4873	6821	5881	5245	5135		-5.9	1.9	-1.3
Gas (including derived gases)			5960	8114	14721	25038	29499	32810	35020		9.5	7.2	1.7
Biomass-waste			543	179	552	2273	5688	7610	8050		0.2	26.3	3.5
Hydro (pumping excluded)			3692	5016	4925	4960	5057	5102	5135		2.9	0.3	0.2
Wind			451	1266	2957	5650	8073	10028	12546		20.7	10.6	4.5
Solar			0	1	73	397	606	1040	1343				23.6
Geothermal and other renewables			0	0	28	75	448	492	540				31.9
Net Generation Capacity in MW_e			11361	13277	15916	18886	21066	22050	23315		3.4	2.8	1.0
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			3233	3744	4521	5835	7354	8533	9733		3.4	5.0	2.8
Hydro (pumping excluded)			3043	3165	3235	3386	3489	3542	3577		0.6	0.8	0.2
Wind			189	573	1226	2126	3207	3997	4920		20.6	10.1	4.4
Solar			1	5	60	324	494	814	1051		46.8	23.6	7.8
Other renewables (tidal etc.)			0	0	0	0	164	180	185				1.2
<u>Thermal power</u>			8128	9533	11396	13051	13712	13517	13582		3.4	1.9	-0.1
of which cogeneration units			340	381	511	690	840	990	1073		4.2	5.1	2.5
Solids fired			4505	4798	4796	4263	4263	4268	3864		0.6	-1.2	-1.0
Gas fired			1134	1876	3344	5639	5773	5565	6478		11.4	5.6	1.2
Oil fired			2487	2827	3145	2773	2747	2544	1941		2.4	-1.3	-3.4
Biomass-waste fired			2	31	102	359	892	1102	1192		51.7	24.2	2.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	8	17	37	37	107				16.5
Avg. Load factor of net power capacity (%)			49.7	47.4	42.0	35.5	34.2	36.4	37.6				
Efficiency of gross thermal power generation (%)			36.5	36.8	39.7	47.7	50.7	50.9	51.7				
% of gross electricity from CHP			1.2	1.5	2.5	5.1	8.4	9.1	9.1				
Carbon free gross electricity generation (%)			8.8	10.9	13.7	21.8	30.4	33.3	34.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			8.8	10.9	13.7	21.8	30.4	33.3	34.8				
Transport sector													
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	159.0	173.0	183.9	191.9	197.1	4.4	3.2	1.5	0.7
Public road transport	17.7	20.2	21.7	21.4	21.7	22.0	22.5	22.8	22.9	2.0	0.0	0.4	0.2
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	102.8	109.1	113.7	115.9	6.2	4.7	1.6	0.6
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.8	5.2	5.6	0.9	2.2	2.3	1.6
Aviation	15.5	19.9	24.1	27.7	31.5	35.1	38.5	41.2	43.5	4.5	2.7	2.0	1.2
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.0	9.1	9.2	2.1	0.2	0.2	0.2
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	37.6	42.0	45.7	48.7	50.9	3.0	3.5	1.9	1.1
Trucks	12.5	14.6	17.5	22.0	25.4	28.3	30.9	33.3	35.3	3.4	3.8	2.0	1.3
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.3	-3.5	6.5	3.3	1.4
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.7	14.1	14.3	2.8	2.8	1.8	0.5
Energy demand in transport (ktoe)	5808	6431	7196	8068	8957	9277	9409	9531	9495	2.2	2.2	0.5	0.1
Public road transport	154	175	175	153	150	142	139	132	123	1.3	-1.5	-0.7	-1.2
Private cars and motorcycles	1404	1704	2243	2913	3290	3355	3389	3384	3254	4.8	3.9	0.3	-0.4
Trucks	2345	2726	2902	3120	3519	3657	3691	3804	3901	2.2	1.9	0.5	0.6
Rail	75	57	60	58	64	69	75	78	74	-2.2	0.7	1.6	-0.2
Aviation	1264	1226	1325	1181	1269	1377	1427	1446	1463	0.5	-0.4	1.2	0.3
Inland navigation	566	544	491	643	665	678	688	687	680	-1.4	3.1	0.3	-0.1

Source: PRIMES

Greece: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	6036	5387	6219	-3284	-4917	-4121	-35.2	-47.7	-39.9
Solids	7077	8222	8538	2561	1072	1035	-3968	-5965	-5257	-60.8	-84.8	-83.6
Oil	832	280	100	99	97	0	-1	-3	0	-1.1	-2.9	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3376	4218	5184	685	1051	1136	25.5	33.2	28.1
Hydro	152	318	431	427	435	442	1	4	3	0.2	0.9	0.6
Biomass & Waste	893	1010	1015	1903	2378	2839	323	558	632	20.4	30.7	28.7
Wind	0	39	109	486	694	1079	29	114	141	6.4	19.6	15.0
Solar and others	56	99	102	501	618	708	288	344	357	135.2	125.7	102.0
Geothermal	3	2	1	60	92	117	44	31	3	282.5	50.0	2.3
Net Imports	15415	21982	23336	28214	29063	29312	-734	-807	-1475	-2.5	-2.7	-4.8
Solids	988	768	371	1065	1066	1345	-10	-16	-46	-0.9	-1.5	-3.3
Oil	14366	19527	20307	21135	20374	19431	-1257	-2447	-3304	-5.6	-10.7	-14.5
- Crude oil and Feedstocks	14757	20439	19352	20960	20579	20143	-861	-1640	-2085	-3.9	-7.4	-9.4
- Oil products	-391	-912	955	174	-205	-712	-396	-807	-1219	-69.4	-134.0	-240.6
Natural gas	0	1689	2332	5428	6119	6823	187	368	338	3.6	6.4	5.2
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	30929	30958	31792	-4016	-5720	-5588	-11.5	-15.6	-14.9
Solids	8091	9040	8952	3626	2139	2380	-3977	-5981	-5303	-52.3	-73.7	-69.0
Oil	12883	15929	17951	17914	16979	15693	-1257	-2446	-3296	-6.6	-12.6	-17.4
Natural gas	138	1705	2354	5428	6119	6823	187	368	338	3.6	6.4	5.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3722	5505	6721	1031	2338	2673	38.3	73.8	66.0
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	11.7	6.9	7.5	-10.0	-15.2	-13.1			
Oil	57.8	56.6	57.5	57.9	54.8	49.4	3.1	1.9	-1.4			
Natural gas	0.6	6.1	7.5	17.6	19.8	21.5	2.6	4.1	4.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	12.0	17.8	21.1	4.3	9.1	10.3			
Gross Electricity Generation in GWh_e	34767	53415	59416	61305	65332	79449	-13169	-14670	-8702	-17.7	-18.3	-9.9
Self consumption and grid losses	5818	8431	10125	8569	8785	10797	-2767	-3389	-2545	-24.4	-27.8	-19.1
Fuel Inputs to Thermal Power Generation	8617	11614	12403	9074	8700	9987	-3455	-4536	-3197	-27.6	-34.3	-24.3
Solids	6890	8234	8693	3294	1853	2121	-3955	-5908	-5196	-54.6	-76.1	-71.0
Oil (including refinery gas)	1708	2036	2053	1409	1198	1051	-147	-159	66	-9.5	-11.7	6.7
Gas (including derived gases)	18	1280	1605	3906	4762	5535	271	856	1068	7.5	21.9	23.9
Biomass & Waste	0	64	52	408	797	1167	333	645	865	446.1	425.4	286.6
Geothermal heat	0	0	0	58	90	113	43	29	0	303.0	48.8	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	21911	21771	21394	-834	-1533	-2062	-3.7	-6.6	-8.8
Refineries	16621	22404	21415	21394	21013	20479	-865	-1646	-2088	-3.9	-7.3	-9.3
Biofuels and hydrogen production	0	0	0	465	715	897	45	130	59	10.7	22.3	7.1
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	52	43	19	-15	-17	-33	-22.0	-29.0	-63.8
Energy Branch Consumption	1196	1637	1758	1535	1543	1542	-161	-190	-203	-9.5	-11.0	-11.7
Non-Energy Uses	651	689	711	701	712	719	-2	-3	-4	-0.3	-0.4	-0.5
Final Energy Demand	14509	18513	20742	23229	23617	23743	-1454	-2283	-3036	-5.9	-8.8	-11.3
by sector												
Industry	3942	4437	4132	4113	4133	4085	-90	-169	-284	-2.1	-3.9	-6.5
- energy intensive industries	2534	2693	2526	2579	2606	2587	-40	-78	-118	-1.5	-2.9	-4.4
- other industrial sectors	1408	1744	1607	1534	1526	1498	-50	-91	-166	-3.2	-5.6	-10.0
Residential	3048	4470	5467	6642	6865	6913	-292	-477	-658	-4.2	-6.5	-8.7
Tertiary	1711	2410	3075	3198	3210	3251	-571	-791	-932	-15.2	-19.8	-22.3
Transport	5808	7196	8068	9277	9409	9495	-500	-846	-1162	-5.1	-8.2	-10.9
by fuel												
Solids	1053	888	446	316	272	253	-17	-67	-96	-5.2	-19.8	-27.6
Oil	10041	12584	14219	14979	14733	13836	-945	-1668	-2507	-5.9	-10.2	-15.3
Gas	15	257	585	1153	1044	961	-145	-439	-685	-11.2	-29.6	-41.6
Electricity	2448	3710	4377	4598	4903	5906	-889	-960	-514	-16.2	-16.4	-8.0
Heat (from CHP and District Heating)	0	28	49	41	61	81	-7	8	25	-13.7	15.7	44.2
Renewable energy forms	952	1046	1066	2141	2601	2703	548	844	742	34.4	48.0	37.8
Other	0	0	0	1	3	3	0	0	0	8.8	6.4	-7.6
RES in Gross Final Energy Consumption ^(A)	1439	1626	3516	4605	5465	941	1640	1749	36.5	55.3	47.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	108.2	99.5	96.9	-24.1	-37.1	-37.2	-18.2	-27.2	-27.7
CO₂ Emissions (energy related)	71.2	89.2	96.2	79.4	71.9	70.6	-19.9	-31.4	-31.1	-20.0	-30.4	-30.6
Power generation/District heating	34.1	43.7	46.3	27.1	22.4	24.8	-16.3	-23.2	-19.0	-37.5	-50.8	-43.4
Energy Branch	2.6	3.4	3.6	3.1	1.6	0.9	-0.4	-1.9	-2.6	-10.7	-55.3	-74.2
Industry	9.4	10.1	8.6	7.4	6.7	6.2	-0.4	-1.1	-1.6	-5.0	-13.9	-20.1
Residential	4.6	7.4	9.6	11.3	11.2	9.4	-1.1	-1.7	-3.3	-8.6	-13.4	-25.8
Tertiary	3.3	3.4	4.2	4.3	4.0	3.6	-0.2	-0.7	-1.0	-4.7	-14.0	-21.4
Transport	17.2	21.2	23.8	26.3	26.0	25.8	-1.6	-2.9	-3.8	-5.7	-9.9	-12.7
CO ₂ Emissions (non energy related)	7.2	8.2	8.6	9.2	9.5	9.6	-0.2	-0.3	-0.4	-1.6	-2.9	-4.4
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	19.6	18.0	16.7	-4.0	-5.4	-5.6	-17.0	-23.1	-25.3
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	105.1	96.7	94.2	-23.4	-36.1	-36.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Greece: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	123.5	108.9	93.2	-16.0	-20.1	-16.4	-11.5	-15.6	-14.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.57	2.32	2.22	-0.27	-0.49	-0.50	-9.6	-17.5	-18.4
Import Dependency %	62.1	69.3	68.5	82.4	84.4	82.5	6.7	10.0	7.6			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	27.1	31.3	35.9	1.6	2.6	3.4	6.2	9.2	10.3
as % of GDP		10.5	10.2	10.8	11.0	10.5	0.6	0.9	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				1.6	2.8	3.5						
as % of GDP				0.66	0.97	1.02						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	63.8	58.0	50.9	-1.4	-2.4	-3.5	-2.1	-3.9	-6.5
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	91.3	84.0	71.3	-4.0	-5.8	-6.8	-4.2	-6.5	-8.7
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	78.5	69.6	58.4	-14.0	-17.1	-16.7	-15.2	-19.8	-22.3
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.0	29.6	27.0	-0.6	-0.9	-1.2	-1.8	-3.0	-4.4
Freight transport (toe/Mtkm)	127.8	114.6	101.5	93.1	86.7	81.9	-4.8	-8.2	-10.6	-4.9	-8.6	-11.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.44	0.34	0.31	-0.14	-0.23	-0.18	-24.1	-40.0	-37.5
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.12	2.03	1.89	-0.01	-0.07	-0.14	-0.3	-3.1	-7.0
Industry	2.39	2.28	2.09	1.80	1.62	1.51	-0.05	-0.19	-0.26	-2.9	-10.3	-14.5
Residential	1.51	1.66	1.76	1.70	1.63	1.36	-0.08	-0.13	-0.31	-4.6	-7.4	-18.7
Tertiary	1.96	1.40	1.36	1.34	1.26	1.11	0.15	0.08	0.01	12.3	7.2	1.1
Transport	2.96	2.95	2.95	2.83	2.77	2.72	-0.02	-0.05	-0.06	-0.6	-1.8	-2.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.7	18.9	22.1	4.6	7.9	8.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.1	8.8	0.7	1.8	1.6			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	0	0	0	0			
Solids	33790	35982	16091	10080	11680	11680	-16256	-24405	-21728	-50.3	-70.8	-65.0
Oil (including refinery gas)	8979	8858	6821	5881	5135	5135	-1073	-1110	-142	-13.6	-15.9	-2.7
Gas (including derived gases)	5960	8114	25038	29499	35020	1828	4167	4232	7.9	16.4	13.7	
Biomass-waste	543	179	2273	5688	8050	1931	4962	6642	564.7	683.6	471.8	
Hydro (pumping excluded)	3692	5016	4960	5057	5135	11	44	29	0.2	0.9	0.6	
Wind	451	1266	5650	8073	12546	339	1321	1640	6.4	19.6	15.0	
Solar	0	1	397	606	1343	0	0	268	0.0	0.0	24.9	
Geothermal and other renewables	0	0	75	448	540	52	350	356	222.1	357.1	193.8	
Net Generation Capacity in MW_e												
Nuclear energy		0	0	0	0	0	0	0	0			
Renewable energy	3233	3744	5835	7354	9733	114	716	860	2.0	10.8	9.7	
Hydro (pumping excluded)	3043	3165	3386	3489	3577	0	28	28	0.0	0.8	0.8	
Wind	189	573	2126	3207	4920	114	524	473	5.7	19.5	10.6	
Solar	1	5	324	494	1051	0	0	175	0.0	0.0	19.9	
Other renewables (tidal etc.)	0	0	0	164	185	0	164	185				
Thermal power	8128	9533	13051	13712	13582	20	461	-1501	0.2	3.5	-10.0	
of which cogeneration units	340	381	690	840	1073	-55	-7	122	-7.3	-0.8	12.8	
Solids fired	4505	4798	4263	4263	3864	-126	-126	-33	-2.9	-2.9	-0.8	
Gas fired	1134	1876	5639	5773	6478	0	-156	-2401	0.0	-2.6	-27.0	
Oil fired	2487	2827	2773	2747	1941	-152	-27	-92	-5.2	-1.0	-4.5	
Biomass-waste fired	2	31	359	892	1192	289	761	1015	415.6	578.6	573.7	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	17	37	107	9	9	9	111.7	31.9	9.1	
Avg. Load factor of net power capacity (%)	49.7	47.4	35.5	34.2	37.6		-7.4	-9.3	-2.3			
Efficiency of gross thermal power generation (%)	36.5	36.8	47.7	50.7	51.7		3.9	6.7	5.4			
% of gross electricity from CHP	1.2	1.5	5.1	8.4	9.1		0.5	3.2	3.6			
Carbon free gross electricity generation (%)	8.8	10.9	21.8	30.4	34.8		7.0	13.9	13.6			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	21.8	30.4	34.8		7.0	13.9	13.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	21.7	21.4	22.0	22.5	22.9	0.5	0.7	0.8	2.4	3.4	3.8
Private cars and motorcycles	32.2	58.6	80.0	102.8	109.1	115.9	-2.5	-4.0	-4.9	-2.3	-3.5	-4.0
Rail	2.8	3.1	3.4	4.3	4.8	5.6	0.1	0.1	0.1	1.5	1.9	2.7
Aviation	15.5	24.1	27.7	35.1	38.5	43.5	-1.1	-1.6	-2.1	-3.0	-4.1	-4.7
Inland navigation	7.0	8.7	8.7	8.9	9.0	9.2	-0.1	-0.1	-0.1	-1.2	-1.2	-1.4
Freight transport activity (Gtkm)												
Trucks	12.5	17.5	22.0	28.3	30.9	35.3	-1.3	-1.9	-2.6	-4.2	-5.8	-6.8
Rail	0.6	0.4	0.6	0.9	1.1	1.3	0.0	0.1	0.1	4.8	6.2	7.0
Inland navigation	6.6	8.7	10.1	12.7	13.7	14.3	0.1	0.2	0.3	1.1	1.6	1.8
Energy demand in transport (ktoe)												
Public road transport	154	175	153	142	139	123	0	-2	-7	-0.1	-1.5	-5.5
Private cars and motorcycles	1404	2243	2913	3355	3389	3254	-137	-220	-279	-3.9	-6.1	-7.9
Trucks	2345	2902	3120	3657	3691	3901	-309	-529	-743	-7.8	-12.5	-16.0
Rail	75	60	58	69	75	74	1	0	2	2.1	-0.5	2.4
Aviation	1264	1325	1181	1377	1427	1463	-46	-79	-111	-3.2	-5.3	-7.0
Inland navigation	566	491	643	678	688	680	-10	-15	-24	-1.4	-2.1	-3.4

Source: PRIMES

Hungary: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	14146	13456	11207	10514	10391	10031	10174	10655	12242	-2.3	-0.8	-0.2	1.9	
Solids	3948	3095	2893	1748	1720	904	233	219	1686	-3.1	-5.1	-18.1	21.9	
Oil	2320	2329	1665	1655	1200	1000	996	900	800	-3.3	-3.2	-1.8	-2.2	
Natural gas	3812	3788	2475	2331	2200	2000	1868	1657	1491	-4.2	-1.2	-1.6	-2.2	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Renewable energy sources	523	626	516	1212	1484	2265	3138	3907	4294	-0.1	11.1	7.8	3.2	
Hydro	15	14	15	17	17	17	17	17	17	0.0	0.8	0.1	0.1	
Biomass & Waste	422	526	415	1105	1307	1977	2590	3238	3491	-0.2	12.2	7.1	3.0	
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8	
Solar and others	0	0	0	2	21	111	368	477	608			32.9	5.2	
Geothermal	86	86	86	87	133	152	146	144	130	0.0	4.4	0.9	-1.2	
Net Imports	14436	12629	14011	17558	17906	18786	19559	20004	19614	-0.3	2.5	0.9	0.0	
Solids	1686	1395	1081	1340	1140	1084	882	755	917	-4.3	0.5	-2.5	0.4	
Oil	6621	5496	5352	5875	6507	6995	6932	6963	7031	-2.1	2.0	0.6	0.1	
- Crude oil and Feedstocks	6475	5937	5866	6167	6582	7053	7022	7095	7195	-1.0	1.2	0.6	0.2	
- Oil products	146	-441	-514	-291	-75	-57	-90	-132	-164					
Natural gas	5170	5532	7283	9807	9720	10355	9670	8577	7719	3.5	2.9	-0.1	-2.2	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Gross Inland Consumption	28641	25864	25000	27920	28297	28817	29734	30659	31856	-1.4	1.2	0.5	0.7	
Solids	5969	4549	3967	3090	2861	1988	1115	974	2603	-4.0	-3.2	-9.0	8.8	
Oil	8734	7689	6907	7420	7707	7995	7928	7863	7831	-2.3	1.1	0.3	-0.1	
Natural gas	8913	9175	9657	12094	11920	12355	11538	10233	9210	0.8	2.1	-0.3	-2.2	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Renewable energy forms	523	626	516	1212	1484	2265	4911	7395	8054	-0.1	11.1	12.7	5.1	
as % in Gross Inland Consumption														
Solids	20.8	17.6	15.9	11.1	10.1	6.9	3.7	3.2	8.2					
Oil	30.5	29.7	27.6	26.6	27.2	27.7	26.7	25.6	24.6					
Natural gas	31.1	35.5	38.6	43.3	42.1	42.9	38.8	33.4	28.9					
Nuclear	12.4	14.0	14.6	12.8	13.4	13.4	13.3	13.0	12.5					
Renewable energy forms	1.8	2.4	2.1	4.3	5.2	7.9	16.5	24.1	25.3					
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	37408	42434	46373	54063	63389	2.2	0.6	2.2	3.2	
Self consumption and grid losses	5478	6171	6295	5979	5567	5610	5775	6787	9668	1.4	-1.2	0.4	5.3	
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5071	5023	5248	6562	8263	1.9	-1.6	0.3	4.6	
Solids	2871	2977	2731	1924	1965	1150	374	286	1928	-0.5	-3.2	-15.3	17.8	
Oil (including refinery gas)	440	1447	1052	122	0	0	0	2	11	9.1			49.5	
Gas (including derived gases)	1636	1634	2140	3078	2807	3072	2925	2581	2262	2.7	2.7	0.4	-2.5	
Biomass & Waste	24	55	62	534	298	801	1949	3694	4062	10.2	17.0	20.7	7.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11679	10680	9226	9831	10323	10807	10892	10855	10827	-2.3	1.1	0.5	-0.1	
Refineries	8831	8500	7588	8390	8966	9351	9313	9264	9226	-1.5	1.7	0.4	-0.1	
Biofuels and hydrogen production	0	0	0	0	206	315	517	560	584			9.6	1.2	
District heating	1145	789	471	629	450	475	486	523	528	-8.5	-0.5	0.8	0.8	
Derived gases, cokeries etc.	1704	1392	1168	813	702	666	577	507	489	-3.7	-5.0	-1.9	-1.6	
Energy Branch Consumption	1402	1310	1162	1581	1611	1649	1715	1773	1969	-1.9	3.3	0.6	1.4	
Non-Energy Uses	1569	1609	1586	2282	2501	2659	2724	2754	2781	0.1	4.7	0.9	0.2	
Final Energy Demand	19258	15814	15998	16098	19017	19464	20264	20491	20578	-1.8	1.7	0.6	0.2	
by sector														
Industry	6523	3808	3489	3427	3459	3597	3801	3892	3996	-6.1	-0.1	0.9	0.5	
- energy intensive industries	4160	2691	2563	2328	2259	2318	2410	2435	2462	-4.7	-1.3	0.6	0.2	
- other industrial sectors	2364	1116	926	1099	1200	1278	1391	1457	1534	-8.9	2.6	1.5	1.0	
Residential	6437	5911	5465	6411	6723	6695	6971	6961	6931	-1.6	2.1	0.4	-0.1	
Tertiary	3273	3442	3792	4085	4223	4247	4360	4453	4446	1.5	1.1	0.3	0.2	
Transport	3024	2653	3252	4175	4611	4925	5131	5185	5205	0.7	3.6	1.1	0.1	
by fuel														
Solids	2502	965	793	692	574	527	456	435	425	-10.9	-3.2	-2.3	-0.7	
Oil	6009	4147	4173	4792	5038	5291	5300	5290	5241	-3.6	1.9	0.5	-0.1	
Gas	5941	6370	6503	7852	7928	7908	7280	6847	6409	0.9	2.0	-0.8	-1.3	
Electricity	2811	2500	2658	2823	3004	3243	3521	4016	4537	-0.6	1.2	1.6	2.6	
Heat (from CHP and District Heating)	1570	1287	1440	1297	1396	1164	1150	1273	1322	-0.9	-0.3	-1.9	1.4	
Renewable energy forms	425	545	430	642	1077	1331	2553	2627	2642	0.1	9.6	9.0	0.3	
Other	0	0	0	0	0	1	2	2	2			16.9	2.4	
RES in Gross Final Energy Consumption ^(A)			482	869	1333	1996	4227	5790	6249		10.7	12.2	4.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	79.7	74.4	67.9	63.4	59.8	-2.1	0.4	-1.6	-1.3	
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	54.5	52.3	46.5	42.7	39.4	-2.0	0.2	-1.6	-1.7	
Power generation/District heating	20.5	23.0	21.0	17.3	15.8	13.1	9.6	8.2	6.2	0.2	-2.8	-4.9	-4.3	
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.4	2.0	0.9	0.6	-4.9	5.1	-2.1	-10.7	
Industry	14.7	8.7	6.4	6.3	6.0	6.5	4.9	4.5	4.5	-7.9	-0.7	-2.0	-0.7	
Residential	13.7	9.9	9.0	10.5	10.6	10.0	9.9	9.3	8.4	-4.1	1.6	-0.6	-1.6	
Tertiary	5.6	5.5	6.2	6.7	6.7	6.5	6.4	6.3	5.9	1.1	0.7	-0.4	-0.8	
Transport	8.6	7.6	9.4	12.2	13.0	13.6	13.7	13.7	13.6	0.9	3.3	0.6	-0.1	
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.7	3.8	3.9	-3.6	-0.4	1.5	0.8	
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	18.8	17.7	16.8	16.5	-2.2	1.0	-2.2	-0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	83.7	78.2	71.3	66.6	62.8					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Hungary: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2	
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7	
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	270.1	229.4	201.7	180.5	166.3	-2.5	-2.5	-2.9	-1.9	
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.93	1.81	1.56	1.39	1.24	-0.7	-1.1	-2.1	-2.3	
Import Dependency %	50.4	48.8	56.0	62.9	63.3	65.2	65.8	65.2	61.6					
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.9	21.2	24.5	27.0	28.0		3.2	3.2	1.4	
as % of GDP			18.2	16.1	17.1	16.9	16.6	15.9	14.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.3	62.8	58.4	53.0	49.5	-9.6	-3.5	-1.8	-1.6	
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	76.8	64.0	57.0	49.6	43.9	-1.9	-2.6	-2.9	-2.6	
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	75.5	63.8	55.8	49.4	43.6	1.6	-2.8	-3.0	-2.4	
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.6	33.8	32.3	29.5	27.3	2.1	2.2	-0.7	-1.7	
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	38.8	37.1	34.8	33.5	32.4	0.5	0.7	-1.1	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.28	0.22	0.15	0.11	0.08	-0.8	-3.3	-5.9	-6.7	
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.90	1.89	1.72	1.65	1.58	-1.3	-0.2	-1.0	-0.9	
Industry	2.25	2.28	1.85	1.84	1.73	1.82	1.28	1.15	1.14	-2.0	-0.7	-3.0	-1.2	
Residential	2.13	1.68	1.64	1.64	1.57	1.49	1.42	1.33	1.22	-2.6	-0.4	-1.0	-1.6	
Tertiary	1.70	1.59	1.64	1.64	1.58	1.53	1.47	1.41	1.33	-0.3	-0.4	-0.7	-1.0	
Transport	2.84	2.85	2.90	2.92	2.81	2.77	2.68	2.65	2.62	0.2	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.8	10.0	20.4	27.5	29.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.0	5.7	9.1	9.9	10.5					
Gross Electricity generation by source (in GWh)														
			35185	35749	37408	42434	46373	54063	63389		0.6	2.2	3.2	
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1	
Solids			8350	5838	5640	3755	1844	1565	10400		-3.8	-10.6	18.9	
Oil (including refinery gas)			4243	497	55	91	57	50	103		-35.2	0.2	6.2	
Gas (including derived gases)			8040	13021	15079	19338	19231	17318	15266		6.5	2.5	-2.3	
Biomass-waste			197	2348	1695	3980	9551	19125	21388		24.0	18.9	8.4	
Hydro (pumping excluded)			178	203	193	196	196	198	199		0.8	0.1	0.1	
Wind			0	10	64	92	201	372	561			12.1	10.8	
Solar			0	0	2	11	22	41	76			27.2	13.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			7789	8587	9783	10564	10199	10041	11039		2.3	0.4	0.8	
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0	
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0	
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2	
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7	
Solar			0	0	3	14	30	55	102			27.2	13.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			6036	6793	7917	8622	8093	7691	8361		2.7	0.2	0.3	
of which cogeneration units			1915	2391	2268	2727	2913	2012	2072		1.7	2.5	-3.3	
Solids fired			1683	1592	1521	1142	494	486	1127		-1.0	-10.6	8.6	
Gas fired			3516	4572	5668	6338	5565	4040	3864		4.9	-0.2	-3.6	
Oil fired			762	313	322	241	176	135	94		-8.3	-5.8	-6.1	
Biomass-waste fired			76	316	407	901	1857	3029	3275		18.3	16.4	5.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			47.3	44.1	41.4	43.9	49.9	58.6	60.5					
Efficiency of gross thermal power generation (%)			29.9	33.0	38.1	46.5	50.3	49.9	49.1					
% of gross electricity from CHP			24.5	28.3	31.2	26.5	27.7	25.4	23.6					
Carbon free gross electricity generation (%)			41.4	45.9	44.5	45.4	54.4	65.0	59.3					
- nuclear			40.3	38.7	39.2	35.3	32.9	28.5	24.3					
- renewable energy forms			1.1	7.2	5.2	10.1	21.5	36.5	35.1					
Transport sector														
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.5	94.1	102.9	111.8	120.3	-0.2	0.8	1.8	1.6	
Public road transport	19.3	16.6	18.7	18.2	17.8	16.9	16.2	15.6	15.1	-0.3	-0.5	-0.9	-0.7	
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.3	60.9	69.1	77.3	84.7	-0.1	1.3	2.6	2.1	
Rail	13.9	10.9	12.3	12.2	12.2	12.3	12.5	12.4	12.5	-1.2	-0.1	0.2	0.1	
Aviation	1.6	1.9	2.4	2.7	3.2	4.1	5.1	6.4	7.9	4.3	2.9	4.8	4.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	41.6	47.1	51.9	56.3	59.4	-1.9	4.1	2.2	1.4	
Trucks	15.2	13.8	19.1	25.2	30.2	34.8	38.9	42.7	45.2	2.4	4.7	2.6	1.5	
Rail	16.8	8.4	8.8	8.6	9.1	9.6	10.1	10.4	10.8	-6.3	0.3	1.1	0.7	
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.3	3.4			2.1	1.3	
Energy demand in transport (ktoe)	3024	2653	3252	4175	4611	4925	5131	5185	5205	0.7	3.6	1.1	0.1	
Public road transport	160	124	149	167	157	138	122	106	95	-0.7	0.5	-2.5	-2.5	
Private cars and motorcycles	1482	1462	1824	2321	2529	2693	2812	2752	2693	2.1	3.3	1.1	-0.4	
Trucks	938	695	886	1297	1510	1636	1698	1785	1846	-0.6	5.5	1.2	0.8	
Rail	271	190	175	159	151	145	137	125	98	-4.3	-1.5	-0.9	-3.3	
Aviation	164	182	219	230	264	312	360	416	472	2.9	1.9	3.2	2.7	
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.0	

Source: PRIMES

Hungary: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	10031	10174	12242	-59	-103	1986	-0.6	-1.0	19.4
Solids	3948	2893	1748	904	233	1686	-821	-1501	-55	-47.6	-86.6	-3.1
Oil	2320	1665	1655	1000	996	800	0	-4	0	0.0	-0.4	0.0
Natural gas	3812	2475	2331	2000	1868	1491	0	-32	-209	0.0	-1.7	-12.3
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	2265	3138	4294	762	1434	2250	50.7	84.1	110.1
Hydro	15	15	17	17	17	17	0	0	0	2.5	2.3	0.0
Biomass & Waste	422	415	1105	1977	2590	3491	600	1056	1705	43.6	68.8	95.5
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	111	368	608	91	294	461	436.7	396.5	312.2
Geothermal	86	86	87	152	146	130	71	84	84	87.7	134.6	184.9
Net Imports	14436	14011	17558	18786	19559	19614	-1884	-2515	-3770	-9.1	-11.4	-16.1
Solids	1686	1081	1340	1084	882	917	-18	-316	-404	-1.7	-26.4	-30.6
Oil	6621	5352	5875	6995	6932	7031	-588	-992	-1304	-7.8	-12.5	-15.6
- Crude oil and Feedstocks	6475	5866	6167	7053	7022	7195	-562	-917	-1148	-7.4	-11.5	-13.8
- Oil products	146	-514	-291	-57	-90	-164	-27	-75	-157	85.8	509.0	2229.8
Natural gas	5170	7283	9807	10355	9670	7719	-1278	-2981	-5822	-11.0	-23.6	-43.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	28817	29734	31856	-1943	-2619	-1784	-6.3	-8.1	-5.3
Solids	5969	3967	3090	1988	1115	2603	-839	-1817	-459	-29.7	-62.0	-15.0
Oil	8734	6907	7420	7995	7928	7831	-588	-996	-1304	-6.9	-11.2	-14.3
Natural gas	8913	9657	12094	12355	11538	9210	-1278	-3013	-6031	-9.4	-20.7	-39.6
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	2265	4911	8054	762	3207	6010	50.7	188.2	294.1
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	6.9	3.7	8.2	-2.3	-5.3	-0.9			
Oil	30.5	27.6	26.6	27.7	26.7	24.6	-0.2	-0.9	-2.6			
Natural gas	31.1	38.6	43.3	42.9	38.8	28.9	-1.4	-6.2	-16.4			
Nuclear	12.4	14.6	12.8	13.4	13.3	12.5	0.8	1.1	0.7			
Renewable energy forms	1.8	2.1	4.3	7.9	16.5	25.3	3.0	11.3	19.2			
Gross Electricity Generation in GWh_e	28431	35185	35749	42434	46373	63389	-4652	-6335	2935	-9.9	-12.0	4.9
Self consumption and grid losses	5478	6295	5979	5610	5775	9668	-682	-1013	2505	-10.8	-14.9	35.0
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5023	5248	8263	-985	-1357	957	-16.4	-20.5	13.1
Solids	2871	2731	1924	1150	374	1928	-822	-1636	-264	-41.7	-81.4	-12.0
Oil (including refinery gas)	440	1052	122	0	0	11	-163	-142	-4	-99.9	-99.9	-27.3
Gas (including derived gases)	1636	2140	3078	3072	2925	2262	-496	-1191	-2395	-13.9	-28.9	-51.4
Biomass & Waste	24	62	534	801	1949	4062	495	1613	3620	161.9	480.0	818.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	10807	10892	10827	-585	-961	-1260	-5.1	-8.1	-10.4
Refineries	8831	7588	8390	9351	9313	9226	-562	-921	-1148	-5.7	-9.0	-11.1
Biofuels and hydrogen production	0	0	0	315	517	584	34	102	21	12.3	24.5	3.7
District heating	1145	471	629	475	486	528	-79	-103	-87	-14.3	-17.5	-14.1
Derived gases, cokeries etc.	1704	1168	813	666	577	489	22	-39	-46	3.5	-6.4	-8.6
Energy Branch Consumption	1402	1162	1581	1649	1715	1969	-75	-76	126	-4.4	-4.3	6.8
Non-Energy Uses	1569	1586	2282	2659	2724	2781	-1	0	-1	0.0	0.0	-0.1
Final Energy Demand	19258	15998	18098	19464	20264	20578	-1470	-1720	-2555	-7.0	-7.8	-11.0
by sector												
Industry	6523	3489	3427	3597	3801	3996	-64	-68	-204	-1.7	-1.8	-4.9
- energy intensive industries	4160	2563	2328	2318	2410	2462	-16	-35	-136	-0.7	-1.4	-5.2
- other industrial sectors	2364	926	1099	1278	1391	1534	-47	-33	-69	-3.6	-2.3	-4.3
Residential	6437	5465	6411	6695	6971	6931	-582	-453	-609	-8.0	-6.1	-8.1
Tertiary	3273	3792	4085	4247	4360	4446	-548	-721	-849	-11.4	-14.2	-16.0
Transport	3024	3252	4175	4925	5131	5205	-276	-478	-893	-5.3	-8.5	-14.6
by fuel												
Solids	2502	793	692	527	456	425	-27	-71	-86	-4.9	-13.4	-16.8
Oil	6009	4173	4792	5291	5300	5241	-320	-618	-1071	-5.7	-10.4	-17.0
Gas	5941	6503	7852	7908	7280	6409	-722	-1743	-2616	-8.4	-19.3	-29.0
Electricity	2811	2658	2823	3243	3521	4537	-337	-448	52	-9.4	-11.3	1.2
Heat (from CHP and District Heating)	1570	1440	1297	1164	1150	1322	-311	-187	-102	-21.1	-14.0	-7.1
Renewable energy forms	425	430	642	1331	2553	2642	247	1347	1268	22.8	111.6	92.2
Other	0	0	0	1	2	2	0	0	0	6.6	6.9	-4.9
RES in Gross Final Energy Consumption ^(A)		482	869	1996	4227	6249	716	2763	4366	55.9	188.7	232.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	74.4	67.9	59.8	-12.1	-22.9	-32.7	-14.0	-25.2	-35.4
CO₂ Emissions (energy related)	65.5	53.6	55.0	52.3	46.5	39.4	-8.2	-17.4	-27.1	-13.6	-27.2	-40.8
Power generation/District heating	20.5	21.0	17.3	13.1	9.6	6.2	-5.3	-10.4	-15.4	-28.8	-52.0	-71.3
Energy Branch	2.5	1.5	1.9	2.4	2.0	0.6	-0.2	-0.7	-2.0	-7.1	-27.1	-75.9
Industry	14.7	6.4	6.3	6.5	4.9	4.5	0.4	-2.1	-2.5	5.8	-30.3	-35.4
Residential	13.7	9.0	10.5	10.0	9.9	8.4	-1.2	-1.0	-2.1	-11.0	-9.1	-20.0
Tertiary	5.6	6.2	6.7	6.5	6.4	5.9	-0.9	-1.4	-2.1	-12.6	-17.8	-26.5
Transport	8.6	9.4	12.2	13.6	13.7	13.6	-0.9	-1.8	-3.0	-6.4	-11.3	-17.8
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.7	3.9	0.0	-0.1	-0.1	-0.7	-1.7	-3.3
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	18.8	17.7	16.5	-3.9	-5.4	-5.4	-17.1	-23.4	-24.8
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	78.2	71.3	62.8	-12.8	-24.0	-34.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Hungary: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	229.4	201.7	166.3	-15.5	-17.8	-9.3	-6.3	-8.1	-5.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.81	1.56	1.24	-0.15	-0.41	-0.74	-7.8	-20.8	-37.5
Import Dependency %	50.4	56.0	62.9	65.2	65.8	61.6	-2.0	-2.5	-7.9			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	21.2	24.5	28.0	0.9	1.7	1.8	4.4	7.4	6.9
as % of GDP		18.2	16.1	16.9	16.6	14.6	0.7	1.1	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				1.0	1.8	1.9						
as % of GDP				0.77	1.22	1.01						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	62.8	58.4	49.5	-1.1	-1.0	-2.5	-1.7	-1.8	-4.9
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	64.0	57.0	43.9	-5.6	-3.7	-3.9	-8.0	-6.1	-8.1
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	63.8	55.8	43.6	-8.2	-9.2	-8.3	-11.4	-14.2	-16.0
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	33.8	32.3	27.3	-1.0	-1.5	-3.3	-2.8	-4.4	-10.9
Freight transport (toe/Mtkm)	34.4	36.4	39.3	37.1	34.8	32.4	-2.0	-3.5	-4.8	-5.2	-9.1	-12.8
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.22	0.15	0.08	-0.05	-0.13	-0.19	-18.8	-45.4	-71.8
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.89	1.72	1.58	0.00	-0.15	-0.24	0.1	-8.0	-13.4
Industry	2.25	1.85	1.84	1.82	1.28	1.14	0.13	-0.52	-0.54	7.7	-29.0	-32.1
Residential	2.13	1.64	1.64	1.49	1.42	1.22	-0.05	-0.05	-0.18	-3.2	-3.2	-12.9
Tertiary	1.70	1.64	1.64	1.53	1.47	1.33	-0.02	-0.06	-0.19	-1.3	-4.2	-12.4
Transport	2.84	2.90	2.92	2.77	2.68	2.62	-0.03	-0.08	-0.10	-1.1	-3.1	-3.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	10.0	20.4	29.2	4.0	13.9	21.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.7	9.1	10.5	0.9	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	42434	46373	63389	63389	-4652	-6335	2935	-9.9	-12.0	4.9
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	3755	1844	10400	10400	-3071	-6235	194	-45.0	-77.2	1.9
Oil (including refinery gas)	4243	497	91	57	103	103	-692	-635	-48	-88.4	-91.8	-32.0
Gas (including derived gases)	8040	13021	19338	19231	15266	15266	-3150	-7301	-16269	-14.0	-27.5	-51.6
Biomass-waste	197	2348	3980	9551	21388	21388	2256	7832	19059	130.9	455.6	818.0
Hydro (pumping excluded)	178	203	196	196	199	199	5	4	0	2.5	2.3	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	7789	8587	10564	10199	11039	11039	-10	266	-5	-0.1	2.7	0.0
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8622	8093	8361	8361	-10	266	-5	-0.1	3.4	-0.1
of which cogeneration units	1915	2391	2727	2913	2072	2072	-97	132	-480	-3.4	4.8	-18.8
Solids fired	1683	1592	1142	494	1127	1127	-214	-407	-54	-15.8	-45.2	-4.6
Gas fired	3516	4572	6338	5565	3864	3864	-344	-802	-2468	-5.1	-12.6	-39.0
Oil fired	762	313	241	176	94	94	-13	-43	-169	-5.3	-19.6	-64.2
Biomass-waste fired	76	316	901	1857	3275	3275	561	1519	2686	164.9	448.8	456.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	43.9	49.9	60.5	60.5	-4.7	-8.2	0.6			
Efficiency of gross thermal power generation (%)	29.9	33.0	46.5	50.3	49.1	49.1	1.0	2.1	-3.0			
% of gross electricity from CHP	24.5	28.3	26.5	27.7	23.6	23.6	-1.0	4.5	-2.0			
Carbon free gross electricity generation (%)	41.4	45.9	45.4	54.4	59.3	59.3	9.3	21.4	28.6			
- nuclear	40.3	38.7	35.3	32.9	24.3	24.3	3.5	4.0	-1.2			
- renewable energy forms	1.1	7.2	10.1	21.5	35.1	35.1	5.8	17.5	29.8			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	82.0	80.0	80.3	94.1	102.9	120.3	-1.3	-2.3	-3.9	-1.4	-2.2	-3.1
Private cars and motorcycles	19.3	18.7	18.2	16.9	16.2	15.1	0.3	0.4	0.4	1.5	2.2	2.8
Rail	47.3	46.6	47.2	60.9	69.1	84.7	-1.7	-2.9	-4.1	-2.7	-4.1	-4.7
Aviation	13.9	12.3	12.2	12.3	12.5	12.5	0.3	0.5	0.3	2.2	4.5	2.8
Inland navigation	1.6	2.4	2.7	4.1	5.1	7.9	-0.2	-0.3	-0.5	-3.7	-5.1	-5.8
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	34.0	27.9	35.8	47.1	51.9	59.4	-1.1	-1.7	-2.4	-2.2	-3.2	-3.9
Rail	15.2	19.1	25.2	34.8	38.9	45.2	-1.6	-2.4	-3.2	-4.3	-5.8	-6.6
Inland navigation	16.8	8.8	8.6	9.6	10.1	10.8	0.4	0.6	0.7	4.9	6.7	6.9
Energy demand in transport (ktoe)	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.1	0.1	1.3	1.8	2.2
Energy demand in transport (ktoe)												
Public road transport	3024	3252	4175	4925	5131	5205	-276	-478	-893	-5.3	-8.5	-14.6
Private cars and motorcycles	160	149	167	138	122	95	-2	-4	-7	-1.3	-3.5	-7.3
Trucks	1482	1824	2321	2693	2812	2693	-120	-198	-456	-4.3	-6.6	-14.5
Rail	938	886	1297	1636	1698	1846	-143	-256	-384	-8.0	-13.1	-17.2
Aviation	271	175	159	145	137	98	3	8	10	2.0	6.1	11.8
Inland navigation	164	219	230	312	360	472	-14	-27	-55	-4.4	-7.1	-10.5
Inland navigation	9	0	1	1	1	2	0	0	0	0.5	0.2	-0.7

Source: PRIMES

Ireland: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	3353	4020	2175	1650	1957	2295	2812	3174	3512	-4.2	-1.0	3.7	2.2
Solids	1312	1606	959	789	754	597	516	381	486	-3.1	-2.4	-3.7	-0.6
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	478	454	467	466	483	-6.5	-6.7	-0.2	0.3
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	726	1244	1829	2327	2543	4.4	10.9	9.7	3.3
Hydro	60	61	73	54	80	81	82	83	83	2.0	0.9	0.3	0.2
Biomass & Waste	108	102	164	250	375	469	587	722	779	4.3	8.6	4.6	2.9
Wind	0	1	21	96	252	553	875	1227	1340		28.2	13.3	4.4
Solar and others	0	0	0	0	19	141	285	295	340	14.8	58.2	31.3	1.8
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.6	5.4	1.6
Net Imports	7074	7604	12234	13620	14928	14694	13797	13311	13208	5.6	2.0	-0.8	-0.4
Solids	2064	1823	1789	1969	2035	1966	810	383	297	-1.4	1.3	-8.8	-9.5
Oil	5010	5698	7959	8466	9621	9415	9156	8939	8732	4.7	1.9	-0.5	-0.5
- Crude oil and Feedstocks	2018	2260	3002	3297	3341	3279	3209	3147	3087	4.1	1.1	-0.4	-0.4
- Oil products	2992	3438	4957	5168	6280	6136	5947	5792	5645	5.2	2.4	-0.5	-0.5
Natural gas	0	85	2478	3010	3120	2967	3049	3040	3154		2.3	-0.2	0.3
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	10225	10844	14319	15121	16766	16861	16475	16346	16578	3.4	1.6	-0.2	0.1
Solids	3416	2775	2711	2685	2789	2562	1326	764	783	-2.3	0.3	-7.2	-5.1
Oil	4768	5571	7906	8390	9501	9287	9022	8800	8591	5.2	1.9	-0.5	-0.5
Natural gas	1873	2334	3436	3470	3598	3421	3517	3506	3637	6.3	0.5	-0.2	0.3
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	798	1505	2516	3173	3455	4.4	12.0	12.2	3.2
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	16.6	15.2	8.0	4.7	4.7				
Oil	46.6	51.4	55.2	55.5	56.7	55.1	54.8	53.8	51.8				
Natural gas	18.3	21.5	24.0	22.9	21.5	20.3	21.3	21.4	21.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.8	8.9	15.3	19.4	20.8				
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27739	29728	30539	36075	40065	5.2	1.6	1.0	2.8
Self consumption and grid losses	2263	2665	3458	3870	3570	3646	3281	3626	4136	4.3	0.3	-0.8	2.3
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4370	4055	3226	3109	3482	4.7	-0.9	-3.0	0.8
Solids	1839	2028	1925	1903	2191	2048	907	420	478	0.5	1.3	-8.4	-6.2
Oil (including refinery gas)	339	622	1019	774	147	28	0	1	1	11.6	-17.6		
Gas (including derived gases)	841	1060	1825	2040	1953	1875	1962	2233	2388	8.1	0.7	0.0	2.0
Biomass & Waste	0	0	24	30	79	105	357	455	614		12.8	16.3	5.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	1939	2429	3481	3472	3557	3625	3744	3711	3672	6.0	0.2	0.5	-0.2
Refineries	1742	2263	3310	3336	3341	3279	3209	3147	3087	6.6	0.1	-0.4	-0.4
Biofuels and hydrogen production	0	0	0	1	137	288	496	540	569			13.7	1.4
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	197	167	171	135	79	58	39	24	15	-1.4	-7.5	-6.9	-8.8
Energy Branch Consumption	168	185	246	380	339	324	284	263	270	3.9	3.3	-1.8	-0.5
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4
Final Energy Demand	7355	7903	10678	12346	13268	13498	13604	13667	13686	3.8	2.2	0.3	0.1
by sector													
Industry	1744	1851	2344	2484	2717	2802	2875	2944	3060	3.0	1.5	0.6	0.6
- energy intensive industries	869	879	1170	1231	1383	1458	1520	1572	1630	3.0	1.7	1.0	0.7
- other industrial sectors	875	972	1173	1253	1334	1343	1355	1373	1430	3.0	1.3	0.2	0.5
Residential	2404	2208	2509	2923	3034	3052	2964	2911	2864	0.4	1.9	-0.2	-0.3
Tertiary	1222	1502	1821	1958	1906	1842	1857	1846	1819	4.1	0.5	-0.3	-0.2
Transport	1985	2343	4005	4981	5611	5803	5908	5965	5942	7.3	3.4	0.5	0.1
by fuel													
Solids	1784	933	699	704	582	503	410	337	297	-9.0	-1.8	-3.5	-3.2
Oil	3874	4796	6894	7990	8613	8493	8275	8052	7833	5.9	2.3	-0.4	-0.5
Gas	568	796	1201	1337	1567	1477	1455	1166	1152	7.8	2.7	-0.7	-2.3
Electricity	1020	1277	1744	2094	2144	2315	2426	2881	3190	5.5	2.1	1.2	2.8
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			6.0	2.3
Renewable energy forms	108	102	141	221	359	707	1036	1224	1209	2.7	9.8	11.2	1.6
Other	0	0	0	0	1	1	2	3	4			14.6	6.2
RES in Gross Final Energy Consumption ^(A)			245	382	760	1433	2365	3007	3216		12.0	12.0	3.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.2	69.9	63.3	60.5	60.3	2.1	0.8	-1.7	-0.5
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.5	44.5	38.9	36.0	35.7	3.1	1.0	-1.8	-0.9
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	12.7	8.3	7.0	7.6	3.9	-1.0	-5.0	-0.9
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.5	0.5	0.5	4.0	5.8	-1.0	-0.5
Industry	4.0	3.9	4.8	5.2	5.7	5.7	5.5	5.0	5.3	1.8	1.7	-0.4	-0.2
Residential	7.5	6.0	6.1	6.6	6.6	6.1	5.8	5.0	4.4	-2.1	0.9	-1.4	-2.6
Tertiary	2.9	3.4	3.8	3.6	3.5	2.9	2.6	2.2	1.8	2.8	-0.8	-2.8	-3.6
Transport	5.9	6.9	11.9	14.8	16.4	16.6	16.3	16.3	16.1	7.3	3.2	0.0	-0.1
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.6	6.2	6.7	7.1	2.1	5.5	1.8	1.4
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	19.8	18.2	17.8	17.5	0.6	-0.3	-2.5	-0.4
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	134.0	124.6	112.7	107.7	107.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	69.2	57.6	49.8	45.4	-3.6	-3.2	-3.5	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.78	2.64	2.36	2.20	2.16	-0.3	-0.6	-1.6	-0.9
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.5	83.1	80.7	79.0				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	16.1	17.9	18.7	19.3		3.9	2.1	0.7
as % of GDP			7.9	7.4	7.1	6.6	6.2	5.7	5.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	59.5	52.1	46.9	44.3	-4.0	-3.6	-2.8	-1.6
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	71.3	60.2	52.2	46.7	-4.7	-1.9	-3.1	-2.5
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	54.0	46.4	40.0	35.3	-2.4	-4.0	-3.5	-2.7
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.3	49.1	44.4	41.7	-0.2	-0.8	-1.9	-1.6
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	91.2	84.6	80.9	76.5	2.8	-1.5	-1.7	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.43	0.27	0.19	0.19	-1.3	-2.5	-5.9	-3.5
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.42	2.31	2.22	2.09	2.02	-1.0	-0.3	-0.9	-0.9
Industry	2.31	2.09	2.05	2.08	2.08	2.02	1.90	1.71	1.74	-1.2	0.2	-0.9	-0.8
Residential	3.11	2.71	2.42	2.27	2.19	2.01	1.94	1.73	1.54	-2.5	-1.0	-1.2	-2.3
Tertiary	2.34	2.28	2.07	1.83	1.82	1.57	1.40	1.17	0.99	-1.2	-1.3	-2.6	-3.4
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.76	2.74	2.71	0.1	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.4	17.0	21.5	22.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.9	8.5	9.3	10.0				
Gross Electricity generation by source (in GWh)													
			23669	24992	27739	29728	30539	36075	40065		1.6	1.0	2.8
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10577	9891	4342	1989	2266		1.9	-8.5	-6.3
Oil (including refinery gas)			4516	3390	641	92	0	8	8		-17.7		
Gas (including derived gases)			9231	11197	12307	11882	12565	15023	16352		2.9	0.2	2.7
Biomass-waste			96	125	352	480	1791	3017	3890		13.8	17.7	8.1
Hydro (pumping excluded)			846	631	927	941	954	965	969		0.9	0.3	0.2
Wind			244	1112	2930	6431	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	697	779	956				3.2
Net Generation Capacity in MW_e			4627	6052	8291	8082	9774	12256	13730		6.0	1.7	3.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2629	4219	5501	6096		17.3	9.6	3.7
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2360	3568	4784	5258		28.5	9.5	4.0
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	362	404	496				3.2
<u>Thermal power</u>			4284	5338	6601	5453	5555	6756	7634		4.4	-1.7	3.2
of which cogeneration units			108	561	404	583	597	556	587		14.1	4.0	-0.2
Solids fired			1282	1367	1361	1335	1314	1312	1312		0.6	-0.4	0.0
Gas fired			1974	2937	4116	3889	3806	4738	5563		7.6	-0.8	3.9
Oil fired			1010	995	1006	92	64	8	8		0.0	-24.1	-18.4
Biomass-waste fired			18	39	118	136	371	697	750		20.6	12.1	7.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.1	40.1	34.6	32.9	32.6				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.4	49.8	55.4	55.6				
% of gross electricity from CHP			1.1	0.9	6.1	7.1	7.7	9.0	8.2				
Carbon free gross electricity generation (%)			5.0	7.5	15.2	26.4	44.6	52.8	53.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	15.2	26.4	44.6	52.8	53.5				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	62.0	70.0	77.1	82.2	5.5	3.7	2.6	1.6
Public road transport	3.9	5.2	6.1	6.7	7.3	7.7	8.1	8.5	8.8	4.7	1.8	1.1	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	36.0	40.5	44.1	46.0	5.3	4.1	2.5	1.3
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.4	4.0	4.7	1.3	5.5	3.6	3.3
Aviation	3.2	5.1	7.9	9.6	11.7	14.0	16.4	18.9	21.1	9.5	4.0	3.4	2.5
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.7	29.2	31.4	32.8	8.5	5.9	2.1	1.2
Trucks	5.1	5.5	12.3	17.9	22.6	25.5	27.9	29.9	31.2	9.2	6.3	2.1	1.1
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.5	0.5	-1.8	-3.3	1.9	1.1
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.1	1.2	9.3	2.1	3.0	2.3
Energy demand in transport (ktoe)													
	1985	2343	4005	4981	5611	5803	5908	5965	5942	7.3	3.4	0.5	0.1
Public road transport	58	76	99	101	98	91	87	86	89	5.5	-0.2	-1.1	0.3
Private cars and motorcycles	993	1146	1695	1915	2085	2103	2093	2002	1951	5.5	2.1	0.0	-0.7
Trucks	495	653	1532	2066	2355	2404	2439	2504	2490	12.0	4.4	0.4	0.2
Rail	48	50	42	44	51	51	39	39	28	-1.4	2.1	-2.6	-3.2
Aviation	365	390	613	836	1002	1132	1227	1309	1358	5.3	5.0	2.0	1.0
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.8

Source: PRIMES

Ireland: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2295	2812	3512	53	376	838	2.4	15.4	31.4
Solids	1312	959	789	597	516	486	-146	-212	-186	-19.7	-29.1	-27.7
Oil	0	0	0	0	0	0	0	0	0	-53.5	376.6	43.9
Natural gas	1873	958	461	454	467	483	-114	-108	-17	-20.0	-18.8	-3.4
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	168	258	401	1244	1829	2543	313	696	1041	33.6	61.4	69.3
Hydro	60	73	54	81	82	83	4	2	0	4.7	2.5	0.0
Biomass & Waste	108	164	250	469	587	779	0	0	-4	0.0	0.0	-0.5
Wind	0	21	96	553	875	1340	204	460	772	58.6	110.7	135.9
Solar and others	0	0	0	141	285	340	105	234	273	294.7	457.2	405.9
Geothermal	0	0	0	0	0	0	0	0	0	38.7	98.0	152.9
Net Imports	7074	12234	13620	14694	13797	13208	-1669	-3089	-3761	-10.2	-18.3	-22.2
Solids	2064	1789	1969	1966	810	297	-328	-1842	-1851	-14.3	-69.5	-86.2
Oil	5010	7959	8466	9415	9156	8732	-788	-1103	-1703	-7.7	-10.8	-16.3
- Crude oil and Feedstocks	2018	3002	3297	3279	3209	3087	-278	-345	-481	-7.8	-9.7	-13.5
- Oil products	2992	4957	5168	6136	5947	5645	-510	-758	-1222	-7.7	-11.3	-17.8
Natural gas	0	2478	3010	2967	3049	3154	-743	-706	-952	-20.0	-18.8	-23.2
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	16861	16475	16578	-1616	-2713	-2922	-8.7	-14.1	-15.0
Solids	3416	2711	2685	2562	1326	783	-474	-2053	-2037	-15.6	-60.8	-72.2
Oil	4768	7906	8390	9287	9022	8591	-788	-1102	-1702	-7.8	-10.9	-16.5
Natural gas	1873	3436	3470	3421	3517	3637	-856	-814	-969	-20.0	-18.8	-21.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1505	2516	3455	503	1257	1786	50.1	99.9	107.0
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	15.2	8.0	4.7	-1.2	-9.6	-9.7			
Oil	46.6	55.2	55.5	55.1	54.8	51.8	0.6	2.0	-1.0			
Natural gas	18.3	24.0	22.9	20.3	21.3	21.9	-2.9	-1.2	-1.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	8.9	15.3	20.8	3.5	8.7	12.3			
Gross Electricity Generation in GWh_e	14226	23669	24992	29728	30539	40065	-4506	-6204	1341	-13.2	-16.9	3.5
Self consumption and grid losses	2263	3458	3870	3646	3281	4136	-643	-1298	-395	-15.0	-28.4	-8.7
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4055	3226	3482	-1131	-2153	-1557	-21.8	-40.0	-30.9
Solids	1839	1925	1903	2048	907	478	-413	-1974	-1969	-16.8	-68.5	-80.5
Oil (including refinery gas)	339	1019	774	28	0	1	-198	-16	1	-87.7	-100.0	91807.4
Gas (including derived gases)	841	1825	2040	1875	1962	2388	-541	-417	-5	-22.4	-17.5	-0.2
Biomass & Waste	0	24	30	105	357	614	21	255	416	25.1	250.2	209.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	1939	3481	3472	3625	3744	3672	-252	-252	-441	-6.5	-6.3	-10.7
Refineries	1742	3310	3336	3279	3209	3087	-278	-345	-481	-7.8	-9.7	-13.5
Biofuels and hydrogen production	0	0	1	288	496	569	34	101	47	13.2	25.4	8.9
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	197	171	135	58	39	15	-8	-8	-7	-12.0	-17.4	-30.6
Energy Branch Consumption	168	246	380	324	284	270	-39	-89	-85	-10.6	-23.9	-23.8
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13498	13604	13686	-993	-1480	-2028	-6.9	-9.8	-12.9
by sector												
Industry	1744	2344	2484	2802	2875	3060	-88	-156	-224	-3.0	-5.2	-6.8
- energy intensive industries	869	1170	1231	1458	1520	1630	-28	-47	-65	-1.9	-3.0	-3.8
- other industrial sectors	875	1173	1253	1343	1355	1430	-59	-110	-159	-4.2	-7.5	-10.0
Residential	2404	2509	2923	3052	2964	2864	-195	-347	-478	-6.0	-10.5	-14.3
Tertiary	1222	1821	1958	1842	1857	1819	-443	-514	-659	-19.4	-21.7	-26.6
Transport	1985	4005	4981	5803	5908	5942	-267	-463	-667	-4.4	-7.3	-10.1
by fuel												
Solids	1784	699	704	503	410	297	-58	-75	-65	-10.4	-15.5	-18.0
Oil	3874	6894	7990	8493	8275	7833	-572	-1028	-1639	-6.3	-11.0	-17.3
Gas	568	1201	1337	1477	1455	1152	-298	-412	-978	-16.8	-22.1	-45.9
Electricity	1020	1744	2094	2315	2426	3190	-332	-421	151	-12.5	-14.8	5.0
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	0	1	-0.5	29.6	56.1
Renewable energy forms	108	141	221	707	1036	1209	267	456	502	60.6	78.8	71.0
Other	0	0	0	1	2	4	0	-1	0	40.8	-26.0	-6.1
RES in Gross Final Energy Consumption ^(A)		245	382	1433	2365	3216	495	1203	1700	52.7	103.4	112.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	69.9	63.3	60.3	-9.3	-17.3	-19.8	-11.7	-21.5	-24.7
CO₂ Emissions (energy related)	30.9	42.1	45.7	44.5	38.9	35.7	-6.3	-13.3	-15.5	-12.3	-25.5	-30.2
Power generation/District heating	10.4	15.2	14.8	12.7	8.3	7.6	-3.6	-8.9	-7.8	-21.9	-51.7	-50.8
Energy Branch	0.2	0.3	0.6	0.6	0.5	0.5	0.0	-0.1	-0.1	-5.7	-15.8	-20.4
Industry	4.0	4.8	5.2	5.7	5.5	5.3	-0.3	-0.7	-1.1	-4.8	-11.9	-17.7
Residential	7.5	6.1	6.6	6.1	5.8	4.4	-0.7	-0.9	-2.0	-9.9	-13.6	-31.6
Tertiary	2.9	3.8	3.6	2.9	2.6	1.8	-0.8	-1.1	-2.0	-21.9	-28.9	-53.1
Transport	5.9	11.9	14.8	16.6	16.3	16.1	-0.9	-1.7	-2.3	-5.1	-9.3	-12.5
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.6	6.2	7.1	-0.1	-0.1	-0.2	-1.6	-2.0	-2.4
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	19.8	18.2	17.5	-2.9	-3.9	-4.1	-12.9	-17.6	-19.1
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	124.6	112.7	107.5	-16.5	-30.9	-35.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Ireland: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	69.2	57.6	45.4	-6.6	-9.5	-8.0	-8.7	-14.1	-15.0
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.64	2.36	2.16	-0.11	-0.36	-0.47	-3.9	-13.3	-17.9
Import Dependency %	69.1	84.5	89.5	86.5	83.1	79.0	-1.5	-4.3	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	16.1	17.9	19.3	0.7	1.3	1.3	4.9	7.6	7.5
as % of GDP		7.9	7.4	6.6	6.2	5.3	0.3	0.4	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.3	1.4						
as % of GDP				0.33	0.47	0.40						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	59.5	52.1	44.3	-1.9	-2.8	-3.2	-3.0	-5.2	-6.8
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	71.3	60.2	46.7	-4.6	-7.0	-7.8	-6.0	-10.5	-14.3
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	54.0	46.4	35.3	-13.0	-12.8	-12.8	-19.4	-21.7	-26.6
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.3	49.1	41.7	-1.2	-1.8	-2.2	-2.1	-3.4	-4.9
Freight transport (toe/Mtkm)	89.6	117.7	111.2	91.2	84.6	76.5	-2.9	-5.3	-8.0	-3.1	-5.9	-9.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.43	0.27	0.19	-0.05	-0.19	-0.21	-10.1	-41.9	-52.4
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.22	2.02	-0.03	-0.07	-0.22	-1.1	-3.2	-9.7
Industry	2.31	2.05	2.08	2.02	1.90	1.74	-0.04	-0.15	-0.23	-1.9	-7.1	-11.7
Residential	3.11	2.42	2.27	2.01	1.94	1.54	-0.09	-0.07	-0.39	-4.2	-3.5	-20.1
Tertiary	2.34	2.07	1.83	1.57	1.40	0.99	-0.05	-0.14	-0.56	-3.0	-9.3	-36.2
Transport	2.96	2.97	2.98	2.85	2.76	2.71	-0.02	-0.06	-0.07	-0.8	-2.2	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.4	17.0	22.9	4.1	9.5	13.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.9	8.5	10.0	0.8	2.3	1.9			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	29728	30539	40065	40065	-4506	-6204	1341	-13.2	-16.9	3.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	9891	4342	2266	2266	-2330	-10201	-11216	-19.1	-70.1	-83.2
Oil (including refinery gas)	4516	3390	92	0	8	8	-950	-55	8	-91.2	-100.0	148720.8
Gas (including derived gases)	9231	11197	11882	12565	16352	16352	-3743	-3339	-333	-24.0	-21.0	-2.0
Biomass-waste	96	125	480	1791	3890	3890	99	1326	2948	26.0	284.6	313.2
Hydro (pumping excluded)	846	631	941	954	969	969	42	23	0	4.7	2.5	0.0
Wind	244	1112	6431	10172	15585	15585	2376	5345	8979	58.6	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	697	956	956	0	697	956			
Net Generation Capacity in MW_e												
	4627	6052	8082	9774	13730	13730	-75	771	3439	-0.9	8.6	33.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2629	4219	6096	6096	814	2080	3244	44.8	97.3	113.7
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2360	3568	5258	5258	814	1719	2748	52.6	92.9	109.4
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	362	496	496	0	362	496			
<u>Thermal power</u>	4284	5338	5453	5555	7634	7634	-889	-1309	195	-14.0	-19.1	2.6
of which cogeneration units	108	561	583	597	587	587	-23	71	-322	-3.8	13.6	-35.4
Solids fired	1282	1367	1335	1314	1312	1312	-261	-460	-1163	-16.4	-26.0	-47.0
Gas fired	1974	2937	3889	3806	5563	5563	-649	-1076	730	-14.3	-22.0	15.1
Oil fired	1010	995	92	64	8	8	0	-17	1	0.0	-20.7	19.4
Biomass-waste fired	18	39	136	371	750	750	21	244	626	18.3	192.3	505.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	40.1	34.6	32.6	32.6	-5.5	-9.8	-8.7			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.4	49.8	55.6	55.6	-1.2	0.3	2.5			
% of gross electricity from CHP	1.1	0.9	7.1	7.7	8.2	8.2	-0.1	-0.1	0.3			
Carbon free gross electricity generation (%)	5.0	7.5	26.4	44.6	53.5	53.5	10.8	27.7	31.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	26.4	44.6	53.5	53.5	10.8	27.7	31.4			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	62.0	70.0	82.2	-1.0	-1.8	-2.5	-1.6	-2.5	-2.9
Public road transport	3.9	6.1	6.7	7.7	8.1	8.8	0.2	0.2	0.3	2.2	3.1	3.6
Private cars and motorcycles	12.6	21.1	26.0	36.0	40.5	46.0	-0.8	-1.4	-1.9	-2.1	-3.3	-3.9
Rail	1.2	1.4	1.8	2.8	3.4	4.7	0.1	0.1	0.2	2.0	3.1	3.5
Aviation	3.2	7.9	9.6	14.0	16.4	21.1	-0.4	-0.7	-1.1	-3.1	-4.2	-4.9
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.2	0.1	0.3
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.7	29.2	32.8	-0.7	-1.1	-1.4	-2.5	-3.5	-4.1
Trucks	5.1	12.3	17.9	25.5	27.9	31.2	-0.7	-1.1	-1.5	-2.7	-3.9	-4.6
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.0	6.5	8.3	9.3
Inland navigation	0.2	0.6	0.6	0.8	0.9	1.2	0.0	0.0	0.1	3.1	4.3	5.0
Energy demand in transport (ktoe)												
	1985	4005	4981	5803	5908	5942	-267	-463	-667	-4.4	-7.3	-10.1
Public road transport	58	99	101	91	87	89	-1	-3	-6	-0.6	-3.0	-5.9
Private cars and motorcycles	993	1695	1915	2103	2093	1951	-82	-131	-151	-3.8	-5.9	-7.2
Trucks	495	1532	2066	2404	2439	2490	-142	-252	-383	-5.6	-9.4	-13.3
Rail	48	42	44	51	39	28	1	1	1	1.9	1.9	4.7
Aviation	365	613	836	1132	1227	1358	-44	-78	-129	-3.7	-5.9	-8.7
Inland navigation	26	25	18	22	24	26	0	0	0	0.1	0.0	-0.9

Source: PRIMES

Italy: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	25537	29408	27099	28044	30983	33384	35913	38663	41133	0.6	1.3	1.5	1.4		
Solids	218	44	4	60	0	0	0	0	0	-33.8					
Oil	4745	5378	4782	6475	5942	5948	5878	5800	5500	0.1	2.2	-0.1	-0.7		
Natural gas	14030	16347	13622	9886	10688	10000	8000	8000	7978	-0.3	-2.4	-2.9	0.0		
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	6544	7640	8691	11622	14353	17436	22035	24863	27655	2.9	5.1	4.4	2.3		
Hydro	2719	3249	3812	3101	3243	3204	3186	3173	3173	3.4	-1.6	-0.2	0.0		
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9963	11181	7.3	11.8	4.6	3.1		
Wind	0	1	48	202	464	858	1522	2015	2424	73.3	25.4	12.6	4.8		
Solar and others	5	8	12	23	120	1446	3684	4165	5161	9.2	25.6	40.8	3.4		
Geothermal	2971	3167	3103	4791	5268	5356	5430	5546	5716	0.4	5.4	0.3	0.5		
Net Imports	132060	134651	152953	160475	163919	166114	168981	170953	170655	1.5	0.7	0.3	0.1		
Solids	13792	12987	13188	16366	16942	17114	16833	16829	16741	-0.4	2.5	-0.1	-0.1		
Oil	89885	89684	88458	79421	76175	76213	74304	73248	72429	-0.2	-1.5	-0.2	-0.3		
- Crude oil and Feedstocks	84284	82558	90244	94404	90767	90815	89703	89136	88791	0.7	0.1	-0.1	-0.1		
- Oil products	5602	7126	-1786	-14983	-14592	-14602	-15400	-15888	-16362						
Natural gas	25311	28530	47008	59840	65695	66533	68465	70439	70242	6.4	3.4	0.4	0.3		
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3		
Gross Inland Consumption	153098	161262	172537	186766	191363	195855	201221	205921	208095	1.2	1.0	0.5	0.3		
Solids	14621	12272	12659	16477	16942	17114	16833	16829	16741	-1.4	3.0	-0.1	-0.1		
Oil	89860	93248	88947	83169	78578	78519	76508	75353	74236	-0.1	-1.2	-0.3	-0.3		
Natural gas	39001	44652	57940	70651	76383	76533	76465	78439	78220	4.0	2.8	0.0	0.2		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3		
Renewable energy forms	6636	7871	9177	12243	15668	19741	27558	31561	35173	3.3	5.5	5.8	2.5		
as % in Gross Inland Consumption															
Solids	9.6	7.6	7.3	8.8	8.9	8.7	8.4	8.2	8.0						
Oil	58.7	57.8	51.6	44.5	41.1	40.1	38.0	36.6	35.7						
Natural gas	25.5	27.7	33.6	37.8	39.9	39.1	38.0	38.1	37.6						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	4.3	4.9	5.3	6.6	8.2	10.1	13.7	15.3	16.9						
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314998	337066	360945	394953	419260	2.4	1.6	1.4	1.5		
Self consumption and grid losses	30076	32312	36552	38396	33378	36505	38954	42904	45163	2.0	-0.9	1.6	1.5		
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	49047	50393	51713	55442	55890	1.7	0.3	0.5	0.8		
Solids	7017	5287	5836	10001	10139	10178	10108	10259	10415	-1.8	5.7	0.0	0.3		
Oil (including refinery gas)	21528	25009	18955	9642	3029	2334	1322	522	472	-1.3	-16.8	-8.0	-9.8		
Gas (including derived gases)	8971	10234	19665	26402	29287	30001	29215	30130	28276	8.2	4.1	0.0	-0.3		
Biomass & Waste	39	94	419	2270	1521	2721	5838	9185	11185	26.8	13.8	14.4	6.7		
Geothermal heat	2770	2954	2890	4578	5071	5160	5231	5347	5540	0.4	5.8	0.3	0.6		
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	99234	98663	102560	107150	106010	107218	107760	107295	106670	0.3	0.3	0.2	-0.1		
Refineries	91545	92283	96749	102214	98820	98920	97756	97025	96304	0.6	0.2	-0.1	-0.1		
Biofuels and hydrogen production	0	0	0	162	1938	2952	4848	5328	5733			9.6	1.7		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	7688	6380	5811	4773	5251	5346	5156	4942	4634	-2.8	-1.0	-0.2	-1.1		
Energy Branch Consumption	7045	7362	7289	8620	7985	7928	7882	7904	7803	0.3	0.9	-0.1	-0.1		
Non-Energy Uses	9896	13633	10838	11007	11298	11873	12330	12418	12401	0.9	0.4	0.9	0.1		
Final Energy Demand	107160	113709	123254	134080	142356	146149	150477	153255	155868	1.4	1.5	0.6	0.4		
by sector															
Industry	36221	36430	39489	40729	43535	44384	45150	46226	47600	0.9	1.0	0.4	0.5		
- energy intensive industries	25218	24737	24840	25798	27504	28123	28377	28662	29065	-0.2	1.0	0.3	0.2		
- other industrial sectors	11002	11692	14648	14931	16031	16262	16773	17564	18535	2.9	0.9	0.5	1.0		
Residential	26284	26673	28331	31849	34134	35047	36919	37293	37570	0.8	1.9	0.8	0.2		
Tertiary	11252	12970	14171	17898	18777	19273	19891	20277	20450	2.3	2.9	0.6	0.3		
Transport	33404	37636	41263	43604	45910	47444	48518	49459	50248	2.1	1.1	0.6	0.4		
by fuel															
Solids	4209	4012	3681	4220	4695	4827	4656	4557	4427	-1.3	2.5	-0.1	-0.5		
Oil	53623	53099	56147	58196	59961	60252	59025	58819	57921	0.5	0.7	-0.2	-0.2		
Gas	29813	34652	37984	43747	45303	44683	45291	46201	47737	2.5	1.8	0.0	0.5		
Electricity	18408	20442	23435	25828	27376	29153	30900	33370	35257	2.4	1.6	1.2	1.3		
Heat (from CHP and District Heating)	0	0	0	0	12	12	13	14	14			0.9	0.8		
Renewable energy forms	1107	1505	2007	2089	5005	7217	10581	10282	10498	6.1	9.6	7.8	-0.1		
Other	0	0	0	0	3	6	11	12	13			14.3	1.6		
RES in Gross Final Energy Consumption ^(A)			6472	7301	10385	14477	21477	24833	27884		4.8	7.5	2.6		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	574.4	564.0	551.0	551.2	546.8	0.7	0.6	-0.4	-0.1		
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	447.2	446.2	437.1	437.7	433.6	0.9	0.6	-0.2	-0.1		
Power generation/District heating	118.9	126.1	130.7	133.8	120.1	119.7	114.3	114.4	110.3	1.0	-0.8	-0.5	-0.4		
Energy Branch	16.6	17.0	16.6	20.2	18.6	18.1	17.7	17.3	16.9	0.1	1.1	-0.5	-0.4		
Industry	79.6	75.4	77.5	81.6	86.2	87.3	87.0	88.1	88.7	-0.3	1.1	0.1	0.2		
Residential	55.6	52.8	54.7	61.3	64.9	64.2	63.8	63.1	62.6	-0.2	1.7	-0.2	-0.2		
Tertiary	19.1	21.2	22.0	27.2	27.9	25.4	24.5	23.8	23.2	1.4	2.4	-1.3	-0.5		
Transport	97.1	108.9	119.7	126.8	129.5	131.6	129.9	131.1	131.9	2.1	0.8	0.0	0.2		
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	38.0	38.3	39.0	39.7	-1.6	2.2	0.2	0.4		
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	79.8	75.7	74.4	73.6	0.8	-0.2	-1.7	-0.3		
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	113.3	111.2	108.6	108.7	107.8						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Italy: Cost Efficiency Scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.1	114.9	107.9	101.7	96.0	-0.4	-0.1	-1.4	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.34	2.28	2.17	2.13	2.08	-0.3	-0.4	-0.7	-0.4	
Import Dependency %	84.8	82.3	87.3	84.4	84.1	83.3	82.5	81.6	80.6					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	171.2	195.0	219.2	234.7	247.3		2.3	2.5	1.2	
as % of GDP			9.9	10.3	11.1	11.4	11.8	11.6	11.4					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	108.1	99.3	91.7	85.4	81.4	-0.3	0.8	-1.6	-1.2	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.6	101.5	98.3	92.0	86.8	-0.9	0.8	-1.0	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.9	107.4	101.2	95.0	89.4	0.4	1.5	-1.4	-1.2	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	31.0	31.2	30.7	30.6	-0.5	-0.1	0.1	-0.2	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	53.5	51.7	51.4	50.8	-1.1	1.5	-0.6	-0.2	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.35	0.32	0.29	0.26	-1.4	-2.4	-1.8	-1.8	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.17	2.11	2.03	2.00	1.97	-0.5	-0.2	-0.7	-0.3	
Industry	2.20	2.07	1.96	2.00	1.98	1.97	1.93	1.91	1.86	-1.1	0.1	-0.3	-0.3	
Residential	2.11	1.98	1.93	1.93	1.90	1.83	1.73	1.69	1.67	-0.9	-0.1	-1.0	-0.4	
Tertiary	1.70	1.63	1.55	1.52	1.49	1.32	1.23	1.17	1.13	-0.9	-0.4	-1.9	-0.8	
Transport	2.91	2.89	2.90	2.91	2.82	2.77	2.68	2.65	2.62	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	7.2	9.7	14.0	15.8	17.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	6.1	9.9	10.8	11.5					
Gross Electricity generation by source (in GWh)														
			270016	296786	314998	337066	360945	394953	419260		1.6	1.4	1.5	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	48870	53653	53340	55711	56651		6.6	0.9	0.6	
Oil (including refinery gas)			82354	43300	14742	11153	6216	2506	2587		-15.8	-8.3	-8.4	
Gas (including derived gases)			109707	154992	193548	203433	208076	220267	222080		5.8	0.7	0.7	
Biomass-waste			2685	7485	6386	12759	26513	40815	49424		9.0	15.3	6.4	
Hydro (pumping excluded)			44328	36061	37714	37258	37042	36894	36893		-1.6	-0.2	0.0	
Wind			563	2344	5398	9980	17699	23432	28180		25.4	12.6	4.8	
Solar			18	31	84	378	3417	6548	14747		16.6	44.9	15.7	
Geothermal and other renewables			4682	7417	8256	8453	8641	8779	8699		5.8	0.5	0.1	
Net Generation Capacity in MW_e			69851	76966	100453	93213	98313	103354	118365		3.7	-0.2	1.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17311	19987	25999	32645	42008		1.7	4.2	4.9	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3082	5468	9415	13942	17796		21.9	11.8	6.6	
Solar			26	38	93	344	2353	4471	9925		13.6	38.2	15.5	
Other renewables (tidal etc.)			0	0	0	37	92	93	148				4.9	
<u>Thermal power</u>			55264	61156	83143	73226	72314	70709	76356		4.2	-1.4	0.5	
of which cogeneration units			9682	10847	11307	12573	14694	16030	16703		1.6	2.7	1.3	
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8	
Gas fired			27466	33995	53602	51465	50413	48661	55132		6.9	-0.6	0.9	
Oil fired			16795	15253	15327	7906	5847	3873	1142		-0.9	-9.2	-15.1	
Biomass-waste fired			597	1223	1392	3213	5697	8531	10388		8.8	15.1	6.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	971	980	996	1021	1092		2.1	0.3	0.9	
Avg. Load factor of net power capacity (%)			41.7	41.7	34.5	39.8	40.4	42.0	39.0					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.7	49.4	50.3	50.9	52.2					
% of gross electricity from CHP			11.6	8.1	17.6	20.7	23.8	24.3	24.0					
Carbon free gross electricity generation (%)			19.4	18.0	18.4	20.4	25.9	29.5	32.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	18.4	20.4	25.9	29.5	32.9					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	1022.1	1052.6	1085.8	1113.4	3.0	0.3	0.5	0.6	
Public road transport	84.0	87.1	93.6	101.3	107.1	110.7	113.9	115.4	115.9	1.1	1.4	0.6	0.2	
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	792.0	806.9	826.0	842.0	3.3	0.0	0.3	0.4	
Rail	48.9	49.1	52.7	52.3	51.8	52.2	55.0	59.3	63.5	0.8	-0.2	0.6	1.4	
Aviation	21.3	27.9	38.2	43.1	51.3	61.4	70.9	79.1	85.8	6.0	3.0	3.3	1.9	
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.9	6.0	6.1	6.2	-0.8	-0.1	0.2	0.4	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	294.7	304.0	312.9	318.2	2.5	1.6	0.9	0.5	
Trucks	130.9	174.4	184.7	211.8	229.4	242.7	248.8	254.9	257.6	3.5	2.2	0.8	0.3	
Rail	19.4	21.7	22.8	20.1	21.3	23.3	25.2	27.2	29.0	1.7	-0.7	1.7	1.4	
Inland navigation	35.8	35.4	30.2	28.1	28.2	28.7	29.9	30.8	31.5	-1.7	-0.7	0.6	0.5	
Energy demand in transport (ktoe)	33404	37636	41263	43604	45910	47444	48518	49459	50248	2.1	1.1	0.6	0.4	
Public road transport	684	599	656	701	752	771	769	751	728	-0.4	1.4	0.2	-0.5	
Private cars and motorcycles	20584	23615	25521	24557	25004	25365	25964	26055	26469	2.2	-0.2	0.4	0.2	
Trucks	9137	9737	10559	13327	14505	14991	14907	15254	15351	1.5	3.2	0.3	0.3	
Rail	738	819	834	907	920	914	908	928	933	1.2	1.0	-0.1	0.3	
Aviation	1872	2418	3491	3863	4481	5156	5719	6218	6513	6.4	2.5	2.5	1.3	
Inland navigation	389	448	202	248	247	247	251	253	254	-6.3	2.0	0.1	0.1	

Source: PRIMES

Italy: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	33384	35913	41133	1337	4075	6773	4.2	12.8	19.7
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	5948	5878	5500	-399	-122	0	-6.3	-2.0	0.0
Natural gas	14030	13622	9886	10000	8000	7978	0	0	-22	0.0	0.0	-0.3
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	17436	22035	27655	1736	4198	6796	11.1	23.5	32.6
Hydro	2719	3812	3101	3204	3186	3173	58	85	104	1.8	2.8	3.4
Biomass & Waste	849	1716	3505	6571	8214	11181	356	610	1539	5.7	8.0	16.0
Wind	0	48	202	858	1522	2424	0	323	1243	0.0	26.9	105.3
Solar and others	5	12	23	1446	3684	5161	901	2739	3841	165.1	289.9	290.8
Geothermal	2971	3103	4791	5356	5430	5716	421	440	68	8.5	8.8	1.2
Net Imports	132060	152953	160475	166114	168981	170655	-16003	-24033	-30273	-8.8	-12.5	-15.1
Solids	13792	13188	16366	17114	16833	16741	-2696	-3911	-4416	-13.6	-18.9	-20.9
Oil	89885	88458	79421	76213	74304	72429	-8147	-11888	-13883	-9.7	-13.8	-16.1
- Crude oil and Feedstocks	84284	90244	94404	90815	89703	88791	-6224	-9287	-10613	-6.4	-9.4	-10.7
- Oil products	5602	-1786	-14983	-14602	-15400	-16362	-1923	-2601	-3270	15.2	20.3	25.0
Natural gas	25311	47008	59840	66533	68465	70242	-6364	-12409	-17782	-8.7	-15.3	-20.2
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	195855	201221	208095	-14664	-19950	-23489	-7.0	-9.0	-10.1
Solids	14621	12659	16477	17114	16833	16741	-2696	-3911	-4416	-13.6	-18.9	-20.9
Oil	89860	88947	83169	78519	76508	74236	-8544	-12004	-13872	-9.8	-13.6	-15.7
Natural gas	39001	57940	70651	76533	76465	78220	-6364	-12409	-17804	-7.7	-14.0	-18.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	19741	27558	35173	2939	8373	12605	17.5	43.6	55.9
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.7	8.4	8.0	-0.7	-1.0	-1.1			
Oil	58.7	51.6	44.5	40.1	38.0	35.7	-1.3	-2.0	-2.4			
Natural gas	25.5	33.6	37.8	39.1	38.0	37.6	-0.3	-2.2	-3.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	10.1	13.7	16.9	2.1	5.0	7.2			
Gross Electricity Generation in GWh_e	213400	270016	296786	337066	360945	419260	-56334	-76814	-76940	-14.3	-17.5	-15.5
Self consumption and grid losses	30076	36552	38396	36505	38954	45163	-6069	-8237	-8023	-14.3	-17.5	-15.1
Fuel Inputs to Thermal Power Generation	40325	47764	52894	50393	51713	55890	-9753	-13732	-14870	-16.2	-21.0	-21.0
Solids	7017	5836	10001	10178	10108	10415	-2803	-3571	-3897	-21.6	-26.1	-27.2
Oil (including refinery gas)	21528	18955	9642	2334	1322	472	-4542	-4897	-4605	-66.1	-78.7	-90.7
Gas (including derived gases)	8971	19665	26402	30001	29215	28276	-2832	-8377	-13185	-8.6	-22.3	-31.8
Biomass & Waste	39	419	2270	2721	5838	11185	29	2722	6817	1.1	87.4	156.1
Geothermal heat	2770	2890	4578	5160	5231	5540	396	391	0	8.3	8.1	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	107218	107760	106670	-5861	-8357	-10142	-5.2	-7.2	-8.7
Refineries	91545	96749	102214	98920	97756	96304	-6634	-9424	-10628	-6.3	-8.8	-9.9
Biofuels and hydrogen production	0	0	162	2952	4848	5733	306	935	457	11.5	23.9	8.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5346	5156	4634	468	132	29	9.6	2.6	0.6
Energy Branch Consumption	7045	7289	8620	7928	7882	7803	-526	-789	-879	-6.2	-9.1	-10.1
Non-Energy Uses	9896	10838	11007	11873	12330	12401	-42	-56	-64	-0.4	-0.5	-0.5
Final Energy Demand	107160	123254	134080	146149	150477	155868	-8925	-12154	-16105	-5.8	-7.5	-9.4
by sector												
Industry	36221	39489	40729	44384	45150	47600	-517	-1595	-2660	-1.2	-3.4	-5.3
- energy intensive industries	25218	24840	25798	28123	28377	29065	63	-719	-1482	0.2	-2.5	-4.9
- other industrial sectors	11002	14648	14931	16262	16773	18535	-580	-877	-1178	-3.4	-5.0	-6.0
Residential	26284	28331	31849	35047	36919	37570	-2301	-1871	-2229	-6.2	-4.8	-5.6
Tertiary	11252	14171	17898	19273	19891	20450	-3659	-4556	-5392	-16.0	-18.6	-20.9
Transport	33404	41263	43604	47444	48518	50248	-2448	-4131	-5824	-4.9	-7.8	-10.4
by fuel												
Solids	4209	3681	4220	4827	4656	4427	130	-274	-444	2.8	-5.6	-9.1
Oil	53623	56147	58196	60252	59025	57921	-3680	-6605	-8663	-5.8	-10.1	-13.0
Gas	29813	37984	43747	44683	45291	47737	-3450	-3841	-4333	-7.2	-7.8	-8.3
Electricity	18408	23435	25828	29153	30900	35257	-4308	-5867	-5882	-12.9	-16.0	-14.3
Heat (from CHP and District Heating)	0	0	0	12	13	14	-10	-12	-12	-45.5	-46.8	-46.6
Renewable energy forms	1107	2007	2089	7217	10581	10498	2394	4444	3237	49.6	72.4	44.6
Other	0	0	0	6	11	13	1	1	-7	10.5	6.4	-34.8
RES in Gross Final Energy Consumption ^(A)		6472	7301	14477	21477	27884	2720	7852	12015	23.1	57.6	75.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	564.0	551.0	546.8	-60.4	-93.7	-114.5	-9.7	-14.5	-17.3
CO₂ Emissions (energy related)	386.9	421.3	451.0	446.2	437.1	433.6	-51.9	-81.4	-101.6	-10.4	-15.7	-19.0
Power generation/District heating	118.9	130.7	133.8	119.7	114.3	110.3	-32.2	-49.4	-60.9	-21.2	-30.2	-35.6
Energy Branch	16.6	16.6	20.2	18.1	17.7	16.9	-1.1	-1.8	-2.2	-5.9	-9.5	-11.6
Industry	79.6	77.5	81.6	87.3	87.0	88.7	0.4	-2.3	-3.9	0.4	-2.5	-4.2
Residential	55.6	54.7	61.3	64.2	63.8	62.6	-6.0	-7.7	-9.2	-8.5	-10.7	-12.8
Tertiary	19.1	22.0	27.2	25.4	24.5	23.2	-4.7	-5.3	-5.6	-15.7	-17.7	-19.6
Transport	97.1	119.7	126.8	131.6	129.9	131.9	-8.2	-15.0	-19.8	-5.8	-10.4	-13.0
CO₂ Emissions (non energy related)	35.5	30.2	36.1	38.0	38.3	39.7	-0.5	-1.3	-1.6	-1.3	-3.2	-3.8
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	79.8	75.7	73.6	-8.0	-11.0	-11.2	-9.1	-12.7	-13.3
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	111.2	108.6	107.8	-11.9	-18.5	-22.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	114.9	107.9	96.0	-8.6	-10.7	-10.8	-7.0	-9.0	-10.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.28	2.17	2.08	-0.09	-0.17	-0.23	-3.7	-7.3	-9.8
Import Dependency %	84.8	87.3	84.4	83.3	82.5	80.6	-1.8	-3.4	-4.8			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	195.0	219.2	247.3	5.7	8.8	12.7	3.0	4.2	5.4
as % of GDP		9.9	10.3	11.4	11.8	11.4	0.3	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				5.9	9.0	13.0						
as % of GDP				0.34	0.49	0.60						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	99.3	91.7	81.4	-1.2	-3.2	-4.5	-1.2	-3.4	-5.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	101.5	98.3	86.8	-6.7	-5.0	-5.2	-6.2	-4.8	-5.6
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	107.4	101.2	89.4	-20.4	-23.2	-23.6	-16.0	-18.6	-20.9
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	31.0	31.2	30.6	-0.7	-1.1	-1.7	-2.2	-3.5	-5.2
Freight transport (toe/Mtkm)	53.0	47.3	54.0	53.5	51.7	50.8	-2.7	-5.0	-6.7	-4.9	-8.8	-11.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.35	0.32	0.26	-0.03	-0.06	-0.08	-8.0	-15.3	-23.7
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.11	2.03	1.97	0.00	-0.03	-0.04	0.1	-1.7	-2.0
Industry	2.20	1.96	2.00	1.97	1.93	1.86	0.03	0.02	0.02	1.6	0.9	1.2
Residential	2.11	1.93	1.93	1.83	1.73	1.67	-0.05	-0.11	-0.14	-2.5	-6.2	-7.6
Tertiary	1.70	1.55	1.52	1.32	1.23	1.13	0.00	0.01	0.02	0.3	1.1	1.6
Transport	2.91	2.90	2.91	2.77	2.68	2.62	-0.03	-0.08	-0.08	-1.0	-2.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	9.7	14.0	17.5	2.3	5.8	8.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	6.1	9.9	11.5	0.9	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	337066	360945	419260	419260	-56334	-76814	-76940	-14.3	-17.5	-15.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	53653	53340	56651	56651	-12411	-16312	-22085	-18.8	-23.4	-28.0
Oil (including refinery gas)	82354	43300	11153	6216	2587	2587	-22771	-23894	-27231	-67.1	-79.4	-91.3
Gas (including derived gases)	109707	154992	203433	208076	222080	222080	-22642	-56568	-83839	-10.0	-21.4	-27.4
Biomass-waste	2685	7485	12759	26513	49424	49424	118	11899	27571	0.9	81.4	126.2
Hydro (pumping excluded)	44328	36061	37258	37042	36893	36893	675	994	1215	1.8	2.8	3.4
Wind	563	2344	9980	17699	28180	28180	0	3756	14455	0.0	26.9	105.3
Solar	18	31	378	3417	14747	14747	0	2609	12834	0.0	322.9	671.0
Geothermal and other renewables	4682	7417	8453	8641	8699	8699	697	702	139	9.0	8.8	1.6
Net Generation Capacity in MW_e												
Total	69851	76966	93213	98313	118365	118365	-5282	-5441	-97	-5.4	-5.2	-0.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	14588	15810	19987	25999	42008	42008	-15	3665	18862	-0.1	16.4	81.5
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5468	9415	17796	17796	-52	1947	10586	-0.9	26.1	146.8
Solar	26	38	344	2353	9925	9925	0	1656	8204	0.0	237.6	476.8
Other renewables (tidal etc.)	0	0	37	92	148	148	37	62	72		206.5	94.7
<u>Thermal power</u>	55264	61156	73226	72314	76356	76356	-5267	-9106	-18959	-6.7	-11.2	-19.9
of which cogeneration units	9682	10847	12573	14694	16703	16703	-2340	-2690	-2050	-15.7	-15.5	-10.9
Solids fired	9621	9715	9662	9361	8602	8602	-269	-533	-1215	-2.7	-5.4	-12.4
Gas fired	27466	33995	51465	50413	55132	55132	-5448	-11377	-19797	-9.6	-18.4	-26.4
Oil fired	16795	15253	7906	5847	1142	1142	16	-5	-4790	0.2	-0.1	-80.7
Biomass-waste fired	597	1223	3213	5697	10388	10388	424	2785	6855	15.2	95.6	194.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	980	996	1092	1092	9	25	-13	1.0	2.6	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	39.8	40.4	39.0	39.0	-4.1	-6.1	-7.2			
Efficiency of gross thermal power generation (%)	40.5	42.0	49.4	50.3	52.2	52.2	-0.2	-0.5	-1.9			
% of gross electricity from CHP	11.6	8.1	20.7	23.8	24.0	24.0	0.0	0.4	0.8			
Carbon free gross electricity generation (%)	19.4	18.0	20.4	25.9	32.9	32.9	3.3	9.1	16.4			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	20.4	25.9	32.9	32.9	3.3	9.1	16.4			
Transport sector												
Passenger transport activity (Gpkm)												
Total	722.2	969.5	980.5	1022.1	1052.6	1113.4	-16.4	-25.6	-32.9	-1.6	-2.4	-2.9
Public road transport	84.0	93.6	101.3	110.7	113.9	115.9	2.4	3.5	4.1	2.2	3.1	3.7
Private cars and motorcycles	561.6	779.1	777.9	792.0	806.9	842.0	-16.9	-25.9	-32.5	-2.1	-3.1	-3.7
Rail	48.9	52.7	52.3	52.2	55.0	63.5	0.1	0.1	0.2	0.3	0.2	0.3
Aviation	21.3	38.2	43.1	61.4	70.9	85.8	-2.0	-3.3	-4.6	-3.2	-4.5	-5.1
Inland navigation	6.4	5.9	5.8	5.9	6.0	6.2	0.0	0.0	0.0	-0.8	-0.6	-0.6
Freight transport activity (Gtkm)												
Total	186.1	237.6	260.0	294.7	304.0	318.2	-7.4	-10.6	-12.8	-2.4	-3.4	-3.9
Trucks	130.9	184.7	211.8	242.7	248.8	257.6	-8.8	-12.7	-15.4	-3.5	-4.8	-5.6
Rail	19.4	22.8	20.1	23.3	25.2	29.0	1.0	1.3	1.7	4.4	5.5	6.2
Inland navigation	35.8	30.2	28.1	28.7	29.9	31.5	0.5	0.8	0.9	1.8	2.6	3.0
Energy demand in transport (ktoe)												
Total	33404	41263	43604	47444	48518	50248	-2448	-4131	-5824	-4.9	-7.8	-10.4
Public road transport	684	656	701	771	769	728	-6	-27	-49	-0.8	-3.4	-6.4
Private cars and motorcycles	20584	25521	24557	25365	25964	26469	-990	-1566	-2073	-3.8	-5.7	-7.3
Trucks	9137	10559	13327	14991	14907	15351	-1234	-2153	-2970	-7.6	-12.6	-16.2
Rail	738	834	907	914	908	933	-6	9	65	-0.7	1.0	7.5
Aviation	1872	3491	3863	5156	5719	6513	-212	-393	-793	-3.9	-6.4	-10.8
Inland navigation	389	202	248	247	251	254	-1	-1	-4	-0.2	-0.6	-1.6

Source: PRIMES

Latvia: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	1245	1639	1576	2304	2827	3392	4407	5028	5332	2.4	6.0	4.5	1.9	
Solids	182	234	49	6	4	0	0	0	0	-12.3	-22.6			
Oil	1	0	0	7	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1062	1405	1527	2291	2823	3392	4407	5028	5332	3.7	6.3	4.6	1.9	
Hydro	387	253	242	286	261	255	262	262	261	-4.6	0.8	0.0	0.0	
Biomass & Waste	675	1153	1284	2001	2530	3056	4022	4595	4869	6.6	7.0	4.7	1.9	
Wind	0	0	0	4	30	76	112	157	181		56.5	14.0	4.9	
Solar and others	0	0	0	0	1	6	10	15	20			25.0	6.8	
Geothermal	0	0	0	0	0	0	0	0	0			14.5	0.7	
Net Imports	7440	3358	2253	2783	2847	2971	2551	2329	2440	-11.3	2.4	-1.1	-0.4	
Solids	627	170	62	76	76	61	62	66	68	-20.7	2.1	-2.0	0.9	
Oil	3944	2086	1096	1662	1968	2203	2245	2354	2413	-12.0	6.0	1.3	0.7	
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.6	1.9	0.4	
- Oil products	3942	2084	1003	1658	1967	2202	2244	2352	2411	-12.8	7.0	1.3	0.7	
Natural gas	2561	999	1113	1434	1356	1401	1171	918	1045	-8.0	2.0	-1.5	-1.1	
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Gross Inland Consumption	8059	4854	4007	4720	5349	5971	6508	6858	7236	-6.7	2.9	2.0	1.1	
Solids	867	456	252	83	80	61	62	66	68	-11.6	-10.9	-2.4	0.9	
Oil	3458	1885	1155	1376	1644	1811	1796	1854	1878	-10.4	3.6	0.9	0.4	
Natural gas	2380	1010	1092	1358	1356	1401	1171	918	1045	-7.5	2.2	-1.5	-1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Renewable energy forms	1045	1309	1354	1718	2098	2517	3255	3712	3937	2.6	4.5	4.5	1.9	
as % in Gross Inland Consumption														
Solids	10.8	9.4	6.3	1.8	1.5	1.0	1.0	1.0	0.9					
Oil	42.9	38.8	28.8	29.2	30.7	30.3	27.6	27.0	25.9					
Natural gas	29.5	20.8	27.3	28.8	25.3	23.5	18.0	13.4	14.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	13.0	27.0	33.8	36.4	39.2	42.1	50.0	54.1	54.4					
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6324	7626	8848	9856	11377	-4.6	4.3	3.4	2.5	
Self consumption and grid losses	1248	732	720	783	477	558	684	885	1048	-5.4	-4.0	3.7	4.4	
Fuel Inputs to Thermal Power Generation	926	722	607	591	556	717	858	986	1199	-4.1	-0.9	4.4	3.4	
Solids	59	194	142	0	0	0	0	0	0	9.2				
Oil (including refinery gas)	177	242	77	13	0	0	0	0	0	-8.0				
Gas (including derived gases)	690	286	388	541	503	640	473	150	224	-5.6	2.6	-0.6	-7.2	
Biomass & Waste	0	0	0	37	53	78	384	836	976			22.0	9.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2601	941	645	591	667	685	781	735	757	-13.0	0.3	1.6	-0.3	
Refineries	1	1	1	1	1	2	2	2	2	0.0	1.9	1.9	0.4	
Biofuels and hydrogen production	0	0	0	3	51	85	154	182	203			11.8	2.8	
District heating	2573	930	643	587	615	598	625	551	552	-12.9	-0.4	0.2	-1.2	
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3				
Energy Branch Consumption	130	149	151	102	100	107	111	119	128	1.5	-4.0	1.0	1.4	
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1	
Final Energy Demand	6445	3880	3332	4046	4794	5310	5775	6174	6437	-6.4	3.7	1.9	1.1	
by sector														
Industry	1972	701	614	827	1130	1324	1493	1694	1854	-11.0	6.3	2.8	2.2	
- energy intensive industries	707	305	219	282	452	528	555	587	606	-11.1	7.5	2.1	0.9	
- other industrial sectors	1265	396	396	545	678	796	938	1107	1248	-11.0	5.5	3.3	2.9	
Residential	1632	1663	1368	1476	1548	1598	1710	1777	1809	-1.7	1.2	1.0	0.6	
Tertiary	1747	804	606	744	860	937	995	1038	1038	-10.0	3.6	1.5	0.4	
Transport	1094	712	744	999	1255	1451	1576	1664	1736	-3.8	5.4	2.3	1.0	
by fuel														
Solids	330	126	58	73	75	61	62	66	68	-16.0	2.6	-1.9	0.9	
Oil	2047	1119	1003	1220	1435	1602	1664	1713	1733	-6.9	3.6	1.5	0.4	
Gas	672	366	329	508	570	655	680	754	799	-6.9	5.7	1.8	1.6	
Electricity	768	470	443	537	672	787	925	1077	1195	-5.3	4.2	3.2	2.6	
Heat (from CHP and District Heating)	2013	905	590	598	549	537	600	690	705	-11.5	-0.7	0.9	1.6	
Renewable energy forms	616	894	909	1111	1492	1669	1843	1873	1936	4.0	5.1	2.1	0.5	
Other	0	0	0	0	0	0	1	1	1			18.4	5.1	
RES in Gross Final Energy Consumption ^(A)			1305	1787	2018	2384	3009	3435	3596		4.5	4.1	1.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	12.9	13.2	12.8	11.8	11.9	-9.3	2.4	-0.1	-0.7	
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.1	8.6	8.0	7.5	7.9	-9.7	1.6	-0.2	-0.1	
Power generation/District heating	10.0	4.5	2.8	2.1	2.1	2.0	1.1	0.3	0.5	-12.0	-2.7	-6.3	-7.0	
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	5.0	-11.3	-2.0	-1.3	
Industry	2.5	1.3	0.9	1.0	1.2	1.4	1.4	1.5	1.6	-9.7	2.9	1.6	1.0	
Residential	1.2	0.5	0.3	0.5	0.5	0.6	0.6	0.7	0.8	-13.7	6.8	1.3	2.7	
Tertiary	2.1	0.8	0.5	0.6	0.6	0.5	0.5	0.5	0.5	-12.8	0.6	-0.9	-0.8	
Transport	3.2	2.1	2.2	2.9	3.6	4.1	4.2	4.4	4.4	-3.7	5.1	1.7	0.5	
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	0.9	1.2	1.4	1.5	-8.5	11.4	5.3	2.4	
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.6	3.6	2.9	2.5	-8.3	3.0	-1.3	-3.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	47.8	48.7	47.2	43.6	43.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Latvia: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	283.3	235.0	204.5	179.3	166.9	-3.4	-4.8	-3.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.51	1.44	1.22	1.10	1.09	-3.1	-1.3	-2.1	-1.1
Import Dependency %	87.3	67.1	56.1	55.9	50.2	46.7	36.7	31.7	31.4				
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.3	5.1	5.9	6.4		6.6	4.2	2.3
as % of GDP			20.5	18.8	17.9	16.8	16.1	15.3	14.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.1	71.5	63.5	59.5	57.4	-3.7	-1.7	-2.8	-1.0
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.2	39.6	34.0	29.6	26.6	1.7	-6.5	-4.0	-2.4
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	65.2	52.7	44.6	38.6	33.9	-10.7	-4.2	-3.7	-2.7
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.5	29.4	27.8	28.0	1.4	-0.5	-1.2	-0.5
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	17.1	16.8	16.3	15.8	-2.5	-0.1	-0.2	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.15	0.13	0.06	0.02	0.03	-3.0	-3.6	-8.3	-8.6
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.23	1.18	1.15	1.13	-1.8	0.5	-0.4	-0.4
Industry	1.28	1.88	1.48	1.26	1.07	1.02	0.95	0.91	0.84	1.5	-3.2	-1.2	-1.2
Residential	0.75	0.31	0.21	0.33	0.35	0.36	0.36	0.41	0.45	-12.1	5.4	0.3	2.1
Tertiary	1.21	1.02	0.89	0.85	0.66	0.59	0.52	0.49	0.46	-3.0	-2.8	-2.3	-1.2
Transport	2.90	2.89	2.92	2.94	2.85	2.81	2.69	2.62	2.56	0.1	-0.2	-0.6	-0.5
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	40.9	43.8	50.9	54.4	54.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.4	9.0	10.2	11.1				
Gross Electricity generation by source (in GWh)													
			4135	4904	6324	7626	8848	9856	11377		4.3	3.4	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			91	0	0	0	0	0	0				
Oil (including refinery gas)			117	0	0	0	0	0	0				
Gas (including derived gases)			1104	1490	2697	3432	2603	818	1312		9.3	-0.4	-6.6
Biomass-waste			0	43	233	352	1894	4170	4917			23.3	10.0
Hydro (pumping excluded)			2818	3324	3040	2962	3042	3043	3036		0.8	0.0	0.0
Wind			4	47	353	879	1305	1820	2106		56.5	14.0	4.9
Solar			0	0	0	2	3	5	7			21.7	7.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2062	2144	2784	3064	3387	3720	3909		3.0	2.0	1.4
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1519	1578	1730	1970	2164	2444	2617		1.3	2.3	1.9
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0
Wind			2	24	170	404	590	863	1029		56.0	13.2	5.7
Solar			0	0	1	4	7	11	14			21.4	7.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			543	565	1053	1094	1223	1276	1292		6.9	1.5	0.5
of which cogeneration units			542	564	446	614	756	908	815		-1.9	5.4	0.8
Solids fired			29	2	2	2	2	0	0		-23.3	1.1	
Gas fired			414	502	949	957	868	581	578		8.7	-0.9	-4.0
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0
Biomass-waste fired			2	16	42	73	292	680	698		33.6	21.4	9.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			20.4	23.5	25.5	27.9	29.3	29.4	32.2				
Efficiency of gross thermal power generation (%)			18.6	22.3	45.3	45.4	45.1	43.5	44.7				
% of gross electricity from CHP			24.0	11.8	43.4	42.8	39.1	46.4	40.2				
Carbon free gross electricity generation (%)			68.3	69.6	57.4	55.0	70.6	91.7	88.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			68.3	69.6	57.4	55.0	70.6	91.7	88.5				
Transport sector													
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.5	24.9	27.1	28.5	-3.6	4.7	2.5	1.4
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.3	3.4	-8.7	2.7	0.7	0.2
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	17.2	19.1	20.9	22.1	4.2	5.4	2.7	1.5
Rail	5.8	1.8	1.1	1.3	1.5	1.7	2.0	2.2	2.3	-15.5	3.2	2.9	1.6
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.6	2.4
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4			
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	43.4	50.2	56.1	59.6	-3.1	7.0	3.5	1.7
Trucks	5.9	1.8	4.8	8.4	11.8	15.6	19.1	22.8	25.5	-2.0	9.5	4.9	2.9
Rail	18.5	9.8	13.3	17.9	23.7	27.8	31.1	33.3	34.1	-3.3	5.9	2.7	0.9
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1094	712	744	999	1255	1451	1576	1664	1736	-3.8	5.4	2.3	1.0
Public road transport	111	41	23	25	26	25	25	22	21	-14.6	1.3	-0.5	-1.5
Private cars and motorcycles	317	284	373	451	539	589	612	632	676	1.7	3.7	1.3	1.0
Trucks	370	240	241	371	495	613	712	814	885	-4.2	7.5	3.7	2.2
Rail	188	90	75	93	118	134	134	101	59	-8.7	4.6	1.3	-7.9
Aviation	73	26	27	59	77	89	93	95	95	-9.6	11.1	1.9	0.3
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7			

Source: PRIMES

Latvia: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	3392	4407	5332	534	1269	1957	18.7	40.5	58.0
Solids	182	49	6	0	0	0	-4	-4	-3	-100.0	-100.0	-100.0
Oil	1	0	7	0	0	0	0	0	0	-179.0	-202.7	85.6
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	1062	1527	2291	3392	4407	5332	537	1273	1960	18.8	40.6	58.1
Hydro	387	242	286	255	262	261	11	0	1	4.3	0.1	0.4
Biomass & Waste	675	1284	2001	3056	4022	4869	517	1246	1887	20.4	44.9	63.2
Wind	0	0	4	76	112	181	6	20	59	8.2	21.6	48.5
Solar and others	0	0	0	6	10	20	4	7	13	213.1	197.5	188.1
Geothermal	0	0	0	0	0	0	0	0	0	110.9	302.2	324.1
Net Imports	7440	2253	2783	2971	2551	2440	-907	-1726	-2521	-23.4	-40.4	-50.8
Solids	627	62	76	61	62	68	-11	-21	-20	-14.6	-24.9	-22.5
Oil	3944	1096	1662	2203	2245	2413	-240	-411	-618	-9.8	-15.5	-20.4
- Crude oil and Feedstocks	1	93	4	2	2	2	0	0	0	-8.3	-13.8	-18.4
- Oil products	3942	1003	1658	2202	2244	2411	-240	-411	-618	-9.8	-15.5	-20.4
Natural gas	2561	1113	1434	1401	1171	1045	-508	-938	-1343	-26.6	-44.5	-56.2
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	5971	6508	7236	-373	-457	-563	-5.9	-6.6	-7.2
Solids	867	252	83	61	62	68	-14	-24	-23	-18.8	-28.0	-25.0
Oil	3458	1155	1376	1811	1796	1878	-240	-411	-618	-11.7	-18.6	-24.7
Natural gas	2380	1092	1358	1401	1171	1045	-508	-938	-1343	-26.6	-44.5	-56.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2517	3255	3937	389	916	1420	18.3	39.2	56.4
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.0	1.0	0.9	-0.2	-0.3	-0.2			
Oil	42.9	28.8	29.2	30.3	27.6	25.9	-2.0	-4.1	-6.0			
Natural gas	29.5	27.3	28.8	23.5	18.0	14.4	-6.6	-12.3	-16.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	42.1	50.0	54.4	8.6	16.4	22.1			
Gross Electricity Generation in GWh_e	6647	4135	4904	7626	8848	11377	-609	-384	368	-7.4	-4.2	3.3
Self consumption and grid losses	1248	720	783	558	684	1048	-79	-56	135	-12.4	-7.6	14.9
Fuel Inputs to Thermal Power Generation	926	607	591	717	858	1199	-160	-123	20	-18.2	-12.6	1.7
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	0	0	0	-42	-41	0	-100.0	-100.0	
Gas (including derived gases)	690	388	541	640	473	224	-105	-383	-799	-14.1	-44.7	-78.1
Biomass & Waste	0	0	37	78	384	976	-13	301	818	-13.9	363.2	520.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	685	781	757	-82	-43	-146	-10.7	-5.2	-16.1
Refineries	1	1	1	2	2	2	0	0	0	-8.3	-13.8	-18.4
Biofuels and hydrogen production	0	0	3	85	154	203	9	28	14	11.3	22.5	7.1
District heating	2573	643	587	598	625	552	-90	-71	-159	-13.1	-10.2	-22.3
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	107	111	128	-22	-29	-27	-17.2	-21.0	-17.3
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5310	5775	6437	-279	-376	-473	-5.0	-6.1	-6.8
by sector												
Industry	1972	614	827	1324	1493	1854	-26	-71	-78	-1.9	-4.5	-4.0
- energy intensive industries	707	219	282	528	555	606	-5	-13	-11	-0.9	-2.3	-1.7
- other industrial sectors	1265	396	545	796	938	1248	-21	-57	-67	-2.6	-5.8	-5.1
Residential	1632	1368	1476	1598	1710	1809	-79	-41	-37	-4.7	-2.3	-2.0
Tertiary	1747	606	744	937	995	1038	-75	-80	-111	-7.4	-7.4	-9.7
Transport	1094	744	999	1451	1576	1736	-99	-185	-247	-6.4	-10.5	-12.5
by fuel												
Solids	330	58	73	61	62	68	-10	-13	-15	-13.8	-16.9	-18.5
Oil	2047	1003	1220	1602	1664	1733	-167	-263	-549	-9.4	-13.6	-24.1
Gas	672	329	508	655	680	799	-74	-127	-262	-10.2	-15.7	-24.7
Electricity	768	443	537	787	925	1195	-45	-28	20	-5.4	-2.9	1.7
Heat (from CHP and District Heating)	2013	590	598	537	600	705	-156	-134	-95	-22.5	-18.3	-11.8
Renewable energy forms	616	909	1111	1669	1843	1936	172	189	428	11.5	11.4	28.4
Other	0	0	0	0	1	1	0	0	0	7.1	1.3	3.1
RES in Gross Final Energy Consumption ^(A)		1305	1787	2384	3009	3596	356	780	1261	17.6	35.0	54.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	13.2	12.8	11.9	-2.9	-4.9	-6.3	-18.0	-27.9	-34.6
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.6	8.0	7.9	-2.0	-3.6	-5.1	-18.8	-30.9	-39.5
Power generation/District heating	10.0	2.8	2.1	2.0	1.1	0.5	-1.1	-2.2	-2.5	-35.2	-66.4	-82.3
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.1	-0.2	-0.2	-0.3	-73.8	-79.1	-83.6
Industry	2.5	0.9	1.0	1.4	1.4	1.6	-0.2	-0.2	-1.3	-13.3	-14.8	-44.4
Residential	1.2	0.3	0.5	0.6	0.6	0.8	-0.1	-0.1	-0.2	-14.7	-18.0	-16.8
Tertiary	2.1	0.5	0.6	0.5	0.5	0.5	-0.1	-0.1	-0.1	-14.6	-18.7	-22.7
Transport	3.2	2.2	2.9	4.1	4.2	4.4	-0.3	-0.6	-0.8	-7.3	-13.1	-15.7
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.9	1.2	1.5	0.0	0.0	0.0	-1.4	-2.4	-2.9
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.6	3.6	2.5	-0.9	-1.4	-1.1	-19.6	-27.1	-30.6
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	48.7	47.2	43.9	-10.7	-18.2	-23.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	235.0	204.5	166.9	-14.7	-14.4	-13.0	-5.9	-6.6	-7.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.44	1.22	1.09	-0.23	-0.43	-0.58	-13.7	-26.0	-34.8
Import Dependency %	87.3	56.1	55.9	46.7	36.7	31.4	-10.9	-21.0	-28.1			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.3	5.1	6.4	0.2	0.3	0.6	4.8	6.7	10.0
as % of GDP		20.5	18.8	16.8	16.1	14.8	0.8	1.0	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.6						
as % of GDP				0.83	1.10	1.40						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	71.5	63.5	57.4	-1.4	-3.0	-2.4	-1.9	-4.5	-4.0
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	39.6	34.0	26.6	-1.9	-0.8	-0.5	-4.7	-2.3	-2.0
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	52.7	44.6	33.9	-4.2	-3.6	-3.6	-7.4	-7.4	-9.7
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.5	29.4	28.0	-0.8	-1.3	0.2	-2.6	-4.4	0.7
Freight transport (toe/Mtkm)	22.3	17.3	17.5	17.1	16.8	15.8	-1.2	-2.1	-3.1	-6.8	-11.0	-16.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.13	0.06	0.03	-0.05	-0.11	-0.12	-26.4	-63.4	-82.1
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.23	1.18	1.13	-0.07	-0.11	-0.27	-5.2	-8.8	-19.1
Industry	1.28	1.48	1.26	1.02	0.95	0.84	-0.13	-0.12	-0.61	-11.6	-10.8	-42.1
Residential	0.75	0.21	0.33	0.36	0.36	0.45	-0.04	-0.07	-0.08	-10.5	-16.1	-15.1
Tertiary	1.21	0.89	0.85	0.59	0.52	0.46	-0.05	-0.07	-0.08	-7.7	-12.2	-14.4
Transport	2.90	2.92	2.94	2.81	2.69	2.56	-0.03	-0.08	-0.10	-1.0	-3.0	-3.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	43.8	50.9	54.7	54.7	8.5	15.5	21.5			
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.4	9.0	11.1	11.1	0.9	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7626	8848	11377	11377	-609	-384	368	-7.4	-4.2	3.3
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	0	0	0	0	-161	-159	0	-100.0	-100.0	
Gas (including derived gases)	1104	1490	3432	2603	1312	1312	-550	-1940	-4480	-13.8	-42.7	-77.3
Biomass-waste	0	43	352	1894	4917	4917	-87	1479	4147	-19.9	356.9	538.2
Hydro (pumping excluded)	2818	3324	2962	3042	3036	3036	122	3	13	4.3	0.1	0.4
Wind	4	47	879	1305	2106	2106	67	232	688	8.2	21.6	48.5
Solar	0	0	2	3	7	7	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2062	2144	3064	3387	3909	3909	11	297	688	0.4	9.6	21.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1519	1578	1970	2164	2617	2617	0	75	364	0.0	3.6	16.2
Hydro (pumping excluded)	1517	1554	1563	1567	1574	1574	0	0	0	0.0	0.0	0.0
Wind	2	24	404	590	1029	1029	0	75	364	-0.1	14.5	54.7
Solar	0	0	4	7	14	14	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	543	565	1094	1223	1292	1292	12	222	324	1.1	22.2	33.5
of which cogeneration units	542	564	614	756	815	815	50	-1	72	8.8	-0.2	9.6
Solids fired	29	2	2	2	0	0	0	0	0	0.0	0.0	
Gas fired	414	502	957	868	578	578	0	-8	-274	0.0	-0.9	-32.2
Oil fired	98	45	61	62	15	15	0	0	0	0.0	0.0	0.0
Biomass-waste fired	2	16	73	292	698	698	12	230	598	19.2	373.5	600.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	27.9	29.3	32.2	32.2	-2.2	-4.1	-6.1			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.4	45.1	44.7	44.7	0.5	0.2	-3.2			
% of gross electricity from CHP	24.0	11.8	42.8	39.1	40.2	40.2	0.6	1.3	-0.7			
Carbon free gross electricity generation (%)	68.3	69.6	55.0	70.6	88.5	88.5	5.3	21.5	41.1			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	55.0	70.6	88.5	88.5	5.3	21.5	41.1			
Transport sector												
Passenger transport activity (Gpkm)												
	17.7	12.3	15.8	22.5	24.9	28.5	-0.4	-0.6	-0.9	-1.6	-2.5	-3.1
Public road transport	5.9	2.3	2.8	3.2	3.3	3.4	0.1	0.1	0.1	2.2	3.2	3.8
Private cars and motorcycles	5.8	8.7	11.6	17.2	19.1	22.1	-0.5	-0.8	-1.1	-2.6	-3.9	-4.7
Rail	5.8	1.1	1.3	1.7	2.0	2.3	0.0	0.1	0.1	2.4	3.4	4.2
Aviation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-3.6	-4.9	-5.5
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	24.8	18.1	26.3	43.4	50.2	59.6	-0.8	-1.4	-2.3	-1.9	-2.8	-3.8
Trucks	5.9	4.8	8.4	15.6	19.1	25.5	-1.1	-1.9	-2.9	-6.8	-9.0	-10.3
Rail	18.5	13.3	17.9	27.8	31.1	34.1	0.3	0.5	0.6	1.2	1.6	1.8
Inland navigation	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1094	744	999	1451	1576	1736	-99	-185	-247	-6.4	-10.5	-12.5
Public road transport	111	23	25	25	25	21	0	0	-2	-0.2	-1.6	-10.0
Private cars and motorcycles	317	373	451	589	612	676	-25	-42	-2	-4.1	-6.4	-0.4
Trucks	370	241	371	613	712	885	-69	-131	-222	-10.2	-15.6	-20.1
Rail	188	75	93	134	134	59	0	0	-5	0.4	-0.2	-7.7
Aviation	73	27	59	89	93	95	-5	-11	-15	-5.8	-10.5	-13.8
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: Cost Efficiency Scenario				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1277	1723	4922	5435	5884	-3.9	-8.8	14.4	1.8	
Solids	42	43	35	39	9	6	4	1	1	-1.7	-13.1	-7.5	-14.8	
Oil	12	130	347	239	231	251	244	246	256	40.0	-4.0	0.6	0.4	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Renewable energy sources	321	501	656	777	1037	1466	1874	2343	2736	7.4	4.7	6.1	3.9	
Hydro	36	32	29	39	36	36	37	37	37	-2.0	2.0	0.3	0.1	
Biomass & Waste	285	469	627	735	943	1339	1723	2154	2486	8.2	4.2	6.2	3.7	
Wind	0	0	0	0	58	86	105	138	191			6.2	6.2	
Solar and others	0	0	0	0	1	5	10	15	21			23.7	8.1	
Geothermal	0	0	0	3	0	0	0	0	0			13.3	0.8	
Net Imports	11666	5643	4327	5096	6466	6860	5550	5632	5871	-9.4	4.1	-1.5	0.6	
Solids	758	157	84	190	216	201	145	146	151	-19.8	9.9	-3.9	0.4	
Oil	7260	3686	2299	2677	2777	2996	2826	2832	2947	-10.9	1.9	0.2	0.4	
- Crude oil and Feedstocks	9531	3609	4827	9054	9739	10551	10266	10312	10720	-6.6	7.3	0.5	0.4	
- Oil products	-2271	77	-2528	-6377	-6962	-7554	-7440	-7479	-7773					
Natural gas	4678	2029	2065	2492	3475	3768	2431	2112	2091	-7.9	5.3	-3.5	-1.5	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7573	8392	10268	10855	11542	-7.9	0.7	3.1	1.2	
Solids	831	285	121	215	224	206	149	147	151	-17.5	6.4	-4.0	0.2	
Oil	6878	3080	2190	2746	2838	3057	2866	2865	2989	-10.8	2.6	0.1	0.4	
Natural gas	4678	2029	2064	2476	3475	3768	2431	2112	2091	-7.9	5.3	-3.5	-1.5	
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	1012	1431	2440	3298	3837	7.3	4.6	9.2	4.6	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	3.0	2.5	1.5	1.4	1.3					
Oil	42.8	35.4	30.9	31.9	37.5	36.4	27.9	26.4	25.9					
Natural gas	29.1	23.3	29.1	28.8	45.9	44.9	23.7	19.5	18.1					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	27.3	26.2	25.1					
Renewable energy forms	2.0	5.7	9.2	8.8	13.4	17.1	23.8	30.4	33.2					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11362	13806	20489	22206	24155	-9.0	0.2	6.1	1.7	
Self consumption and grid losses	3486	2241	1906	1788	850	1031	1648	1912	2077	-5.9	-7.8	6.8	2.3	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2203	2559	1472	1743	1962	-10.0	9.2	-3.9	2.9	
Solids	0	0	0	0	53	53	1	1	1			-30.9	-0.2	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.4		
Gas (including derived gases)	1543	433	716	1044	2085	2276	759	395	406	-7.4	11.3	-9.6	-6.1	
Biomass & Waste	0	0	0	5	63	230	711	1348	1554			27.4	8.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10279	11165	11094	10999	11339	-6.6	6.0	0.8	0.2	
Refineries	9561	3392	5086	9418	9902	10763	10490	10547	10970	-6.1	6.9	0.6	0.4	
Biofuels and hydrogen production	0	0	0	3	14	55	158	177	189			27.4	1.8	
District heating	1823	1079	657	522	360	346	444	274	178	-9.7	-5.9	2.1	-8.7	
Derived gases, cokeries etc.	24	18	12	8	3	2	1	1	1	-7.0	-11.8	-10.7	-2.9	
Energy Branch Consumption	991	601	655	915	767	841	932	972	1018	-4.1	1.6	2.0	0.9	
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0	
Final Energy Demand	9696	4728	3820	4527	5020	5424	5851	6226	6677	-8.9	2.8	1.5	1.3	
by sector														
Industry	3334	1025	782	996	1127	1292	1452	1638	1858	-13.5	3.7	2.6	2.5	
- energy intensive industries	1678	482	362	436	532	616	690	775	871	-14.2	3.9	2.6	2.4	
- other industrial sectors	1656	543	420	560	595	676	762	863	987	-12.8	3.6	2.5	2.6	
Residential	1854	1733	1402	1437	1479	1547	1727	1860	2009	-2.8	0.5	1.6	1.5	
Tertiary	2518	933	589	697	746	767	827	849	857	-13.5	2.4	1.0	0.4	
Transport	1990	1037	1048	1397	1668	1818	1845	1878	1953	-6.2	4.8	1.0	0.6	
by fuel														
Solids	760	241	96	197	158	144	141	144	148	-18.7	5.2	-1.1	0.5	
Oil	4055	1666	1348	1599	1913	2058	2010	2043	2125	-10.4	3.6	0.5	0.6	
Gas	1483	510	363	503	548	529	404	436	480	-13.1	4.2	-3.0	1.7	
Electricity	1048	670	606	749	855	950	1100	1227	1371	-5.3	3.5	2.5	2.2	
Heat (from CHP and District Heating)	2078	1193	828	905	913	894	935	936	951	-8.8	1.0	0.2	0.2	
Renewable energy forms	272	448	579	574	633	849	1260	1440	1601	7.9	0.9	7.1	2.4	
Other	0	0	0	0	0	0	1	1	1			16.3	2.2	
RES in Gross Final Energy Consumption ^(A)			671	726	978	1358	2215	2876	3246		3.8	8.5	3.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	21.3	21.0	16.9	14.2	13.3	-9.1	2.1	-2.3	-2.3	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	14.8	15.7	11.4	10.3	10.3	-10.8	3.6	-2.6	-1.1	
Power generation/District heating	12.0	5.6	3.9	4.0	5.4	5.8	2.3	1.3	1.2	-10.5	3.2	-8.2	-6.5	
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	1.7	1.4	1.1	-3.3	4.3	-0.9	-3.9	
Industry	6.1	1.7	1.1	1.3	1.6	1.6	1.3	1.4	1.5	-15.9	3.9	-2.0	1.4	
Residential	2.3	0.8	0.6	0.7	0.6	0.6	0.7	0.8	0.9	-13.2	0.1	1.6	2.6	
Tertiary	4.5	1.6	0.5	0.6	0.5	0.5	0.5	0.4	0.4	-19.8	0.6	-1.5	-0.8	
Transport	5.8	3.0	3.1	4.1	4.9	5.2	5.0	5.0	5.2	-6.2	4.7	0.3	0.3	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	5.4	5.5	3.9	3.1	-5.7	-0.6	-1.7	-5.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	47.4	46.8	37.6	31.7	29.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	269.6	232.9	229.9	199.5	178.6	-5.1	-6.0	-1.6	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	1.96	1.87	1.11	0.95	0.89	-3.2	2.9	-5.5	-2.2
Import Dependency %	72.2	63.8	60.3	58.3	83.5	79.9	53.0	50.9	49.9				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.6	5.7	6.9	8.0	8.9		5.4	4.2	2.5
as % of GDP			19.0	15.2	16.3	15.8	15.4	14.7	13.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.4	55.0	49.1	45.6	43.5	-9.4	-4.5	-2.5	-1.2
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	52.8	43.6	39.7	35.5	32.6	0.0	-6.2	-2.8	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	71.4	58.0	50.5	42.4	35.9	-13.8	-3.3	-3.4	-3.4
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.7	25.8	24.5	23.9	25.0	0.4	-2.6	-0.8	0.2
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.2	16.3	15.0	14.1	13.6	-7.6	-2.3	-1.4	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.22	0.22	0.07	0.04	0.03	-2.7	3.1	-11.0	-7.4
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.50	1.45	1.27	1.22	1.19	-3.5	1.0	-1.7	-0.6
Industry	1.83	1.70	1.38	1.35	1.40	1.23	0.89	0.83	0.80	-2.8	0.2	-4.5	-1.1
Residential	1.26	0.47	0.41	0.46	0.39	0.39	0.39	0.41	0.43	-10.8	-0.4	0.0	1.1
Tertiary	1.80	1.66	0.85	0.83	0.72	0.63	0.56	0.52	0.49	-7.2	-1.7	-2.5	-1.2
Transport	2.93	2.91	2.93	2.92	2.91	2.86	2.71	2.68	2.65	0.0	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	18.6	24.0	36.3	44.4	46.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.9	3.1	9.0	9.9	10.4				
Gross Electricity generation by source (in GWh)													
			11118	14410	11362	13806	20489	22206	24155		0.2	6.1	1.7
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3
Solids			0	0	255	255	6	2	6				-31.2
Oil (including refinery gas)			603	379	3	0	0	0	0		-40.3	-30.9	
Gas (including derived gases)			1759	3226	9728	11134	3282	1691	1884		18.7	-10.3	-5.4
Biomass-waste			0	19	293	996	3161	5882	6801				26.8
Hydro (pumping excluded)			339	451	413	424	425	428	431		2.0	0.3	0.1
Wind			0	0	669	997	1215	1601	2225				6.2
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3985	4355	6379	6527	6650		-1.9	4.8	0.4
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0
<u>Renewable energy</u>			98	115	718	998	1141	1433	2058		22.1	4.7	6.1
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	602	878	992	1272	1890				5.1
Solar			0	0	1	4	7	13	16				21.3
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3267	3357	3723	3579	3077		2.9	1.3	-1.9
of which cogeneration units			2442	2498	2470	2168	2625	2785	2610		0.1	0.6	-0.1
Solids fired			0	0	29	29	29	29	29				0.0
Gas fired			1838	1877	2591	2582	2582	2267	1860		3.5	0.0	-3.2
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-64.9
Biomass-waste fired			0	5	42	158	523	1007	1187				28.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	31.6	35.0	35.0	36.9	39.5				
Efficiency of gross thermal power generation (%)			22.3	25.6	40.1	41.6	37.7	37.4	38.1				
% of gross electricity from CHP			18.5	22.7	71.1	61.4	31.3	34.0	35.6				
Carbon free gross electricity generation (%)			78.8	75.0	12.1	17.5	84.0	92.4	92.2				
- nuclear			75.7	71.7	0.0	0.0	60.5	56.7	53.0				
- renewable energy forms			3.0	3.3	12.1	17.5	23.4	35.6	39.1				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.6	41.9	44.1	46.1	47.7	-0.8	6.9	1.4	0.8
Public road transport	7.9	4.2	2.8	3.8	4.4	4.8	5.0	5.2	5.3	-10.0	4.8	1.4	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.2	36.0	37.7	39.2	40.5	5.6	7.5	1.3	0.7
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.8	0.9	-16.3	-2.9	3.3	3.8
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.9	5.4	5.0	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.1	1.9	0.9
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.2	45.2	51.0	54.9	55.6	-4.6	8.3	3.2	0.9
Trucks	7.3	5.2	7.8	15.9	20.8	25.1	27.9	30.1	30.4	0.6	10.4	3.0	0.8
Rail	19.3	7.2	8.9	12.5	16.3	20.1	23.0	24.8	25.3	-7.4	6.2	3.5	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1990	1037	1048	1397	1668	1818	1845	1878	1953	-6.2	4.8	1.0	0.6
Public road transport	164	50	25	30	34	35	35	32	31	-17.1	3.1	0.2	-1.0
Private cars and motorcycles	396	485	630	823	929	966	957	971	1057	4.8	4.0	0.3	1.0
Trucks	1159	374	288	414	540	619	640	658	651	-13.0	6.5	1.7	0.2
Rail	132	86	75	79	101	120	124	118	108	-5.5	3.0	2.1	-1.4
Aviation	135	41	27	46	60	72	83	93	99	-14.9	8.4	3.4	1.8
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.8	1.7	0.5

Source: PRIMES

Lithuania: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1723	4922	5884	412	597	802	31.5	13.8	15.8
Solids	42	35	39	6	4	1	-1	-1	-3	-19.0	-26.4	-78.9
Oil	12	347	239	251	244	256	-12	-35	-29	-4.6	-12.5	-10.1
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1466	1874	2736	426	634	834	40.9	51.1	43.8
Hydro	36	29	39	36	37	37	1	1	0	2.5	2.3	0.0
Biomass & Waste	285	627	735	1339	1723	2486	360	548	674	36.7	46.6	37.2
Wind	0	0	0	86	105	191	62	78	144	253.9	291.3	304.5
Solar and others	0	0	0	5	10	21	4	7	16	334.3	293.6	330.9
Geothermal	0	0	3	0	0	0	0	0	0	95.9	291.9	283.3
Net Imports	11666	4327	5096	6860	5550	5871	-949	-1269	-1593	-12.2	-18.6	-21.3
Solids	758	84	190	201	145	151	-138	-163	-167	-40.8	-52.9	-52.6
Oil	7260	2299	2677	2996	2826	2947	-151	-506	-434	-4.8	-15.2	-12.8
- Crude oil and Feedstocks	9531	4827	9054	10551	10266	10720	-507	-1453	-1198	-4.6	-12.4	-10.1
- Oil products	-2271	-2528	-6377	-7554	-7440	-7773	357	947	764	-4.5	-11.3	-8.9
Natural gas	4678	2065	2492	3768	2431	2091	-650	-1197	-2141	-14.7	-33.0	-50.6
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8392	10268	11542	-536	-671	-790	-6.0	-6.1	-6.4
Solids	831	121	215	206	149	151	-140	-164	-170	-40.4	-52.4	-52.9
Oil	6878	2190	2746	3057	2866	2989	-163	-540	-462	-5.1	-15.9	-13.4
Natural gas	4678	2064	2476	3768	2431	2091	-650	-1197	-2141	-14.7	-33.0	-50.6
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1431	2440	3837	416	1230	1983	41.0	101.7	106.9
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	2.5	1.5	1.3	-1.4	-1.4	-1.3			
Oil	42.8	30.9	31.9	36.4	27.9	25.9	0.4	-3.2	-2.1			
Natural gas	29.1	29.1	28.8	44.9	23.7	18.1	-4.6	-9.5	-16.2			
Nuclear	27.3	30.7	31.0	0.0	27.3	25.1	0.0	1.7	1.6			
Renewable energy forms	2.0	9.2	8.8	17.1	23.8	33.2	5.7	12.7	18.2			
Gross Electricity Generation in GWh_e	28400	11118	14410	13806	20489	24155	-1322	-1184	-1103	-8.7	-5.5	-4.4
Self consumption and grid losses	3486	1906	1788	1031	1648	2077	-123	-74	-27	-10.7	-4.3	-1.3
Fuel Inputs to Thermal Power Generation	2610	911	1218	2559	1472	1962	-409	-342	-372	-13.8	-18.9	-15.9
Solids	0	0	0	53	1	1	-115	-136	-142	-68.3	-99.0	-99.1
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-88.9	181.4	34864.0
Gas (including derived gases)	1543	716	1044	2276	759	406	-487	-876	-1619	-17.6	-53.6	-79.9
Biomass & Waste	0	0	5	230	711	1554	192	670	1389	514.0	1618.6	840.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11165	11094	11339	-528	-1600	-1430	-4.5	-12.6	-11.2
Refineries	9561	5086	9418	10763	10490	10970	-520	-1488	-1227	-4.6	-12.4	-10.1
Biofuels and hydrogen production	0	0	3	55	158	189	6	30	20	12.5	23.9	11.8
District heating	1823	657	522	346	444	178	-14	-142	-222	-3.9	-24.2	-55.5
Derived gases, cokeries etc.	24	12	8	2	1	1	-1	-1	-1	-27.7	-41.8	-50.3
Energy Branch Consumption	991	655	915	841	932	1018	-37	-41	-46	-4.2	-4.2	-4.4
Non-Energy Uses	852	648	775	1112	1239	1509	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5424	5851	6677	-381	-446	-538	-6.6	-7.1	-7.5
by sector												
Industry	3334	782	996	1292	1452	1858	-46	-56	-59	-3.4	-3.7	-3.1
- energy intensive industries	1678	362	436	616	690	871	-11	-13	-8	-1.7	-1.8	-0.9
- other industrial sectors	1656	420	560	676	762	987	-35	-43	-51	-4.9	-5.4	-4.9
Residential	1854	1402	1437	1547	1727	2009	-128	-93	-112	-7.6	-5.1	-5.3
Tertiary	2518	589	697	767	827	857	-105	-120	-202	-12.0	-12.7	-19.0
Transport	1990	1048	1397	1818	1845	1953	-102	-177	-166	-5.3	-8.8	-7.8
by fuel												
Solids	760	96	197	144	141	148	-23	-25	-24	-13.7	-15.3	-13.9
Oil	4055	1348	1599	2058	2010	2125	-116	-233	-221	-5.4	-10.4	-9.4
Gas	1483	363	503	529	404	480	-63	-283	-150	-10.7	-41.3	-23.8
Electricity	1048	606	749	950	1100	1371	-100	-91	-87	-9.6	-7.6	-6.0
Heat (from CHP and District Heating)	2078	828	905	894	935	951	-138	-131	-164	-13.4	-12.3	-14.7
Renewable energy forms	272	579	574	849	1260	1601	60	318	109	7.7	33.7	7.3
Other	0	0	0	0	1	1	0	0	0	6.8	1.1	2.1
RES in Gross Final Energy Consumption ^(A)		671	726	1358	2215	3246	371	1049	1523	37.5	90.0	88.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	21.0	16.9	13.3	-3.7	-6.6	-8.2	-14.8	-28.2	-38.1
CO₂ Emissions (energy related)	32.5	10.4	12.6	15.7	11.4	10.3	-2.5	-5.0	-7.1	-14.0	-30.6	-40.7
Power generation/District heating	12.0	3.9	4.0	5.8	2.3	1.2	-1.9	-3.1	-5.1	-24.2	-57.3	-81.0
Energy Branch	1.7	1.2	2.0	2.0	1.7	1.1	-0.1	-0.5	-0.9	-4.4	-21.2	-43.5
Industry	6.1	1.1	1.3	1.6	1.3	1.5	-0.1	-0.6	-0.2	-5.4	-32.9	-12.9
Residential	2.3	0.6	0.7	0.6	0.7	0.9	-0.1	-0.1	-0.2	-10.9	-12.7	-15.5
Tertiary	4.5	0.5	0.6	0.5	0.5	0.4	-0.1	-0.1	-0.2	-17.1	-20.9	-28.0
Transport	5.8	3.1	4.1	5.2	5.0	5.2	-0.3	-0.6	-0.6	-5.9	-11.0	-10.2
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.6	-5.9	-10.0
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	5.4	5.5	3.1	-1.1	-1.6	-1.2	-17.3	-22.6	-27.2
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	46.8	37.6	29.7	-8.1	-14.7	-18.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Lithuania: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	232.9	229.9	178.6	-14.9	-15.0	-12.2	-6.0	-6.1	-6.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.87	1.11	0.89	-0.17	-0.39	-0.51	-8.5	-26.1	-36.7
Import Dependency %	72.2	60.3	58.3	79.9	53.0	49.9	-5.7	-8.2	-9.5			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.7	6.9	8.9	0.2	0.4	0.8	3.4	6.5	9.7
as % of GDP		19.0	15.2	15.8	15.4	13.7	0.5	0.9	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.5	0.8						
as % of GDP				0.57	1.02	1.25						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	55.0	49.1	43.5	-1.9	-1.9	-1.4	-3.4	-3.7	-3.1
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	43.6	39.7	32.6	-3.6	-2.1	-1.8	-7.6	-5.1	-5.3
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	58.0	50.5	35.9	-7.9	-7.3	-8.4	-12.0	-12.7	-19.0
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	25.8	24.5	25.0	-0.5	-0.7	0.5	-1.8	-2.9	2.2
Freight transport (toe/Mtkm)	47.8	21.6	17.3	16.3	15.0	13.6	-1.1	-1.8	-2.3	-6.3	-10.7	-14.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.22	0.07	0.03	-0.04	-0.08	-0.12	-15.0	-53.6	-79.4
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.45	1.27	1.19	-0.01	-0.14	-0.07	-0.4	-10.2	-5.4
Industry	1.83	1.38	1.35	1.23	0.89	0.80	-0.03	-0.39	-0.09	-2.1	-30.3	-10.1
Residential	1.26	0.41	0.46	0.39	0.39	0.43	-0.01	-0.03	-0.05	-3.5	-8.0	-10.8
Tertiary	1.80	0.85	0.83	0.63	0.56	0.49	-0.04	-0.06	-0.06	-5.8	-9.4	-11.0
Transport	2.93	2.93	2.92	2.86	2.71	2.65	-0.02	-0.07	-0.07	-0.6	-2.5	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	24.0	36.3	46.9	7.8	18.5	23.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.1	9.0	10.4	0.5	2.5	2.0			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	13806	20489	24155	24155	-1322	-1184	-1103	-8.7	-5.5	-4.4
Nuclear energy	8417	10335	0	12399	12808	12808	0	0	0	0.0	0.0	0.0
Solids	0	0	255	6	6	6	-631	-735	-762	-71.2	-99.2	-99.2
Oil (including refinery gas)	603	379	0	0	0	0	0	0	0	-83.0	169.8	29268.7
Gas (including derived gases)	1759	3226	11134	3282	1884	1884	-2239	-4331	-8002	-16.7	-56.9	-80.9
Biomass-waste	0	19	996	3161	6801	6801	822	2968	5986	474.8	1536.5	735.1
Hydro (pumping excluded)	339	451	424	425	431	431	10	9	0	2.5	2.3	0.0
Wind	0	0	997	1215	2225	2225	716	905	1675	253.9	291.3	304.5
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	4839	3827	4355	6379	6650	6650	613	1068	2346	16.4	20.1	54.5
<u>Nuclear energy</u>	2291	1200	0	1515	1515	1515	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	98	115	998	1141	2058	2058	674	767	1564	207.5	205.6	316.4
Hydro (pumping excluded)	98	108	117	141	152	152	0	0	0	0.0	0.0	0.0
Wind	0	6	878	992	1890	1890	674	767	1564	330.1	341.5	479.1
Solar	0	0	4	7	16	16	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2451	2512	3357	3723	3077	3077	-61	301	782	-1.8	8.8	34.1
of which cogeneration units	2442	2498	2168	2625	2610	2610	-51	148	629	-2.3	6.0	31.8
Solids fired	0	0	29	29	29	29	-74	-74	-74	-71.7	-71.7	-71.7
Gas fired	1838	1877	2582	2582	1860	1860	-120	-120	-217	-4.4	-4.4	-10.4
Oil fired	613	631	588	589	0	0	0	0	0	0.0	0.0	135.6
Biomass-waste fired	0	5	158	523	1187	1187	133	495	1073	527.7	1742.3	940.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	23.0	39.4	35.0	35.0	39.5	39.5	-9.6	-9.6	-24.7			
Efficiency of gross thermal power generation (%)	22.3	25.6	41.6	37.7	38.1	38.1	-0.2	-2.8	-4.2			
% of gross electricity from CHP	18.5	22.7	61.4	31.3	35.6	35.6	-5.2	-3.4	-2.8			
Carbon free gross electricity generation (%)	78.8	75.0	17.5	84.0	92.2	92.2	11.8	22.5	34.4			
- nuclear	75.7	71.7	0.0	60.5	53.0	53.0	0.0	3.3	2.3			
- renewable energy forms	3.0	3.3	17.5	23.4	39.1	39.1	11.8	19.2	32.0			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	41.9	44.1	47.7	-0.7	-1.2	-1.5	-1.6	-2.5	-3.0
Public road transport	7.9	2.8	3.8	4.8	5.0	5.3	0.1	0.2	0.2	2.6	3.8	4.4
Private cars and motorcycles	9.3	16.1	29.3	36.0	37.7	40.5	-0.8	-1.3	-1.7	-2.2	-3.4	-4.0
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	2.8	4.2	4.9
Aviation	0.2	0.2	0.3	0.5	0.6	0.9	0.0	0.0	0.0	-3.3	-4.5	-5.0
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.5	-0.1	0.0
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.2	51.0	55.6	-0.8	-1.4	-1.9	-1.8	-2.7	-3.3
Trucks	7.3	7.8	15.9	25.1	27.9	30.4	-1.5	-2.4	-3.0	-5.5	-7.8	-9.1
Rail	19.3	8.9	12.5	20.1	23.0	25.3	0.6	0.9	1.2	3.2	4.3	4.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	-0.8	-0.9
Energy demand in transport (ktoe)												
	1990	1048	1397	1818	1845	1953	-102	-177	-166	-5.3	-8.8	-7.8
Public road transport	164	25	30	35	35	31	0	-1	-3	0.0	-1.5	-9.9
Private cars and motorcycles	396	630	823	966	957	1057	-35	-55	8	-3.4	-5.4	0.8
Trucks	1159	288	414	619	640	651	-66	-118	-158	-9.7	-15.6	-19.6
Rail	132	75	79	120	124	108	2	2	3	1.4	1.9	2.6
Aviation	135	27	46	72	83	99	-3	-6	-15	-4.3	-6.9	-12.9
Inland navigation	5	3	5	6	6	7	0	0	0	-0.9	-1.2	-2.5

Source: PRIMES

Luxembourg: Cost Efficiency Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	161	207	259	276	288	1.9	11.0	4.9	1.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	161	207	259	276	288	1.9	11.0	4.9	1.1	
Hydro	6	7	10	8	9	9	10	10	10	5.8	-0.9	0.1	0.1	
Biomass & Waste	41	39	44	59	89	111	139	153	168	0.7	7.3	4.6	1.9	
Wind	0	0	2	5	14	14	21	21	17		19.5	4.1	-1.9	
Solar and others	0	0	0	2	48	72	89	92	94			6.3	0.5	
Geothermal	0	0	0	0	0	0	0	0	0			3.6	0.6	
Net Imports	3520	3257	3620	4606	4822	4894	4739	4763	4839	0.3	2.9	-0.2	0.2	
Solids	1134	514	125	82	53	48	44	33	26	-19.8	-8.2	-1.9	-5.0	
Oil	1620	1756	2332	3066	3268	3180	2907	2814	2772	3.7	3.4	-1.2	-0.5	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3268	3180	2907	2814	2772	3.7	3.4	-1.2	-0.5	
Natural gas	430	557	670	1179	1100	1194	1224	1296	1360	4.6	5.1	1.1	1.1	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	4983	5101	4998	5039	5127	0.2	3.2	0.0	0.3	
Solids	1134	514	125	82	53	48	44	33	26	-19.8	-8.2	-1.9	-5.0	
Oil	1609	1788	2283	3084	3268	3180	2907	2814	2772	3.6	3.7	-1.2	-0.5	
Natural gas	430	557	670	1179	1100	1194	1224	1296	1360	4.6	5.1	1.1	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	208	336	492	533	569	1.9	13.9	9.0	1.5	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.9	0.7	0.5					
Oil	45.2	53.6	62.9	65.6	65.6	62.3	58.2	55.8	54.1					
Natural gas	12.1	16.7	18.5	25.1	22.1	23.4	24.5	25.7	26.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	4.2	6.6	9.9	10.6	11.1					
Gross Electricity Generation in GWh_e	627	498	433	3344	2606	3166	3637	4418	5058	-3.6	19.7	3.4	3.4	
Self consumption and grid losses	410	497	439	448	181	206	228	288	348	0.7	-8.5	2.3	4.3	
Fuel Inputs to Thermal Power Generation	190	132	75	568	435	519	568	677	773	-8.8	19.2	2.7	3.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	384	465	492	582	662	-11.6	23.3	2.5	3.0	
Biomass & Waste	25	24	28	43	50	54	77	94	111	1.0	5.9	4.4	3.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	69	168	279	302	327			14.9	1.6	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	69	168	279	302	327			14.9	1.6	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	6	7	8	10	11	-1.8	-13.2	3.0	3.1	
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4	
Final Energy Demand	3329	3165	3549	4424	4766	4828	4689	4681	4720	0.6	3.0	-0.2	0.1	
by sector														
Industry	1729	1196	958	937	980	1045	1089	1139	1191	-5.7	0.2	1.1	0.9	
- energy intensive industries	1525	900	501	470	477	498	495	498	496	-10.5	-0.5	0.4	0.0	
- other industrial sectors	204	296	457	467	502	547	594	641	696	8.4	1.0	1.7	1.6	
Residential	519	563	596	649	673	653	649	628	602	1.4	1.2	-0.4	-0.7	
Tertiary	74	99	118	130	133	137	120	122	124	4.7	1.2	-1.0	0.4	
Transport	1007	1307	1877	2708	2980	2993	2831	2791	2802	6.4	4.7	-0.5	-0.1	
by fuel														
Solids	756	369	125	82	53	48	44	33	26	-16.5	-8.1	-1.9	-5.0	
Oil	1581	1752	2266	3065	3242	3151	2876	2781	2737	3.7	3.6	-1.2	-0.5	
Gas	622	585	623	678	716	729	731	712	696	0.0	1.4	0.2	-0.5	
Electricity	355	430	491	529	561	598	624	718	805	3.3	1.3	1.1	2.6	
Heat (from CHP and District Heating)	0	14	27	55	72	76	79	83	85		10.4	0.9	0.7	
Renewable energy forms	15	15	16	16	120	225	333	351	369	0.4	22.4	10.7	1.0	
Other	0	0	0	0	0	1	1	2	3			15.0	7.0	
RES in Gross Final Energy Consumption ^(A)			34	48	188	297	431	465	493		18.6	8.6	1.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.1	13.9	13.1	13.0	12.9	-2.1	3.1	-0.7	-0.1	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.6	12.5	11.7	11.6	11.5	-1.8	3.6	-0.7	-0.1	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.1	1.1	1.4	1.5	-17.0	23.4	2.5	3.0	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.6	0.1	
Residential	1.3	1.3	1.4	1.4	1.3	1.2	1.1	0.9	0.8	1.1	-0.6	-1.7	-3.4	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.8	-0.1	-1.1	
Transport	3.0	3.9	5.6	8.1	8.8	8.6	7.8	7.6	7.6	6.5	4.7	-1.2	-0.3	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.6	-7.6	-0.6	-0.2	-0.3	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.7	0.7	0.8	2.4	0.6	-1.0	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	109.7	108.7	102.3	101.1	101.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.3	116.5	97.5	85.6	77.5	-5.9	-0.5	-3.3	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.52	2.45	2.34	2.29	2.25	-2.0	0.3	-0.7	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	96.8	95.9	94.8	94.5	94.4				
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.2	4.8	5.2	5.5	5.9		4.9	2.1	1.2
as % of GDP			10.4	11.4	11.6	10.9	10.1	9.4	8.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	78.7	71.1	65.3	61.5	-9.0	-1.4	-2.0	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.8	68.5	59.6	51.2	44.3	-2.2	-2.0	-3.1	-2.9
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.4	66.5	49.7	44.4	40.2	-0.5	-2.5	-4.3	-2.1
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	156.7	136.8	124.1	116.8	1.8	1.0	-1.9	-1.6
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	131.0	119.4	112.8	108.1	0.0	4.3	-1.7	-1.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.26	0.26	0.25	0.25	0.25	-18.4	5.6	-0.3	0.2
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.45	2.36	2.25	2.18	2.12	-1.9	-0.1	-0.8	-0.6
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.46	1.40	1.35	-6.1	-1.4	-0.4	-0.8
Residential	2.45	2.39	2.37	2.21	1.98	1.84	1.72	1.51	1.31	-0.3	-1.8	-1.4	-2.7
Tertiary	0.21	0.34	0.65	0.48	0.48	0.47	0.52	0.48	0.45	12.0	-3.0	0.9	-1.4
Transport	2.95	2.96	2.97	3.00	2.95	2.87	2.76	2.72	2.69	0.1	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	3.9	6.1	9.1	9.9	10.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	5.6	9.7	10.7	11.5				
Gross Electricity generation by source (in GWh)													
			433	3344	2606	3166	3637	4418	5058		19.7	3.4	3.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1	0	2	0	0	0	0		7.7		
Gas (including derived gases)			222	3083	2120	2649	2946	3646	4257		25.3	3.3	3.7
Biomass-waste			63	97	194	219	319	392	467		11.9	5.1	3.9
Hydro (pumping excluded)			120	93	110	110	111	111	112		-0.9	0.1	0.1
Wind			27	53	160	167	239	243	197		19.5	4.1	-1.9
Solar			0	18	20	21	23	25	26			1.7	1.0
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			275	722	892	960	1071	1236	1316		12.5	1.8	2.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			167	214	279	287	320	326	305		5.3	1.4	-0.5
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	99	104	134	138	117		25.7	3.1	-1.4
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			108	509	613	673	751	911	1011		19.0	2.1	3.0
of which cogeneration units			61	112	226	235	240	234	216		13.9	0.6	-1.0
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	506	564	645	793	886		19.2	2.5	3.2
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	101	103	102	113	121		21.2	0.1	1.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			16.8	52.5	32.5	36.7	37.8	39.8	42.8				
Efficiency of gross thermal power generation (%)			32.7	48.1	45.8	47.5	49.4	51.3	52.6				
% of gross electricity from CHP			53.7	11.8	29.9	27.7	28.3	24.4	20.7				
Carbon free gross electricity generation (%)			48.5	7.8	18.6	16.3	19.0	17.5	15.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	18.6	16.3	19.0	17.5	15.8				
Transport sector													
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.5	9.9	10.3	10.7	3.5	2.0	0.9	0.8
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.8	0.9
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.2	7.4	7.6	7.9	3.4	1.8	0.7	0.7
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	0.8	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.2	1.3	1.4	5.8	3.7	2.5	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.4	12.4	13.4	14.4	8.0	2.4	1.7	1.5
Trucks	3.2	5.5	7.6	8.8	10.1	11.1	12.1	13.1	14.1	9.0	2.8	1.9	1.5
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-2.6	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	2993	2831	2791	2802	6.4	4.7	-0.5	-0.1
Public road transport	18	18	24	29	32	30	28	27	26	2.9	2.9	-1.2	-0.7
Private cars and motorcycles	500	609	760	916	968	942	855	791	775	4.3	2.4	-1.2	-1.0
Trucks	345	482	757	1323	1474	1494	1473	1510	1550	8.2	6.9	0.0	0.5
Rail	13	9	15	9	8	7	6	6	5	2.0	-5.9	-3.1	-1.6
Aviation	131	189	320	431	498	519	469	458	446	9.3	4.5	-0.6	-0.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Luxembourg: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	207	259	288	28	37	15	15.8	16.6	5.4
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	207	259	288	28	37	15	15.8	16.6	5.4
Hydro	6	10	8	9	10	10	0	0	0	2.2	1.4	0.0
Biomass & Waste	41	44	59	111	139	168	0	0	-16	0.0	0.0	-8.8
Wind	0	2	5	14	21	17	3	3	3	23.8	16.0	21.3
Solar and others	0	0	2	72	89	94	25	34	28	54.4	60.8	42.5
Geothermal	0	0	0	0	0	0	0	0	0	41.2	49.4	54.8
Net Imports	3520	3620	4606	4894	4739	4839	-388	-672	-668	-7.3	-12.4	-12.1
Solids	1134	125	82	48	44	26	-2	-3	-3	-3.7	-5.8	-11.4
Oil	1620	2332	3066	3180	2907	2772	-295	-569	-676	-8.5	-16.4	-19.6
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	3180	2907	2772	-295	-569	-676	-8.5	-16.4	-19.6
Natural gas	430	670	1179	1194	1224	1360	-118	-182	-68	-9.0	-12.9	-4.8
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	5101	4998	5127	-359	-635	-653	-6.6	-11.3	-11.3
Solids	1134	125	82	48	44	26	-2	-3	-3	-3.7	-5.8	-11.4
Oil	1609	2283	3084	3180	2907	2772	-295	-569	-676	-8.5	-16.4	-19.6
Natural gas	430	670	1179	1194	1224	1360	-118	-182	-68	-9.0	-12.9	-4.8
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	336	492	569	56	118	95	20.0	31.6	20.1
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	0.9	0.9	0.5	0.0	0.1	0.0			
Oil	45.2	62.9	65.6	62.3	58.2	54.1	-1.3	-3.5	-5.6			
Natural gas	12.1	18.5	25.1	23.4	24.5	26.5	-0.6	-0.5	1.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	6.6	9.9	11.1	1.5	3.2	2.9			
Gross Electricity Generation in GWh_e	627	433	3344	3166	3637	5058	-398	-472	1121	-11.2	-11.5	28.5
Self consumption and grid losses	410	439	448	206	228	348	-31	-19	81	-13.2	-7.6	30.1
Fuel Inputs to Thermal Power Generation	190	75	568	519	568	773	-69	-84	145	-11.7	-12.9	23.1
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	0.0		
Gas (including derived gases)	162	47	525	465	492	662	-78	-116	97	-14.3	-19.1	17.1
Biomass & Waste	25	28	43	54	77	111	9	32	48	20.1	70.5	77.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	168	279	327	16	46	17	10.5	19.9	5.4
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	168	279	327	16	46	17	10.5	19.9	5.4
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	8	11	-2	0	3	-20.2	-5.5	32.2
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4828	4689	4720	-333	-610	-736	-6.5	-11.5	-13.5
by sector												
Industry	1729	958	937	1045	1089	1191	-26	-39	-53	-2.4	-3.4	-4.3
- energy intensive industries	1525	501	470	498	495	496	-7	-12	-12	-1.3	-2.5	-2.3
- other industrial sectors	204	457	467	547	594	696	-20	-26	-42	-3.5	-4.2	-5.7
Residential	519	596	649	653	649	602	-53	-64	-119	-7.5	-9.0	-16.5
Tertiary	74	118	130	137	120	124	-18	-45	-47	-11.8	-27.4	-27.7
Transport	1007	1877	2708	2993	2831	2802	-236	-463	-516	-7.3	-14.0	-15.5
by fuel												
Solids	756	125	82	48	44	26	-2	-3	-3	-3.7	-5.8	-11.4
Oil	1581	2266	3065	3151	2876	2737	-295	-569	-676	-8.6	-16.5	-19.8
Gas	622	623	678	729	731	696	-40	-66	-165	-5.3	-8.3	-19.2
Electricity	355	491	529	598	624	805	-32	-39	89	-5.0	-5.9	12.5
Heat (from CHP and District Heating)	0	27	55	76	79	85	-5	-9	-21	-6.2	-9.9	-20.1
Renewable energy forms	15	16	16	225	333	369	41	75	40	22.2	29.1	12.3
Other	0	0	0	1	1	3	0	0	0	16.9	7.6	0.4
RES in Gross Final Energy Consumption ^(A)	34	48	297	431	493	52	106	85	21.4	32.5	20.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	13.9	13.1	12.9	-1.3	-2.3	-2.4	-8.3	-14.8	-15.4
CO₂ Emissions (energy related)	10.6	8.8	12.4	12.5	11.7	11.5	-1.2	-2.2	-2.2	-8.6	-15.6	-16.2
Power generation/District heating	0.7	0.1	1.2	1.1	1.1	1.5	-0.2	-0.3	0.2	-14.3	-19.1	17.1
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	-0.1	-0.1	-1.6	-3.1	-8.4
Residential	1.3	1.4	1.4	1.2	1.1	0.8	-0.2	-0.3	-0.6	-14.1	-19.5	-42.6
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-9.4	-24.3	-32.1
Transport	3.0	5.6	8.1	8.6	7.8	7.6	-0.8	-1.5	-1.7	-8.3	-16.6	-18.4
CO₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.6	0.0	0.0	0.0	-1.5	-2.8	-4.0
Non-CO₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.7	0.8	-0.1	-0.1	-0.1	-8.2	-11.3	-11.1
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	108.7	102.3	101.0	-9.8	-17.7	-18.3			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Luxembourg: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	116.5	97.5	77.5	-8.2	-12.4	-9.9	-6.6	-11.3	-11.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.45	2.34	2.25	-0.06	-0.12	-0.13	-2.2	-4.8	-5.5
Import Dependency %	99.0	99.8	98.0	95.9	94.8	94.4	-0.8	-1.2	-0.9			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	4.8	5.2	5.9	0.3	0.3	0.4	6.1	5.5	8.1
as % of GDP		10.4	11.4	10.9	10.1	8.9	0.6	0.5	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.3	0.4						
as % of GDP				0.63	0.54	0.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	78.7	71.1	61.5	-2.0	-2.5	-2.8	-2.4	-3.4	-4.3
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	68.5	59.6	44.3	-5.6	-5.9	-8.8	-7.5	-9.0	-16.5
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	66.5	49.7	40.2	-8.9	-18.8	-15.4	-11.8	-27.4	-27.7
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	156.7	136.8	116.8	-4.4	-15.7	-12.7	-2.8	-10.3	-9.8
Freight transport (toe/Mtkm)	93.1	93.3	144.6	131.0	119.4	108.1	-10.2	-15.3	-16.4	-7.2	-11.4	-13.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.25	0.25	-0.01	-0.02	0.00	-4.9	-8.8	0.6
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.36	2.25	2.12	-0.04	-0.10	-0.16	-1.7	-4.1	-7.2
Industry	3.28	1.74	1.63	1.50	1.46	1.35	0.01	0.00	-0.06	0.8	0.3	-4.3
Residential	2.45	2.37	2.21	1.84	1.72	1.31	-0.14	-0.23	-0.59	-7.1	-11.6	-31.2
Tertiary	0.21	0.65	0.48	0.47	0.52	0.45	0.01	0.02	-0.03	2.7	4.3	-6.2
Transport	2.95	2.97	3.00	2.87	2.76	2.69	-0.03	-0.08	-0.09	-1.0	-2.9	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	6.1	9.1	10.4	1.4	3.0	2.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	9.7	11.5	0.9	2.7	2.3			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		433	3344	3166	3637	5058	-398	-472	1121	-11.2	-11.5	28.5
Solids		0	0	0	0	0	0	0	0			
Oil (including refinery gas)		1	0	0	0	0	0	0	0			
Gas (including derived gases)		222	3083	2649	2946	4257	-464	-638	881	-14.9	-17.8	26.1
Biomass-waste		63	97	219	319	467	32	131	206	17.2	70.1	79.1
Hydro (pumping excluded)		120	93	110	111	112	2	2	0	2.2	1.4	0.0
Wind		27	53	167	239	197	32	33	35	23.8	16.0	21.3
Solar		0	18	21	23	26	0	0	0	0.0	0.0	0.0
Geothermal and other renewables		0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
Nuclear energy		275	722	960	1071	1316	-4	-13	224	-0.5	-1.2	20.5
Renewable energy		167	214	287	320	305	30	31	32	11.6	10.6	11.9
Hydro (pumping excluded)		155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind		10	35	104	134	117	30	31	32	40.0	29.4	38.3
Solar		2	23	28	30	33	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)		0	0	0	0	0	0	0	0			
Thermal power		108	509	673	751	1011	-34	-44	191	-4.9	-5.5	23.3
of which cogeneration units		61	112	235	240	216	-19	-49	-78	-7.6	-16.8	-26.5
Solids fired		0	0	0	0	0	0	0	0			
Gas fired		87	477	564	645	886	-53	-78	144	-8.5	-10.7	19.4
Oil fired		6	7	6	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired		15	25	103	102	121	18	34	48	21.7	49.6	64.7
Fuel Cells		0	0	0	0	0	0	0	0			
Geothermal heat		0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)		16.8	52.5	36.7	37.8	42.8	-4.4	-4.5	2.6			
Efficiency of gross thermal power generation (%)		32.7	48.1	47.5	49.4	52.6	-0.8	-0.3	2.8			
% of gross electricity from CHP		53.7	11.8	27.7	28.3	20.7	-1.9	-0.6	-14.4			
Carbon free gross electricity generation (%)		48.5	7.8	16.3	19.0	15.8	3.7	6.2	1.6			
- nuclear		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms		48.5	7.8	16.3	19.0	15.8	3.7	6.2	1.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport		5.2	7.4	8.3	9.5	9.9	-0.2	-0.3	-0.4	-2.0	-3.0	-3.6
Private cars and motorcycles		0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.5	2.4
Rail		4.2	5.8	6.4	7.2	7.4	7.9	-0.2	-0.3	-0.4	-2.4	-3.7
Aviation		0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	2.5	3.4
Inland navigation		0.4	0.7	0.8	1.1	1.2	1.4	0.0	-0.1	-0.1	-3.4	-4.5
Freight transport activity (Gtkm)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks		3.8	8.2	9.2	11.4	12.4	14.4	-0.3	-0.5	-0.7	-2.7	-4.0
Rail		3.2	7.6	8.8	11.1	12.1	14.1	-0.3	-0.5	-0.8	-3.0	-4.3
Inland navigation		0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	7.2	9.4
Energy demand in transport (ktoe)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport		1007	1877	2708	2993	2831	2802	-236	-463	-516	-7.3	-14.0
Private cars and motorcycles		18	24	29	30	28	26	-1	-2	-3	-2.3	-7.2
Trucks		500	760	916	942	855	775	-43	-98	-87	-4.4	-10.3
Rail		345	757	1323	1494	1473	1550	-162	-260	-328	-9.8	-15.0
Aviation		13	15	9	7	6	5	0	0	1	2.3	4.7
Inland navigation		131	320	431	519	469	446	-30	-102	-99	-5.5	-17.9
		0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	0	0	0	0	4	21	36	45	49			24.3	3.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	0	0	0	0	4	21	36	45	49			24.3	3.1	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	0	0	0	0	0	0	0	0	0					
Wind	0	0	0	0	0	2	10	15	17				6.2	
Solar and others	0	0	0	0	4	19	27	30	32			20.7	1.8	
Geothermal	0	0	0	0	0	0	0	0	0			5.5	-1.1	
Net Imports	611	890	818	953	931	785	758	730	739	3.0	1.3	-2.0	-0.2	
Solids	0	0	0	0	0	0	0	0	0					
Oil	611	890	818	953	878	656	548	446	436	3.0	0.7	-4.6	-2.3	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	611	890	818	953	878	656	548	446	436	3.0	0.7	-4.6	-2.3	
Natural gas	0	0	0	0	53	53	117	180	185			8.4	4.7	
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Gross Inland Consumption	581	808	769	953	936	807	794	775	789	2.8	2.0	-1.6	-0.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil	581	808	769	953	878	656	548	446	436	2.8	1.3	-4.6	-2.3	
Natural gas	0	0	0	0	53	53	117	180	185			8.4	4.7	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Renewable energy forms	0	0	0	0	5	25	44	54	60			24.8	3.3	
as % in Gross Inland Consumption														
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Oil	100.0	100.0	100.0	100.0	93.9	81.3	69.0	57.6	55.2					
Natural gas	0.0	0.0	0.0	0.0	5.6	6.5	14.8	23.2	23.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.0	0.0	0.0	0.0	0.5	3.1	5.5	7.0	7.6					
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	2002	1234	1328	1517	1580	5.7	0.4	-4.0	1.8	
Self consumption and grid losses	190	373	350	438	169	114	122	135	147	6.3	-7.0	-3.2	1.9	
Fuel Inputs to Thermal Power Generation	321	463	494	580	501	268	223	203	207	4.4	0.1	-7.8	-0.8	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	321	463	494	580	449	215	104	19	18	4.4	-1.0	-13.6	-16.0	
Gas (including derived gases)	0	0	0	0	53	53	117	180	185			8.4	4.7	
Biomass & Waste	0	0	0	0	0	0	2	4	4				5.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	0	0	0	0	1	3	5	6	7			24.8	3.5	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	0	1	3	5	6	7			26.0	3.5	
District heating	0	0	0	0	0	0	0	0	0			-6.2	-4.7	
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	8	19	10	12	8	3	3	2	2	2.5	-1.9	-11.1	-0.6	
Non-Energy Uses	6	0	0	0	0	0	0	0	0					
Final Energy Demand	332	451	408	528	592	632	664	675	687	2.1	3.8	1.2	0.3	
by sector														
Industry	0	42	43	46	49	53	59	65	71		1.3	1.7	2.0	
- energy intensive industries	0	0	0	0	0	0	0	0	0					
- other industrial sectors	0	42	43	46	49	53	59	65	71		1.3	1.7	2.0	
Residential	55	73	76	89	101	110	116	117	119	3.2	2.9	1.4	0.3	
Tertiary	56	32	52	66	68	74	77	79	80	-0.7	2.7	1.2	0.5	
Transport	221	304	237	328	374	396	413	413	415	0.7	4.6	1.0	0.1	
by fuel														
Solids	0	0	0	0	0	0	0	0	0					
Oil	254	342	274	373	430	441	444	427	418	0.8	4.6	0.3	-0.6	
Gas	0	0	0	0	0	0	0	0	0			2.0	2.4	
Electricity	78	108	135	155	158	169	188	213	231	5.6	1.6	1.8	2.0	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-6.2	-4.7	
Renewable energy forms	0	0	0	0	5	22	31	34	38			21.1	2.0	
Other	0	0	0	0	0	0	0	0	0			15.0	1.7	
RES in Gross Final Energy Consumption ^(A)			0	0	5	24	41	51	57			24.5	3.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.3	2.6	2.4	2.2	2.2	2.9	1.7	-3.3	-0.6	
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.8	2.1	1.9	1.8	1.7	3.0	1.8	-3.8	-1.1	
Power generation/District heating	1.0	1.5	1.6	1.9	1.6	0.8	0.6	0.5	0.5	4.4	-0.1	-9.0	-2.2	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-1.8	4.2	-3.7	-10.6	
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			5.9	-5.6	
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.2	1.2	1.2	0.7	4.7	0.9	0.0	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.4	0.5	0.5	2.2	1.5	-0.5	1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	157.4	123.7	113.1	106.2	106.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Malta: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	181.4	132.2	107.1	89.7	80.9	-1.9	0.6	-5.1	-2.8
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.04	2.64	2.44	2.27	2.20	0.1	-0.2	-2.2	-1.0
Import Dependency %	100.0	104.5	100.8	100.0	99.6	97.3	95.4	94.2	93.7				
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.8	0.9	1.0		6.3	2.1	1.5
as % of GDP			8.3	12.2	13.3	12.2	11.4	10.7	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.3	81.2	75.9	72.4	70.1		-1.4	-1.4	-0.8
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	114.2	104.6	90.0	77.8	70.2	-1.6	1.3	-2.4	-2.5
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	120.0	108.4	91.5	81.1	72.6	-5.9	1.8	-2.7	-2.3
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.0	56.7	55.3	51.8	49.5	-3.8	2.2	-0.5	-1.1
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	166.9	159.1	147.3	138.8	132.7	2.5	4.8	-1.2	-1.0
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.78	0.66	0.46	0.32	0.31	-1.3	-0.5	-5.2	-3.8
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.08	2.00	1.89	1.82	-1.3	0.9	-0.8	-0.9
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Residential	1.66	1.47	1.01	1.10	1.14	0.92	0.69	0.39	0.22	-4.9	1.3	-5.0	-10.9
Tertiary	0.00	0.00	0.50	0.49	0.69	0.52	0.34	0.18	0.10		3.1	-6.7	-11.5
Transport	2.97	2.96	2.98	3.00	2.99	2.97	2.96	2.94	2.93	0.0	0.1	-0.1	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.8	3.8	6.1	7.4	8.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.4	1.6	2.0				
Gross Electricity generation by source (in GWh)													
			1917	2240	2002	1234	1328	1517	1580		0.4	-4.0	1.8
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			1917	2240	1656	859	415	108	101		-1.5	-12.9	-13.2
Gas (including derived gases)			0	0	347	346	791	1215	1258			8.6	4.8
Biomass-waste			0	0	0	2	12	19	19				5.1
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	0	26	111	176	202				6.2
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			472	483	534	550	524	615	673		1.2	-0.2	2.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			0	0	0	11	45	71	82				6.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	0	11	45	71	82				6.2
Solar			0	0	0	0	0	0	0				
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			472	483	534	539	479	544	591		1.2	-1.1	2.1
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	46	46	212	252	299			16.4	3.5
Oil fired			472	483	488	493	266	290	290		0.3	-5.9	0.9
Biomass-waste fired			0	0	0	0	1	2	2				5.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			43.6	49.5	40.8	24.9	28.3	27.6	26.3				
Efficiency of gross thermal power generation (%)			33.4	33.2	34.4	38.8	46.9	56.9	57.3				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	0.0	2.3	9.2	12.8	14.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	0.0	2.3	9.2	12.8	14.0				
Transport sector													
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.1	6.6	7.1	5.2	2.3	2.0	1.4
Public road transport	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7	5.9	1.8	1.7	1.4
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.1	4.4	2.4	1.1	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.5	3.8	4.2	5.6	2.4	2.7	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.1	0.0
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-0.1	0.1	0.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	221	304	237	328	374	396	413	413	415	0.7	4.6	1.0	0.1
Public road transport	5	11	10	12	14	15	16	15	15	5.8	4.0	1.0	-0.3
Private cars and motorcycles	87	160	89	142	174	186	200	201	204	0.2	6.9	1.4	0.2
Trucks	57	59	52	84	83	79	73	69	66	-0.8	4.7	-1.2	-1.0
Rail	0	0	0	0	0	0	0	0	0				
Aviation	72	74	86	90	103	116	124	127	130	1.8	1.8	1.9	0.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Malta: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	21	36	49	14	20	24	186.5	123.2	97.5
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	21	36	49	14	20	24	186.5	123.2	97.5
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	2	10	17	2	7	13		321.0	270.6
Solar and others	0	0	0	19	27	32	12	13	12	156.0	91.3	57.5
Geothermal	0	0	0	0	0	0	0	0	0	142.3	138.7	154.7
Net Imports	611	818	953	785	758	739	-125	-147	-119	-13.7	-16.3	-13.9
Solids	0	0	0	0	0	0	0	0	0	-20.1	-44.5	-79.8
Oil	611	818	953	656	548	436	-120	-155	-77	-15.5	-22.0	-15.1
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	656	548	436	-120	-155	-77	-15.5	-22.0	-15.1
Natural gas	0	0	0	53	117	185	-4	11	-35	-7.5	10.5	-15.9
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	807	794	789	-111	-127	-95	-12.1	-13.8	-10.7
Solids	0	0	0	0	0	0	0	0	0	-20.1	-44.5	-79.8
Oil	581	769	953	656	548	436	-120	-155	-77	-15.5	-22.0	-15.1
Natural gas	0	0	0	53	117	185	-4	11	-35	-7.5	10.5	-15.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	25	44	60	14	16	17	120.5	60.4	40.8
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	81.3	69.0	55.2	-3.3	-7.3	-2.8			
Natural gas	0.0	0.0	0.0	6.5	14.8	23.5	0.3	3.2	-1.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	3.1	5.5	7.6	1.9	2.5	2.8			
Gross Electricity Generation in GWh_e	1100	1917	2240	1234	1328	1580	-339	-310	-134	-21.6	-18.9	-7.8
Self consumption and grid losses	190	350	438	114	122	147	-34	-27	-14	-23.0	-17.9	-8.5
Fuel Inputs to Thermal Power Generation	321	494	580	268	223	207	-105	-105	-44	-28.1	-31.9	-17.6
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	215	104	18	-100	-111	-1	-31.7	-51.7	-7.4
Gas (including derived gases)	0	0	0	53	117	185	-4	11	-35	-7.6	10.5	-15.9
Biomass & Waste	0	0	0	0	2	4	-1	-5	-8	-61.7	-68.8	-68.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	3	5	7	0	1	1	14.3	28.0	12.0
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	3	5	7	0	1	1	14.5	28.5	12.2
District heating	0	0	0	0	0	0	0	0	0	7.9	-18.6	-31.5
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	3	2	-2	-1	-1	-38.8	-32.5	-23.7
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	632	664	687	-34	-54	-74	-5.1	-7.5	-9.7
by sector												
Industry	0	43	46	53	59	71	-2	-3	-3	-3.6	-5.0	-4.0
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	53	59	71	-2	-3	-3	-3.6	-5.0	-4.0
Residential	55	76	89	110	116	119	-4	-9	-14	-3.8	-7.0	-10.7
Tertiary	56	52	66	74	77	80	-14	-17	-20	-15.6	-17.9	-19.9
Transport	221	237	328	396	413	415	-14	-26	-36	-3.5	-5.8	-8.1
by fuel												
Solids	0	0	0	0	0	0	0	0	0	-20.1	-44.5	-79.8
Oil	254	274	373	441	444	418	-20	-44	-76	-4.4	-8.9	-15.4
Gas	0	0	0	0	0	0	0	0	0	14.7	-3.3	-5.3
Electricity	78	135	155	169	188	231	-26	-24	-10	-13.4	-11.5	-4.3
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	7.9	-18.6	-31.5
Renewable energy forms	0	0	0	22	31	38	12	14	12	123.0	79.8	48.4
Other	0	0	0	0	0	0	0	0	0	6.5	9.0	-5.0
RES in Gross Final Energy Consumption ^(A)	0	0	0	24	41	57	14	19	22	136.9	84.5	62.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.4	2.2	-0.4	-0.5	-0.4	-13.9	-17.3	-13.8
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.1	1.9	1.7	-0.4	-0.5	-0.3	-15.5	-19.2	-15.2
Power generation/District heating	1.0	1.6	1.9	0.8	0.6	0.5	-0.3	-0.3	-0.1	-28.9	-35.2	-15.0
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-22.1	-24.3	-19.1
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	-9.5	-29.4	-73.3
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.0	-33.3	-79.9
Transport	0.7	0.7	1.0	1.2	1.2	1.2	0.0	-0.1	-0.1	-3.7	-6.4	-9.1
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.4	0.5	0.0	0.0	0.0	-5.5	-7.9	-8.6
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	123.7	113.1	106.2	-19.9	-23.7	-17.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Malta: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	132.2	107.1	80.9	-18.1	-17.1	-9.7	-12.1	-13.8	-10.7
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.64	2.44	2.20	-0.11	-0.16	-0.12	-3.9	-6.3	-5.0
Import Dependency %	100.0	100.8	100.0	97.3	95.4	93.7	-1.8	-2.8	-3.4			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.8	1.0	0.0	0.0	0.0	2.8	2.7	2.1
as % of GDP		8.3	12.2	12.2	11.4	10.1	0.3	0.3	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.34	0.31	0.22						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	81.2	75.9	70.1	-3.0	-4.0	-2.9	-3.6	-5.0	-4.0
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	104.6	90.0	70.2	-4.1	-6.8	-8.4	-3.8	-7.0	-10.7
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	108.4	91.5	72.6	-20.0	-19.9	-18.1	-15.6	-17.9	-19.9
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	56.7	55.3	49.5	-0.7	-1.4	-2.1	-1.2	-2.4	-4.1
Freight transport (toe/Mtkm)	81.8	104.3	167.6	159.1	147.3	132.7	-7.1	-13.7	-18.3	-4.3	-8.5	-12.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.66	0.46	0.31	-0.07	-0.11	-0.03	-9.4	-20.1	-7.8
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.08	2.00	1.82	0.02	-0.03	-0.12	0.8	-1.5	-6.2
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-19.2	-20.3	-15.7
Residential	1.66	1.01	1.10	0.92	0.69	0.22	-0.06	-0.22	-0.51	-6.0	-24.0	-70.1
Tertiary	0.00	0.50	0.49	0.52	0.34	0.10	0.04	-0.08	-0.30	7.9	-18.8	-74.9
Transport	2.97	2.98	3.00	2.97	2.96	2.93	-0.01	-0.02	-0.03	-0.2	-0.6	-1.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		0.0	0.0	3.8	6.1	8.1	2.3	3.1	3.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	0.9	1.4	2.0	0.1	0.4	0.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	859	415	101	-334	-444	-8	-28.0	-51.7	-7.4	
Gas (including derived gases)	0	0	346	791	1258	-28	75	-231	-7.6	10.5	-15.5	
Biomass-waste	0	0	2	12	19	-3	-26	-42	-61.7	-68.8	-68.6	
Hydro (pumping excluded)	0	0	0	0	0	0	0	0				
Wind	0	0	26	111	202	26	84	148		321.0	270.6	
Solar	0	0	0	0	0	0	0	0				
Geothermal and other renewables	0	0	0	0	0	0	0	0				
Net Generation Capacity in MW_e	472	483	550	524	673	7	-30	34	1.2	-5.5	5.3	
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	0	0	11	45	82	11	35	61		347.9	295.1	
Hydro (pumping excluded)	0	0	0	0	0	0	0	0				
Wind	0	0	11	45	82	11	35	61		347.9	295.1	
Solar	0	0	0	0	0	0	0	0				
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0				
<u>Thermal power</u>	472	483	539	479	591	-4	-65	-27	-0.8	-12.0	-4.4	
of which cogeneration units	0	0	0	0	0	0	0	0				
Solids fired	0	0	0	0	0	0	0	0				
Gas fired	0	0	46	212	299	-5	-62	-19	-9.9	-22.6	-6.0	
Oil fired	472	483	493	266	290	1	0	-3	0.3	0.0	-1.1	
Biomass-waste fired	0	0	0	1	2	0	-3	-5	-61.7	-68.8	-68.6	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	43.6	49.5	24.9	28.3	26.3	-7.0	-4.5	-3.6				
Efficiency of gross thermal power generation (%)	33.4	33.2	38.8	46.9	57.3	2.5	4.6	0.4				
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)	0.0	0.0	2.3	9.2	14.0	2.0	5.3	7.2				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	0.0	0.0	2.3	9.2	14.0	2.0	5.3	7.2				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	2.4	4.0	4.4	5.6	6.1	7.1	-0.1	-0.1	-0.2	-1.4	-2.0	-2.4
Private cars and motorcycles	0.3	0.5	0.5	0.6	0.7	0.7	0.0	0.0	0.0	3.1	4.2	4.8
Rail	0.9	1.4	1.6	1.9	2.0	2.1	0.0	0.0	0.0	-1.2	-1.6	-1.9
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	1.2	2.1	2.3	3.1	3.5	4.2	-0.1	-0.1	-0.2	-2.3	-3.3	-3.8
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-3.0	-3.9	-4.4
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-3.0	-3.9	-4.4
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	221	237	328	396	413	415	-14	-26	-36	-3.5	-5.8	-8.1
Private cars and motorcycles	5	10	12	15	16	15	0	-1	-1	-0.6	-4.9	-8.6
Trucks	87	89	142	186	200	204	-5	-9	-14	-2.8	-4.3	-6.3
Rail	57	52	84	79	73	66	-6	-10	-13	-7.1	-12.0	-16.0
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	72	86	90	116	124	130	-3	-6	-9	-2.4	-4.5	-6.3
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	60478	65988	57172	61834	57047	55996	54706	48760	42077	-0.6	0.0	-0.4	-2.6
Solids	0	0	0	0	0	0	0	0	0				
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0			
Natural gas	54613	60456	51904	56265	53300	50563	47209	40100	32670	-0.5	0.3	-1.2	-3.6
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Renewable energy sources	956	933	1831	2242	2725	4410	6473	7626	8362	6.7	4.1	9.0	2.6
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0
Biomass & Waste	942	894	1739	2035	2150	3096	4351	4985	5464	6.3	2.1	7.3	2.3
Wind	5	27	71	178	440	706	1006	1439	1525	30.9	20.0	8.6	4.2
Solar and others	2	4	9	22	126	599	1107	1193	1364	15.5	30.3	24.2	2.1
Geothermal	0	0	0	0	0	0	0	0	0			4.1	1.9
Net Imports	17443	16359	34331	36912	40019	43127	44216	50745	58306	7.0	1.5	1.0	2.8
Solids	9574	8921	8222	8313	4728	7127	6967	5582	4982	-1.5	-5.4	4.0	-3.3
Oil	30876	32829	41673	47392	49913	50101	50099	50615	50764	3.0	1.8	0.0	0.1
- Crude oil and Feedstocks	47956	59277	60955	61302	65879	66104	66317	66868	67126	2.4	0.8	0.1	0.1
- Oil products	-17080	-26448	-19282	-13910	-15966	-16003	-16217	-16253	-16361				
Natural gas	-23799	-26370	-17191	-20941	-16567	-15716	-14673	-7616	440				
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Gross Inland Consumption	67059	73374	75712	80963	79461	80796	79869	79769	80097	1.2	0.5	0.1	0.0
Solids	9206	9098	8035	8190	4728	7127	6967	5582	4982	-1.4	-5.2	4.0	-3.3
Oil	24415	27242	28496	32027	32308	31774	31045	30878	30479	1.6	1.3	-0.4	-0.2
Natural gas	30810	34085	34711	35324	36733	34847	32535	32484	33110	1.2	0.6	-1.2	0.2
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Renewable energy forms	956	933	1831	2817	3332	5285	7702	9034	9905	6.7	6.2	8.7	2.5
as % in Gross Inland Consumption													
Solids	13.7	12.4	10.6	10.1	5.9	8.8	8.7	7.0	6.2				
Oil	36.4	37.1	37.6	39.6	40.7	39.3	38.9	38.7	38.1				
Natural gas	45.9	46.5	45.8	43.6	46.2	43.1	40.7	40.7	41.3				
Nuclear	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3				
Renewable energy forms	1.4	1.3	2.4	3.5	4.2	6.5	9.6	11.3	12.4				
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	106007	117588	116593	124847	134847	2.2	1.7	1.0	1.5
Self consumption and grid losses	5554	6853	7752	8521	8577	9870	9625	10459	10962	3.4	1.0	1.2	1.3
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16511	17967	17322	17158	18123	2.2	-1.0	0.5	0.5
Solids	5698	5900	5114	4958	1462	3884	3883	2627	2116	-1.1	-11.8	10.3	-5.9
Oil (including refinery gas)	702	876	618	640	0	2	2	2	0	-1.3			-37.8
Gas (including derived gases)	7651	9466	11071	11913	13292	11572	9911	10299	11264	3.8	1.8	-2.9	1.3
Biomass & Waste	570	601	1430	2052	1757	2510	3526	4229	4744	9.6	2.1	7.2	3.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	72281	83698	85058	89914	88105	88408	88418	88589	88417	1.6	0.4	0.0	0.0
Refineries	68767	80009	82188	86416	84182	84121	83769	84001	83820	1.8	0.2	0.0	0.0
Biofuels and hydrogen production	0	0	0	0	325	791	1377	1484	1591			15.5	1.5
District heating	0	0	0	436	545	479	445	422	393			-2.0	-1.2
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3017	2827	2682	2613	-2.0	0.6	-0.8	-0.8
Energy Branch Consumption	5410	6247	5484	6580	6447	6483	6397	6306	6275	0.1	1.6	-0.1	-0.2
Non-Energy Uses	9495	9406	9579	12301	13233	13703	13782	13826	13802	0.1	3.3	0.4	0.0
Final Energy Demand	42924	47670	50125	51588	52179	52359	51951	52162	52681	1.6	0.4	0.0	0.1
by sector													
Industry	12643	12714	13812	14597	15379	15953	16032	16142	16242	0.9	1.1	0.4	0.1
- energy intensive industries	9577	8701	9885	10367	10964	11445	11487	11559	11587	0.3	1.0	0.5	0.1
- other industrial sectors	3066	4012	3927	4231	4416	4508	4545	4583	4655	2.5	1.2	0.3	0.2
Residential	9932	11124	10286	10335	9919	9790	9500	9601	9818	0.4	-0.4	-0.4	0.3
Tertiary	9993	11429	12207	11587	11095	10574	10322	10157	9924	2.0	-1.0	-0.7	-0.4
Transport	10356	12404	13820	15068	15786	16043	16097	16262	16697	2.9	1.3	0.2	0.4
by fuel													
Solids	1755	1461	1352	1515	1516	1522	1486	1447	1394	-2.6	1.1	-0.2	-0.6
Oil	12790	14685	16469	17366	17861	17704	17185	17279	17095	2.6	0.8	-0.4	-0.1
Gas	21244	22515	21008	20335	19919	18999	18058	17363	16855	-0.1	-0.5	-1.0	-0.7
Electricity	6322	7143	8421	8986	9237	9521	9311	10111	10749	2.9	0.9	0.1	1.4
Heat (from CHP and District Heating)	439	1568	2558	2981	2848	2992	3309	3199	3593	19.3	1.1	1.5	0.8
Renewable energy forms	374	298	317	405	797	1619	2598	2759	2989	-1.6	9.6	12.5	1.4
Other	0	0	0	0	1	2	4	5	5			13.7	2.3
RES in Gross Final Energy Consumption ^(A)			940	1828	2936	4790	6997	8217	9001		12.1	9.1	2.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.1	203.3	194.6	184.6	180.8	0.1	-0.2	-0.9	-0.7
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.7	162.2	154.0	148.1	146.3	0.9	-0.4	-0.4	-0.5
Power generation/District heating	43.3	49.1	48.9	51.1	38.8	44.2	40.3	36.2	36.3	1.2	-2.3	0.4	-1.0
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.2	14.0	13.7	13.6	-0.4	1.0	-0.3	-0.3
Industry	27.0	25.1	24.8	25.4	26.9	27.5	26.3	25.9	24.5	-0.8	0.8	-0.2	-0.7
Residential	19.2	20.6	18.9	17.8	16.4	15.3	14.6	14.3	14.1	-0.2	-1.4	-1.2	-0.3
Tertiary	18.9	20.7	19.5	18.1	17.3	15.6	14.9	13.8	12.7	0.3	-1.2	-1.5	-1.6
Transport	30.1	36.2	40.5	44.4	45.7	45.4	44.0	44.1	45.0	3.0	1.2	-0.4	0.2
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.6	11.7	11.8	11.9	-1.5	2.1	0.3	0.2
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	29.5	28.8	24.7	22.6	-2.2	-0.2	-3.7	-2.4
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.4	93.9	89.9	85.3	83.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.0	125.4	113.7	104.9	98.7	-2.0	-1.5	-1.9	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	2.01	1.93	1.86	1.83	-0.4	-0.9	-0.4	-0.5
Import Dependency %	22.4	19.3	38.6	37.8	41.2	43.5	44.7	51.0	58.1				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	67.6	73.5	78.0	81.9		3.3	1.9	1.1
as % of GDP			9.2	10.4	10.5	10.5	10.5	10.3	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	95.9	90.6	86.0	82.4	-1.1	0.0	-1.0	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.4	72.8	65.2	61.4	59.2	-2.9	-2.0	-2.2	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	61.7	55.3	50.3	46.1	-1.5	-3.2	-2.6	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.5	42.5	39.7	38.2	1.7	0.3	-1.3	-1.0
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	35.8	33.4	31.9	30.7	0.8	-0.3	-1.4	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.28	0.25	0.21	0.20	-3.4	-3.9	-0.6	-2.1
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	1.98	1.92	1.88	1.83	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.72	1.64	1.61	1.51	-1.7	-0.3	-0.6	-0.8
Residential	1.93	1.85	1.84	1.72	1.66	1.56	1.53	1.49	1.43	-0.5	-1.0	-0.8	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.48	1.45	1.36	1.28	-1.7	-0.2	-0.8	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.5	8.9	13.1	15.4	16.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.1	10.9	11.6				
Gross Electricity generation by source (in GWh)													
			89599	100202	106007	117588	116593	124847	134847		1.7	1.0	1.5
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5058	19054	19052	15050	12122		-13.7	14.2	-4.4
Oil (including refinery gas)			3769	1651	1231	363	383	176	110		-10.6	-11.0	-11.8
Gas (including derived gases)			55039	64687	83419	74451	64785	68357	77706		4.2	-2.5	1.8
Biomass-waste			3772	6720	6949	10939	15887	18864	21238		6.3	8.6	2.9
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8209	11702	16729	17729		20.0	8.6	4.2
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	76	310	374	374	374			17.2	0.0
Net Generation Capacity in MW_e			20113	19871	25601	27488	27587	30906	33094		2.4	0.7	1.8
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3353	3632	5104	7222	7810		21.1	4.3	4.3
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3134	4350	6204	6448		21.5	3.3	4.0
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	40	161	194	194	194			17.2	0.0
<u>Thermal power</u>			19116	17718	21742	23344	21969	23142	24737		1.3	0.1	1.2
of which cogeneration units			9089	9231	9610	10267	10769	10776	11662		0.6	1.1	0.8
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15276	14581	13100	14699	17186		1.2	-1.5	2.8
Oil fired			839	825	809	625	611	475	453		-0.4	-2.8	-2.9
Biomass-waste fired			533	1022	1483	2213	2931	3403	3904		10.8	7.0	2.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.5	46.8	46.3	44.3	44.8				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.3	50.2	49.7	51.3	52.8				
% of gross electricity from CHP			32.0	37.6	43.6	41.2	46.0	44.4	48.2				
Carbon free gross electricity generation (%)			9.7	12.9	15.4	20.2	27.8	33.1	33.3				
- nuclear			4.4	4.0	3.7	3.4	3.4	3.8	3.5				
- renewable energy forms			5.3	8.9	11.6	16.8	24.4	29.3	29.8				
Transport sector													
Passenger transport activity (Gpkm)	175.3	177.6	189.5	198.2	213.9	231.1	247.9	267.0	286.6	0.8	1.2	1.5	1.5
Public road transport	13.0	12.0	11.3	11.7	12.3	12.7	13.1	13.3	13.5	-1.4	0.9	0.6	0.3
Private cars and motorcycles	138.7	133.2	143.4	149.5	160.2	170.8	180.8	191.9	202.8	0.3	1.1	1.2	1.2
Rail	12.3	17.7	16.1	16.3	17.5	19.3	21.6	24.1	26.8	2.7	0.8	2.1	2.2
Aviation	9.8	13.5	17.8	19.7	23.1	27.3	31.5	36.6	42.4	6.2	2.6	3.2	3.0
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.0	1.1
Freight transport activity (Gtkm)	94.8	105.7	125.4	131.6	142.1	154.5	166.7	177.2	187.0	2.8	1.3	1.6	1.2
Trucks	56.1	67.1	79.6	84.2	90.8	97.8	105.2	113.0	119.5	3.6	1.3	1.5	1.3
Rail	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.7	3.9	3.0	2.2	1.4
Inland navigation	35.7	35.5	41.3	42.2	45.2	49.8	53.9	56.0	58.8	1.5	0.9	1.8	0.9
Energy demand in transport (ktoe)	10356	12404	13820	15068	15786	16043	16097	16262	16697	2.9	1.3	0.2	0.4
Public road transport	104	105	95	91	90	87	83	81	80	-0.9	-0.5	-0.8	-0.4
Private cars and motorcycles	5043	5525	5286	5999	6179	6133	6046	5941	6025	0.5	1.6	-0.2	0.0
Trucks	2899	3325	4254	4933	5140	5201	5224	5335	5424	3.9	1.9	0.2	0.4
Rail	147	162	176	172	183	189	182	163	147	1.8	0.4	0.0	-2.1
Aviation	1608	2589	3343	3670	3976	4197	4313	4486	4756	7.6	1.8	0.8	1.0
Inland navigation	556	697	667	204	217	235	249	256	265	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	55996	54706	42077	-210	739	3414	-0.4	1.4	8.8
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	50563	47209	32670	-1417	-1971	0	-2.7	-4.0	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4410	6473	8362	1207	2710	3414	37.7	72.0	69.0
Hydro	7	12	8	9	9	9	0	0	0	0.2	0.1	0.0
Biomass & Waste	942	1739	2035	3096	4351	5464	712	1506	1724	29.9	52.9	46.1
Wind	5	71	178	706	1006	1525	80	365	712	12.9	56.9	87.7
Solar and others	2	9	22	599	1107	1364	415	839	977	225.7	313.0	252.3
Geothermal	0	0	0	0	0	0	0	0	0	38.6	72.0	105.9
Net Imports	17443	34331	36912	43127	44216	58306	-6354	-10436	-15010	-12.8	-19.1	-20.5
Solids	9574	8222	8313	7127	6967	4982	-3127	-4664	-7655	-30.5	-40.1	-60.6
Oil	30876	41673	47392	50101	50099	50764	-1117	-2077	-3263	-2.2	-4.0	-6.0
- Crude oil and Feedstocks	47956	60955	61302	66104	66317	67126	-1061	-1874	-3101	-1.6	-2.7	-4.4
- Oil products	-17080	-19282	-13910	-16003	-16217	-16361	-56	-203	-162	0.3	1.3	1.0
Natural gas	-23799	-17191	-20941	-15716	-14673	440	-2311	-4121	-4579	17.2	39.1	-91.2
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	80796	79869	80097	-6556	-9672	-11554	-7.5	-10.8	-12.6
Solids	9206	8035	8190	7127	6967	4982	-3127	-4664	-7655	-30.5	-40.1	-60.6
Oil	24415	28496	32027	31774	31045	30479	-1109	-2051	-3221	-3.4	-6.2	-9.6
Natural gas	30810	34711	35324	34847	32535	33110	-3728	-6093	-4579	-9.7	-15.8	-12.1
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5285	7702	9905	1409	3135	3901	36.3	68.7	65.0
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	8.8	8.7	6.2	-2.9	-4.3	-7.6			
Oil	36.4	37.6	39.6	39.3	38.9	38.1	1.7	1.9	1.3			
Natural gas	45.9	45.8	43.6	43.1	40.7	41.3	-1.0	-2.4	0.2			
Nuclear	1.3	1.3	1.3	1.3	1.3	1.3	0.1	0.1	0.2			
Renewable energy forms	1.4	2.4	3.5	6.5	9.6	12.4	2.1	4.5	5.8			
Gross Electricity Generation in GWh_e	71824	89599	100202	117588	116593	134847	-20883	-34942	-33263	-15.1	-23.1	-19.8
Self consumption and grid losses	5554	7752	8521	9870	9625	10962	-1680	-2904	-4473	-14.5	-23.2	-29.0
Fuel Inputs to Thermal Power Generation	14621	18233	19563	17967	17322	18123	-4217	-7087	-7194	-19.0	-29.0	-28.4
Solids	5698	5114	4958	3884	3883	2116	-3138	-4623	-7610	-44.7	-54.4	-78.2
Oil (including refinery gas)	702	618	640	2	2	0	2	2	0	21391.7	21391.7	107.3
Gas (including derived gases)	7651	11071	11913	11572	9911	11264	-1910	-3990	-1558	-14.2	-28.7	-12.1
Biomass & Waste	570	1430	2052	2510	3526	4744	828	1524	1974	49.3	76.1	71.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88408	88418	88417	-991	-1609	-2994	-1.1	-1.8	-3.3
Refineries	68767	82188	86416	84121	83769	83820	-1082	-1898	-3124	-1.3	-2.2	-3.6
Biofuels and hydrogen production	0	0	0	791	1377	1591	76	248	111	10.6	22.0	7.5
District heating	0	0	436	479	445	393	-40	-16	-42	-7.7	-3.5	-9.7
Derived gases, cokeries etc.	3514	2870	3062	3017	2827	2613	55	58	62	1.9	2.1	2.4
Energy Branch Consumption	5410	5484	6580	6483	6397	6275	-219	-365	-626	-3.3	-5.4	-9.1
Non-Energy Uses	9495	9579	12301	13703	13782	13802	-14	-17	-17	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	52359	51951	52681	-3931	-5671	-6981	-7.0	-9.8	-11.7
by sector												
Industry	12643	13812	14597	15953	16032	16242	-462	-686	-1029	-2.8	-4.1	-6.0
- energy intensive industries	9577	9885	10367	11445	11487	11587	-278	-460	-702	-2.4	-3.9	-5.7
- other industrial sectors	3066	3927	4231	4508	4545	4655	-184	-225	-327	-3.9	-4.7	-6.6
Residential	9932	10286	10335	9790	9500	9818	-834	-1295	-1243	-7.8	-12.0	-11.2
Tertiary	9993	12207	11587	10574	10322	9924	-1720	-2108	-2598	-14.0	-17.0	-20.7
Transport	10356	13820	15068	16043	16097	16697	-915	-1583	-2112	-5.4	-9.0	-11.2
by fuel												
Solids	1755	1352	1515	1522	1486	1394	-30	-94	-101	-1.9	-6.0	-6.8
Oil	12790	16469	17366	17704	17185	17095	-1036	-1910	-2941	-5.5	-10.0	-14.7
Gas	21244	21008	20335	18999	18058	16855	-1645	-1753	-2695	-8.0	-8.8	-13.8
Electricity	6322	8421	8986	9521	9311	10749	-1645	-2742	-2458	-14.7	-22.7	-18.6
Heat (from CHP and District Heating)	439	2558	2981	2992	3309	3593	-29	-196	160	-1.0	-5.6	4.7
Renewable energy forms	374	317	405	1619	2598	2989	453	1023	1056	38.9	65.0	54.6
Other	0	0	0	2	4	5	0	0	-2	6.7	7.0	-30.8
RES in Gross Final Energy Consumption ^(A)		940	1828	4790	6997	9001	1338	2896	3630	38.8	70.6	67.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	203.3	194.6	180.8	-30.0	-46.9	-58.1	-12.9	-19.4	-24.3
CO₂ Emissions (energy related)	152.2	165.8	171.6	162.2	154.0	146.3	-24.3	-38.7	-50.3	-13.1	-20.1	-25.6
Power generation/District heating	43.3	48.9	51.1	44.2	40.3	36.3	-16.9	-27.9	-34.0	-27.7	-40.9	-48.3
Energy Branch	13.7	13.1	14.8	14.2	14.0	13.6	-0.4	-0.6	-1.0	-2.5	-4.4	-6.6
Industry	27.0	24.8	25.4	27.5	26.3	24.5	0.0	0.0	-2.0	-0.2	0.0	-7.6
Residential	19.2	18.9	17.8	15.3	14.6	14.1	-2.0	-2.3	-2.5	-11.5	-13.7	-14.8
Tertiary	18.9	19.5	18.1	15.6	14.9	12.7	-2.1	-2.4	-4.0	-11.6	-13.9	-23.9
Transport	30.1	40.5	44.4	45.4	44.0	45.0	-3.0	-5.5	-6.9	-6.1	-11.0	-13.3
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.6	11.7	11.9	-0.1	-0.2	-0.4	-0.5	-1.9	-3.4
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	29.5	28.8	22.6	-5.6	-7.9	-7.4	-16.0	-21.6	-24.7
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	93.9	89.9	83.5	-13.9	-21.7	-26.9			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Netherlands: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	125.4	113.7	98.7	-10.2	-13.8	-14.2	-7.5	-10.8	-12.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.01	1.93	1.83	-0.13	-0.22	-0.32	-6.0	-10.4	-14.9
Import Dependency %	22.4	38.6	37.8	43.5	44.7	58.1	-3.3	-5.6	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	67.6	73.5	81.9	1.9	1.8	2.3	2.9	2.5	2.8
as % of GDP		9.2	10.4	10.5	10.5	10.1	0.3	0.3	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				2.0	1.9	2.4						
as % of GDP				0.31	0.28	0.30						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	95.9	90.6	82.4	-2.8	-3.9	-5.2	-2.8	-4.1	-6.0
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	72.8	65.2	59.2	-6.2	-8.9	-7.5	-7.8	-12.0	-11.2
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	61.7	55.3	46.1	-10.0	-11.3	-12.1	-14.0	-17.0	-20.7
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.5	42.5	38.2	-1.2	-2.1	-2.9	-2.5	-4.6	-6.9
Freight transport (toe/Mtkm)	36.4	39.5	39.6	35.8	33.4	30.7	-2.0	-3.4	-3.5	-5.2	-9.1	-10.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.28	0.25	0.20	-0.06	-0.09	-0.13	-18.2	-27.3	-39.5
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	1.98	1.92	1.83	0.01	0.01	-0.04	0.7	0.6	-2.3
Industry	2.14	1.80	1.74	1.72	1.64	1.51	0.05	0.07	-0.03	2.7	4.3	-1.7
Residential	1.93	1.84	1.72	1.56	1.53	1.43	-0.06	-0.03	-0.06	-3.9	-1.9	-4.1
Tertiary	1.89	1.60	1.56	1.48	1.45	1.28	0.04	0.05	-0.05	2.7	3.7	-4.0
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.06	-0.07	-0.8	-2.3	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	8.9	13.1	16.7	2.9	6.2	7.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.1	11.6	0.8	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	117588	116593	134847	134847	-20883	-34942	-33263	-15.1	-23.1	-19.8
Nuclear energy	3925	3996	3967	3971	4733	4733	0	0	0	0.0	0.0	0.0
Solids	22115	20959	19054	19052	12122	12122	-13869	-20432	-43830	-42.1	-51.7	-78.3
Oil (including refinery gas)	3769	1651	363	383	110	110	-25	9	-1	-6.4	2.3	-1.2
Gas (including derived gases)	55039	64687	74451	64785	77706	77706	-12232	-26140	-7400	-14.1	-28.7	-8.7
Biomass-waste	3772	6720	10939	15887	21238	21238	3997	7001	9310	57.6	78.8	78.0
Hydro (pumping excluded)	142	88	99	99	99	99	0	0	0	0.2	0.1	0.0
Wind	829	2067	8209	11702	17729	17729	935	4246	8284	12.9	56.9	87.7
Solar	8	34	195	340	735	735	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	310	374	374	374	310	374	374			
Net Generation Capacity in MW_e												
	20113	19871	27488	27587	33094	33094	-2145	-4446	-2834	-7.2	-13.9	-7.9
<u>Nuclear energy</u>	501	501	512	514	547	547	11	13	0	2.2	2.7	0.0
<u>Renewable energy</u>	495	1653	3632	5104	7810	7810	435	1672	3204	13.6	48.7	69.5
Hydro (pumping excluded)	37	37	37	37	37	37	0	0	0	0.0	0.0	0.0
Wind	446	1565	3134	4350	6448	6448	274	1478	3009	9.6	51.5	87.5
Solar	12	51	300	523	1131	1131	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	161	194	194	194	161	194	194			
<u>Thermal power</u>	19116	17718	23344	21969	24737	24737	-2591	-6131	-6038	-10.0	-21.8	-19.6
of which cogeneration units	9089	9231	10267	10769	11662	11662	-530	-1382	-175	-4.9	-11.4	-1.5
Solids fired	4171	4171	5926	5327	3194	3194	3	3	-4279	0.1	0.0	-57.3
Gas fired	13574	11700	14581	13100	17186	17186	-3234	-7204	-3429	-18.2	-35.5	-16.6
Oil fired	839	825	625	611	453	453	-70	-52	-228	-10.0	-7.8	-33.5
Biomass-waste fired	533	1022	2213	2931	3904	3904	709	1122	1899	47.2	62.1	94.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	46.8	46.3	44.8	44.8	-4.4	-5.6	-6.2			
Efficiency of gross thermal power generation (%)	39.9	41.3	50.2	49.7	52.8	52.8	1.0	0.5	0.7			
% of gross electricity from CHP	32.0	37.6	41.2	46.0	48.2	48.2	5.0	5.5	10.4			
Carbon free gross electricity generation (%)	9.7	12.9	20.2	27.8	33.3	33.3	6.8	14.1	17.3			
- nuclear	4.4	4.0	3.4	3.4	3.5	3.5	0.5	0.8	0.7			
- renewable energy forms	5.3	8.9	16.8	24.4	29.8	29.8	6.3	13.3	16.6			
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	231.1	247.9	286.6	-4.2	-6.9	-9.6	-1.8	-2.7	-3.2
Public road transport	13.0	11.3	11.7	12.7	13.1	13.5	0.3	0.4	0.5	2.2	3.2	3.7
Private cars and motorcycles	138.7	143.4	149.5	170.8	180.8	202.8	-3.7	-5.9	-8.0	-2.1	-3.2	-3.8
Rail	12.3	16.1	16.3	19.3	21.6	26.8	0.1	0.1	0.3	0.5	0.6	1.0
Aviation	9.8	17.8	19.7	27.3	31.5	42.4	-0.9	-1.5	-2.3	-3.3	-4.5	-5.2
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.7	-0.5	-0.4
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	154.5	166.7	187.0	-3.7	-5.5	-7.3	-2.3	-3.2	-3.8
Trucks	56.1	79.6	84.2	97.8	105.2	119.5	-4.4	-6.5	-8.6	-4.3	-5.8	-6.7
Rail	3.1	4.5	5.2	6.9	7.6	8.7	0.2	0.3	0.3	2.9	3.5	4.2
Inland navigation	35.7	41.3	42.2	49.8	53.9	58.8	0.5	0.7	0.9	0.9	1.4	1.6
Energy demand in transport (ktoe)												
	10356	13820	15068	16043	16097	16697	-915	-1583	-2112	-5.4	-9.0	-11.2
Public road transport	104	95	91	87	83	80	-1	-2	-5	-0.6	-2.8	-5.9
Private cars and motorcycles	5043	5286	5999	6133	6046	6025	-237	-363	-486	-3.7	-5.7	-7.5
Trucks	2899	4254	4933	5201	5224	5424	-446	-762	-894	-7.9	-12.7	-14.1
Rail	147	176	172	189	182	147	-3	-7	-11	-1.4	-3.5	-7.2
Aviation	1608	3343	3670	4197	4313	4756	-229	-447	-711	-5.2	-9.4	-13.0
Inland navigation	556	667	204	235	249	265	0	-1	-4	0.0	-0.4	-1.4

Source: PRIMES

Poland: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68517	66348	66108	65705	71087	-2.1	-1.6	-0.4	0.7	
Solids	94459	91104	71298	68876	56949	52583	48878	41557	40683	-2.8	-2.2	-1.5	-1.8	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	4448	9047					
Renewable energy sources	2369	4763	4256	5016	7618	9964	13530	16250	18057	6.0	6.0	5.9	2.9	
Hydro	139	162	181	189	263	273	284	290	299	2.7	3.8	0.7	0.5	
Biomass & Waste	2230	4600	4072	4806	6837	9011	11264	13195	14219	6.2	5.3	5.1	2.4	
Wind	0	0	0	12	495	541	1440	2038	2625		102.4	11.3	6.2	
Solar and others	0	0	0	0	8	115	513	697	884			51.0	5.6	
Geothermal	0	0	3	9	14	24	29	30	30		17.1	7.2	0.5	
Net Imports	2238	-152	10131	16954	26861	32012	36323	41802	43815	16.3	10.2	3.1	1.9	
Solids	-18913	-21202	-16309	-12482	-9321	-10013	-10424	-8455	-8690					
Oil	14468	15481	20381	21929	25940	28745	29974	31456	32137	3.5	2.4	1.5	0.7	
- Crude oil and Feedstocks	13085	13984	18827	18169	21527	23717	24642	25772	26272	3.7	1.3	1.4	0.6	
- Oil products	1383	1498	1554	3760	4413	5029	5333	5684	5865	1.2	11.0	1.9	1.0	
Natural gas	6773	5810	6607	8531	11190	12700	14829	16715	18132	-0.2	5.4	2.9	2.0	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	95009	97948	101991	107043	114423	-1.0	0.5	0.7	1.2	
Solids	75405	70500	56358	55184	47628	42570	38454	33102	31992	-2.9	-1.7	-2.1	-1.8	
Oil	13399	16003	20759	22525	26321	29035	30234	31643	32259	4.5	2.4	1.4	0.7	
Natural gas	8938	8995	9960	12235	14390	15800	17829	19515	20832	1.1	3.7	2.2	1.6	
Nuclear	0	0	0	0	0	0	0	4448	9047					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7530	11111	15984	19125	21155	6.0	5.9	7.8	2.8	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	50.1	43.5	37.7	30.9	28.0					
Oil	13.4	16.0	22.9	24.0	27.7	29.6	29.6	29.6	28.2					
Natural gas	8.9	9.0	11.0	13.0	15.1	16.1	17.5	18.2	18.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	7.9					
Renewable energy forms	2.4	4.8	4.7	5.3	7.9	11.3	15.7	17.9	18.5					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	149835	151193	158700	181546	206674	0.6	0.5	0.6	2.7	
Self consumption and grid losses	21063	28189	27977	28574	25500	25539	25379	29966	34569	2.9	-0.9	0.0	3.1	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	32700	30305	29479	25900	26752	-1.9	-0.9	-1.0	-1.0	
Solids	41138	35842	34793	35942	30924	26607	23439	18652	18626	-1.7	-1.2	-2.7	-2.3	
Oil (including refinery gas)	1236	405	228	179	23	17	23	124	53	-15.6	-20.5	0.0	8.8	
Gas (including derived gases)	673	488	783	1483	1060	1041	1355	1134	1370	1.5	3.1	2.5	0.1	
Biomass & Waste	372	114	157	546	694	2640	4661	5990	6703	-8.3	16.0	21.0	3.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32520	34463	35458	36841	36921	-1.1	-0.4	0.9	0.4	
Refineries	13160	14929	19949	19591	22538	24718	25662	26755	27204	4.2	1.2	1.3	0.6	
Biofuels and hydrogen production	0	0	0	55	451	933	1724	2007	2090			14.3	1.9	
District heating	9949	5985	4320	3639	3225	3113	3180	3430	3640	-8.0	-2.9	-0.1	1.4	
Derived gases, cokeries etc.	14746	12045	9635	8541	6305	5699	4892	4650	3987	-4.2	-4.2	-2.5	-2.0	
Energy Branch Consumption	6809	7655	7401	7680	9301	9624	9702	10293	10484	0.8	2.3	0.4	0.8	
Non-Energy Uses	4193	3646	4218	4354	5145	6268	7251	8185	8948	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	62025	66736	71013	75175	78041	-0.7	1.1	1.4	0.9	
by sector														
Industry	25252	22720	18883	16373	17645	19610	21439	23219	24586	-2.9	-0.7	2.0	1.4	
- energy intensive industries	16252	15428	13374	11149	11571	12576	13429	14394	15181	-1.9	-1.4	1.5	1.2	
- other industrial sectors	9000	7292	5509	5225	6074	7034	8010	8825	9405	-4.8	1.0	2.8	1.6	
Residential	18126	23284	17516	18375	18887	18982	19739	20287	20789	-0.3	0.8	0.4	0.5	
Tertiary	8867	9229	10136	10334	10882	11496	12059	12902	13618	1.3	0.7	1.0	1.2	
Transport	7338	8256	9185	12087	14611	16648	17776	18767	19047	2.3	4.8	2.0	0.7	
by fuel														
Solids	17066	23299	13728	11262	10313	9947	9272	8723	8496	-2.2	-2.8	-1.1	-0.9	
Oil	9104	11582	15452	17798	20730	22787	23604	24671	24487	5.4	3.0	1.3	0.4	
Gas	7987	7735	7447	8400	11021	11957	13058	14244	14784	-0.7	4.0	1.7	1.2	
Electricity	8233	7703	8317	8498	8464	8928	9709	11025	12760	0.1	0.2	1.4	2.8	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6248	6591	7195	7413	7766	-7.8	-1.0	1.4	0.8	
Renewable energy forms	1631	4408	3889	4156	5248	6524	8170	9092	9742	9.1	3.0	4.5	1.8	
Other	0	0	0	0	1	3	5	6	7			16.6	2.2	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6945	9786	13709	16872	19008		5.3	7.0	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	358.0	343.1	333.9	302.4	259.5	-1.4	-0.5	-0.7	-2.5	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	280.5	269.4	259.2	231.2	189.4	-1.3	-0.3	-0.8	-3.1	
Power generation/District heating	209.3	169.9	158.8	162.1	139.9	122.4	110.2	78.8	37.6	-2.7	-1.3	-2.4	-10.2	
Energy Branch	5.8	12.7	11.4	10.6	11.6	11.4	11.2	11.0	10.8	6.9	0.2	-0.3	-0.4	
Industry	44.0	59.9	46.3	33.2	36.6	40.4	43.3	45.6	46.3	0.5	-2.3	1.7	0.7	
Residential	33.1	44.4	27.9	30.2	30.0	27.7	26.5	25.9	24.9	-1.7	0.7	-1.2	-0.6	
Tertiary	19.4	20.7	20.1	20.4	21.8	22.1	21.6	21.2	21.2	0.4	0.8	-0.1	-0.2	
Transport	20.5	23.1	25.8	34.3	40.6	45.3	46.4	48.4	48.6	2.3	4.7	1.3	0.5	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.4	17.4	20.0	22.4	4.2	-1.0	4.2	2.6	
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	66.0	66.0	59.4	57.3	51.2	47.6	-2.2	-0.8	-1.4	-1.8	
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	83.3	83.3	79.8	77.7	70.3	60.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Poland: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	315.4	254.2	216.0	189.2	174.9	-4.6	-3.1	-3.7	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.95	2.75	2.54	2.16	1.66	-0.4	-0.8	-1.5	-4.2
Import Dependency %	2.2	-0.2	11.1	18.0	28.2	32.5	35.5	38.9	38.1				
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	50.7	63.8	76.2	87.4	95.6		4.1	4.2	2.3
as % of GDP			16.1	15.8	16.8	16.6	16.1	15.5	14.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.4	50.1	44.0	40.3	38.2	-6.9	-5.1	-3.0	-1.4
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	62.5	50.2	43.0	37.1	32.7	-5.8	-4.6	-3.7	-2.7
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	77.1	64.3	55.3	48.9	43.9	-2.1	-2.6	-3.3	-2.3
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.0	24.5	23.3	21.9	20.1	2.9	-0.3	-0.7	-1.5
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	39.8	37.9	34.9	32.8	30.9	0.3	3.7	-1.3	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.57	0.48	0.41	0.27	0.12	0.8	-1.6	-3.2	-11.9
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.08	2.03	1.94	1.88	1.81	0.9	-0.4	-0.7	-0.7
Industry	1.74	2.64	2.45	2.02	2.07	2.06	2.02	1.96	1.88	3.5	-1.7	-0.3	-0.7
Residential	1.83	1.90	1.59	1.64	1.59	1.46	1.34	1.28	1.20	-1.4	0.0	-1.7	-1.1
Tertiary	2.19	2.25	1.98	1.97	2.00	1.93	1.79	1.67	1.56	-1.0	0.1	-1.1	-1.4
Transport	2.80	2.80	2.81	2.84	2.78	2.72	2.61	2.58	2.55	0.0	-0.1	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.8	14.2	18.7	21.7	23.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.2	5.9	10.3	11.5	11.9				
Gross Electricity generation by source (in GWh)													
			143147	155331	149835	151193	158700	181546	206674		0.5	0.6	2.7
Nuclear energy			0	0	0	0	0	20141	41080				
Solids			134042	141361	126579	115355	99287	87575	81448		-0.6	-2.4	-2.0
Oil (including refinery gas)			2936	2964	1007	1065	833	1286	847		-10.2	-1.9	0.2
Gas (including derived gases)			2979	5603	7732	8378	9836	10115	12800		10.0	2.4	2.7
Biomass-waste			1080	3068	5693	16930	28701	35346	36464		18.1	17.6	2.4
Hydro (pumping excluded)			2105	2201	3064	3174	3298	3367	3478		3.8	0.7	0.5
Wind			5	135	5760	6290	16742	23702	30519		102.4	11.3	6.2
Solar			0	0	0	0	3	14	37			25.7	29.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			30194	31711	35018	40285	44230	49283	53075		1.5	2.4	1.8
<u>Nuclear energy</u>			0	0	0	0	0	2325	4742				
<u>Renewable energy</u>			640	1038	3925	4261	9092	11986	14806		19.9	8.8	5.0
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7
Wind			5	124	2947	3188	7932	10735	13531		88.5	10.4	5.5
Solar			0	0	0	0	3	15	40			25.7	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			29554	30673	31093	36024	35139	34972	33527		0.5	1.2	-0.5
of which cogeneration units			6632	6800	6856	8198	8777	10030	10588		0.3	2.5	1.9
Solids fired			28139	28775	28755	29745	26850	22407	16414		0.2	-0.7	-4.8
Gas fired			820	1263	1664	1527	1540	1764	2872		7.3	-0.8	6.4
Oil fired			472	474	461	457	457	226	170		-0.2	-0.1	-9.4
Biomass-waste fired			122	160	213	4295	6291	10576	14071		5.8	40.3	8.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.2	51.1	45.3	39.6	38.1	38.5	40.4				
Efficiency of gross thermal power generation (%)			33.7	34.5	37.1	40.2	40.5	44.6	42.3				
% of gross electricity from CHP			12.2	12.9	26.0	32.4	30.7	30.3	27.3				
Carbon free gross electricity generation (%)			2.2	3.5	9.7	17.5	30.7	45.5	54.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	11.1	19.9				
- renewable energy forms			2.2	3.5	9.7	17.5	30.7	34.4	34.1				
Transport sector													
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	279.6	325.4	373.8	427.2	478.1	0.5	2.6	2.9	2.5
Public road transport	46.3	34.0	31.7	29.9	29.3	29.8	32.9	35.5	37.8	-3.7	-0.8	1.2	1.4
Private cars and motorcycles	102.8	115.0	153.1	188.3	225.2	266.7	306.9	350.2	391.4	4.1	3.9	3.1	2.5
Rail	55.4	31.6	28.8	22.3	20.9	22.9	26.0	31.1	36.1	-6.3	-3.2	2.2	3.3
Aviation	2.0	2.3	2.6	3.1	4.0	5.7	7.6	10.0	12.6	3.1	4.3	6.6	5.1
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	191.3	229.0	260.0	286.7	305.8	0.6	3.9	3.1	1.6
Trucks	40.3	51.2	75.0	111.8	139.8	166.3	186.9	205.4	218.2	6.4	6.4	2.9	1.6
Rail	81.6	68.2	54.0	43.8	51.1	62.3	72.6	80.9	87.0	-4.0	-0.5	3.6	1.8
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.6	1.3	-11.8	2.4	2.7
Energy demand in transport (ktoe)	7338	8256	9185	12087	14611	16648	17776	18767	19047	2.3	4.8	2.0	0.7
Public road transport	314	229	217	190	185	180	185	177	167	-3.6	-1.6	0.0	-1.0
Private cars and motorcycles	3299	4112	4876	5324	6354	7248	7876	8422	8538	4.0	2.7	2.2	0.8
Trucks	2335	2847	3178	5748	7155	8124	8492	8820	9000	3.1	8.5	1.7	0.6
Rail	1095	667	539	502	541	625	644	647	541	-6.8	0.0	1.8	-1.7
Aviation	196	371	369	319	374	470	576	698	798	6.5	0.1	4.4	3.3
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.4	2.2	2.1

Source: PRIMES

Poland: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	66348	66108	71087	-276	493	2358	-0.4	0.8	3.4
Solids	94459	71298	68876	52583	48878	40683	-1295	-2648	-3234	-2.4	-5.1	-7.4
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	9047	0	0	680			8.1
Renewable energy sources	2369	4256	5016	9964	13530	18057	1019	3141	4912	11.4	30.2	37.4
Hydro	139	181	189	273	284	299	39	23	0	16.5	8.8	0.0
Biomass & Waste	2230	4072	4806	9011	11264	14219	571	1560	1977	6.8	16.1	16.1
Wind	0	0	12	541	1440	2625	304	1140	2233	128.5	380.2	569.6
Solar and others	0	0	0	115	513	884	91	401	686	381.2	356.3	346.1
Geothermal	0	3	9	24	29	30	14	17	17	132.5	150.3	131.3
Net Imports	2238	10131	16954	32012	36323	43815	-12868	-15610	-15485	-28.7	-30.1	-26.1
Solids	-18913	-16309	-12482	-10013	-10424	-8690	-11861	-14128	-12584	-642.0	-381.5	-323.2
Oil	14468	20381	21929	28745	29974	32137	-1325	-2797	-3682	-4.4	-8.5	-10.3
- Crude oil and Feedstocks	13085	18827	18169	23717	24642	26272	-1046	-2197	-2871	-4.2	-8.2	-9.9
- Oil products	1383	1554	3760	5029	5333	5865	-279	-600	-811	-5.3	-10.1	-12.2
Natural gas	6773	6607	8531	12700	14829	18132	-938	-1264	-2475	-6.9	-7.9	-12.0
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	97948	101991	114423	-13144	-15117	-13125	-11.8	-12.9	-10.3
Solids	75405	56358	55184	42570	38454	31992	-13156	-16776	-15818	-23.6	-30.4	-33.1
Oil	13399	20759	22525	29035	30234	32259	-1325	-2796	-3681	-4.4	-8.5	-10.2
Natural gas	8938	9960	12235	15800	17829	20832	-938	-1264	-2475	-5.6	-6.6	-10.6
Nuclear	0	0	0	0	0	9047	0	0	680			8.1
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	11111	15984	21155	2275	5721	8168	25.7	55.7	62.9
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	43.5	37.7	28.0	-6.7	-9.5	-9.5			
Oil	13.4	22.9	24.0	29.6	29.6	28.2	2.3	1.4	0.0			
Natural gas	8.9	11.0	13.0	16.1	17.5	18.2	1.1	1.2	-0.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	1.3			
Renewable energy forms	2.4	4.7	5.3	11.3	15.7	18.5	3.4	6.9	8.3			
Gross Electricity Generation in GWh_e	134591	143147	155331	151193	158700	206674	-33889	-45492	-29793	-18.3	-22.3	-12.6
Self consumption and grid losses	21063	27977	28574	25539	25379	34569	-6861	-9193	-2985	-21.2	-26.6	-7.9
Fuel Inputs to Thermal Power Generation	43419	35960	38149	30305	29479	26752	-11375	-12573	-10033	-27.3	-29.9	-27.3
Solids	41138	34793	35942	26607	23439	18626	-12212	-15701	-14376	-31.5	-40.1	-43.6
Oil (including refinery gas)	1236	228	179	17	23	53	-14	-8	28	-45.6	-25.8	114.2
Gas (including derived gases)	673	783	1483	1041	1355	1370	-526	-285	-842	-33.6	-17.4	-38.1
Biomass & Waste	372	157	546	2640	4661	6703	1377	3421	5156	109.0	275.7	333.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	34463	35458	36921	-737	-1985	-3251	-2.1	-5.3	-8.1
Refineries	13160	19949	19591	24718	25662	27204	-1048	-2199	-2872	-4.1	-7.9	-9.5
Biofuels and hydrogen production	0	0	55	933	1724	2090	93	313	108	11.1	22.2	5.5
District heating	9949	4320	3639	3113	3180	3640	-304	-393	-565	-8.9	-11.0	-13.4
Derived gases, cokeries etc.	14746	9635	8541	5699	4892	3987	522	295	77	10.1	6.4	2.0
Energy Branch Consumption	6809	7401	7680	9624	9702	10484	-580	-927	-804	-5.7	-8.7	-7.1
Non-Energy Uses	4193	4218	4354	6268	7251	8948	-21	-27	-17	-0.3	-0.4	-0.2
Final Energy Demand	59583	55720	57169	66736	71013	78041	-4510	-6435	-7426	-6.3	-8.3	-8.7
by sector												
Industry	25252	18883	16373	19610	21439	24586	-508	-948	-901	-2.5	-4.2	-3.5
- energy intensive industries	16252	13374	11149	12576	13429	15181	-245	-567	-561	-1.9	-4.0	-3.6
- other industrial sectors	9000	5509	5225	7034	8010	9405	-263	-381	-340	-3.6	-4.5	-3.5
Residential	18126	17516	18375	18982	19739	20789	-1530	-1576	-1397	-7.5	-7.4	-6.3
Tertiary	8867	10136	10334	11496	12059	13618	-1472	-2108	-2530	-11.3	-14.9	-15.7
Transport	7338	9185	12087	16648	17776	19047	-1001	-1802	-2599	-5.7	-9.2	-12.0
by fuel												
Solids	17066	13728	11262	9947	9272	8496	-1434	-1591	-1932	-12.6	-14.6	-18.5
Oil	9104	15452	17798	22787	23604	24487	-701	-1995	-2847	-3.0	-7.8	-10.4
Gas	7987	7447	8400	11957	13058	14784	-475	-985	-1609	-3.8	-7.0	-9.8
Electricity	8233	8317	8498	8928	9709	12760	-2240	-3011	-2187	-20.1	-23.7	-14.6
Heat (from CHP and District Heating)	15563	6886	7056	6591	7195	7766	-612	-414	-315	-8.5	-5.4	-3.9
Renewable energy forms	1631	3889	4156	6524	8170	9742	952	1562	1464	17.1	23.6	17.7
Other	0	0	0	3	5	7	0	0	-1	8.9	-1.4	-8.8
RES in Gross Final Energy Consumption ^(A)		4153	4481	9786	13709	19008	2186	4795	6972	28.8	53.8	57.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	343.1	333.9	259.5	-66.2	-89.2	-143.7	-16.2	-21.1	-35.6
CO₂ Emissions (energy related)	332.2	290.3	290.7	269.4	259.2	189.4	-58.4	-78.2	-133.9	-17.8	-23.2	-41.4
Power generation/District heating	209.3	158.8	162.1	122.4	110.2	37.6	-48.5	-62.0	-112.5	-28.4	-36.0	-74.9
Energy Branch	5.8	11.4	10.6	11.4	11.2	10.8	-1.3	-1.7	-1.5	-9.9	-13.5	-12.3
Industry	44.0	46.3	33.2	40.4	43.3	46.3	0.1	-0.2	-1.4	0.3	-0.6	-2.9
Residential	33.1	27.9	30.2	27.7	26.5	24.9	-4.0	-5.0	-5.1	-12.6	-15.8	-17.1
Tertiary	19.4	20.1	20.4	22.1	21.6	21.2	-1.6	-3.0	-4.8	-6.7	-12.1	-18.6
Transport	20.5	25.8	34.3	45.3	46.4	48.6	-3.2	-6.3	-8.5	-6.6	-11.9	-14.8
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.4	17.4	22.4	-0.3	-0.5	-0.5	-1.8	-2.7	-2.1
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	59.4	57.3	47.6	-7.5	-10.5	-9.3	-11.2	-15.5	-16.4
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	79.8	77.7	60.3	-15.4	-20.8	-33.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Poland: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	254.2	216.0	174.9	-34.1	-32.0	-20.1	-11.8	-12.9	-10.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.75	2.54	1.66	-0.20	-0.34	-0.88	-6.8	-11.8	-34.7
Import Dependency %	2.2	11.1	18.0	32.5	35.5	38.1	-7.7	-8.7	-8.2			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	63.8	76.2	95.6	4.2	5.6	9.2	7.0	8.0	10.7
as % of GDP		16.1	15.8	16.6	16.1	14.6	1.1	1.2	1.4			
Total Compliance Costs ^(D) (in 000 M€05)				4.3	5.9	9.4						
as % of GDP				1.11	1.24	1.44						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	50.1	44.0	38.2	-1.3	-1.9	-1.4	-2.5	-4.2	-3.5
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	50.2	43.0	32.7	-4.0	-3.4	-2.2	-7.5	-7.4	-6.3
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	64.3	55.3	43.9	-8.2	-9.7	-8.2	-11.3	-14.9	-15.7
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	24.5	23.3	20.1	-0.5	-0.7	-0.9	-1.9	-2.9	-4.3
Freight transport (toe/Mtkm)	26.9	27.6	39.4	37.9	34.9	30.9	-2.2	-3.8	-4.8	-5.5	-9.8	-13.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.48	0.41	0.12	-0.10	-0.13	-0.30	-16.5	-23.6	-72.1
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.03	1.94	1.81	0.01	-0.03	-0.07	0.3	-1.3	-4.0
Industry	1.74	2.45	2.02	2.06	2.02	1.88	0.06	0.07	0.01	2.9	3.8	0.7
Residential	1.83	1.59	1.64	1.46	1.34	1.20	-0.09	-0.13	-0.16	-5.6	-9.1	-11.5
Tertiary	2.19	1.98	1.97	1.93	1.79	1.56	0.10	0.06	-0.06	5.2	3.2	-3.5
Transport	2.80	2.81	2.84	2.72	2.61	2.55	-0.03	-0.08	-0.08	-1.0	-3.0	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	14.2	18.7	23.5	3.9	7.6	9.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.9	10.3	11.9	0.9	2.8	2.3			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	41080	0	0	3086			8.1
Solids	134042	141361	115355	99287	81448	81448	-42939	-76242	-80471	-27.1	-43.4	-49.7
Oil (including refinery gas)	2936	2964	1065	833	847	847	-919	-1334	-825	-46.3	-61.6	-49.4
Gas (including derived gases)	2979	5603	8378	9836	12800	12800	-2036	-1102	-3308	-19.6	-10.1	-20.5
Biomass-waste	1080	3068	16930	28701	36464	36464	8019	19665	25763	90.0	217.6	240.8
Hydro (pumping excluded)	2105	2201	3174	3298	3478	3478	449	266	0	16.5	8.8	0.0
Wind	5	135	6290	16742	30519	30519	3538	13256	25961	128.5	380.2	569.6
Solar	0	0	0	3	37	37	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
Nuclear energy		0	0	0	0	4742	0	0	356			8.1
Renewable energy	640	1038	4261	9092	14806	14806	1875	6304	11454	78.6	226.1	341.6
Hydro (pumping excluded)	635	914	1072	1156	1235	1235	0	0	0	0.0	0.0	0.0
Wind	5	124	3188	7932	13531	13531	1875	6304	11454	142.9	387.1	551.4
Solar	0	0	0	3	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Thermal power	29554	30673	36024	35139	33527	33527	3690	-1146	-2099	11.4	-3.2	-5.9
of which cogeneration units	6632	6800	8198	8777	10588	10588	888	783	1492	12.1	9.8	16.4
Solids fired	28139	28775	29745	26850	16414	16414	0	-6846	-11888	0.0	-20.3	-42.0
Gas fired	820	1263	1527	1540	2872	2872	-280	-267	-505	-15.5	-14.8	-15.0
Oil fired	472	474	457	457	170	170	-15	-15	-126	-3.1	-3.1	-42.5
Biomass-waste fired	122	160	4295	6291	14071	14071	3985	5981	10420	1285.4	1929.4	285.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.2	51.1	39.6	38.1	40.4	40.4	-16.5	-17.1	-17.0			
Efficiency of gross thermal power generation (%)	33.7	34.5	40.2	40.5	42.3	42.3	3.2	0.0	-2.2			
% of gross electricity from CHP	12.2	12.9	32.4	30.7	27.3	27.3	13.9	11.3	10.0			
Carbon free gross electricity generation (%)	2.2	3.5	17.5	30.7	54.0	54.0	9.7	23.1	30.0			
- nuclear	0.0	0.0	0.0	0.0	19.9	19.9	0.0	0.0	3.8			
- renewable energy forms	2.2	3.5	17.5	30.7	34.1	34.1	9.7	23.1	26.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	207.0	216.5	243.8	325.4	373.8	478.1	-5.4	-9.5	-14.1	-1.6	-2.5	-2.9
Private cars and motorcycles	46.3	31.7	29.9	29.8	32.9	37.8	0.7	1.1	1.4	2.5	3.5	4.0
Rail	102.8	153.1	188.3	266.7	306.9	391.4	-6.1	-10.7	-16.5	-2.2	-3.4	-4.0
Aviation	55.4	28.8	22.3	22.9	26.0	36.1	0.2	0.4	1.6	1.1	1.7	4.8
Inland navigation	2.0	2.6	3.1	5.7	7.6	12.6	-0.2	-0.4	-0.7	-3.4	-4.6	-5.3
Freight transport activity (Gtkm)	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	-0.3	0.0	0.1
Freight transport activity (Gtkm)												
Trucks	122.9	130.2	156.0	229.0	260.0	305.8	-5.3	-8.4	-10.9	-2.2	-3.1	-3.4
Rail	40.3	75.0	111.8	166.3	186.9	218.2	-7.6	-12.0	-16.5	-4.4	-6.0	-7.0
Inland navigation	81.6	54.0	43.8	62.3	72.6	87.0	2.3	3.6	5.6	3.9	5.1	6.9
Energy demand in transport (ktoe)	1.0	1.2	0.3	0.4	0.4	0.6	0.0	0.0	0.0	1.2	1.8	1.9
Public road transport	7338	9185	12087	16648	17776	19047	-1001	-1802	-2599	-5.7	-9.2	-12.0
Private cars and motorcycles	314	217	190	180	185	167	0	-3	-16	0.0	-1.4	-8.7
Trucks	3299	4876	5324	7248	7876	8538	-261	-443	-626	-3.5	-5.3	-6.8
Rail	2335	3178	5748	8124	8492	9000	-736	-1316	-1862	-8.3	-13.4	-17.1
Aviation	1095	539	502	625	644	541	16	-5	-12	2.6	-0.8	-2.1
Inland navigation	196	369	319	470	576	798	-19	-36	-83	-3.9	-5.9	-9.5
Inland navigation	99	6	2	2	3	3	0	0	0	-0.2	-0.4	-1.6

Source: PRIMES

Portugal: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2808	2602	3109	3583	5440	6291	7968	9147	10484	1.0	5.8	3.9	2.8	
Solids	115	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	2692	2602	3109	3583	5440	6291	7968	9147	10484	1.4	5.8	3.9	2.8	
Hydro	787	717	974	407	871	871	872	872	872	2.1	-1.1	0.0	0.0	
Biomass & Waste	1891	1831	2053	2936	3411	3886	4928	5579	5970	0.8	5.2	3.7	1.9	
Wind	0	1	14	152	972	1061	1369	1569	1778	66.9	52.3	3.5	2.6	
Solar and others	11	15	18	23	101	346	657	973	1685	5.4	18.5	20.6	9.9	
Geothermal	3	37	49	66	85	127	142	154	179	31.4	5.6	5.2	2.4	
Net Imports	15160	17876	21588	24040	22571	22740	20631	20133	19071	3.6	0.4	-0.9	-0.8	
Solids	2789	3797	3913	3223	3395	3307	1681	87	5	3.4	-1.4	-6.8	-44.0	
Oil	12367	14001	15556	16338	15611	15503	14738	15428	14741	2.3	0.0	-0.6	0.0	
- Crude oil and Feedstocks	11360	13547	12022	13459	13205	13160	12832	13405	13104	0.6	0.9	-0.3	0.2	
- Oil products	1007	454	3534	2878	2406	2343	1907	2023	1637	13.4	-3.8	-2.3	-1.5	
Natural gas	0	0	2039	3893	3459	3779	4127	4541	4256		5.4	1.8	0.3	
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Gross Inland Consumption	16890	19611	24108	26677	27405	28390	27928	28581	28832	3.6	1.3	0.2	0.3	
Solids	2580	3493	3803	3347	3395	3307	1681	87	5	4.0	-1.1	-6.8	-44.0	
Oil	11614	13437	15083	15410	15006	14862	14068	14729	14018	2.6	-0.1	-0.6	0.0	
Natural gas	0	0	2034	3751	3459	3779	4127	4541	4256		5.5	1.8	0.3	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Renewable energy forms	2692	2602	3109	3583	5440	6291	7968	9147	10484	1.4	5.8	3.9	2.8	
as % in Gross Inland Consumption														
Solids	15.3	17.8	15.8	12.5	12.4	11.6	6.0	0.3	0.0					
Oil	68.8	68.5	62.6	57.8	54.8	52.4	50.4	51.5	48.6					
Natural gas	0.0	0.0	8.4	14.1	12.6	13.3	14.8	15.9	14.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	15.9	13.3	12.9	13.4	19.9	22.2	28.5	32.0	36.4					
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	55922	59305	60693	67158	74566	4.3	2.6	0.8	2.1	
Self consumption and grid losses	4441	4776	5435	6125	6108	6524	6466	7343	8078	2.0	1.2	0.6	2.3	
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	7011	7094	5633	5313	4670	4.2	0.7	-2.2	-1.9	
Solids	2027	2919	3198	3319	3390	3302	1676	82	0	4.7	0.6	-6.8	-56.6	
Oil (including refinery gas)	2105	2371	1670	1884	1091	839	102	622	137	-2.3	-4.2	-21.1	3.0	
Gas (including derived gases)	19	18	1234	2309	1640	1895	2194	2536	2258	51.6	2.9	3.0	0.3	
Biomass & Waste	149	148	356	430	809	935	1524	1925	2101	9.1	8.6	6.5	3.3	
Geothermal heat	3	37	49	65	82	123	136	149	174	31.4	5.2	5.2	2.5	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11484	14055	12700	13608	13679	13803	13707	14397	14143	1.0	0.7	0.0	0.3	
Refineries	11152	13579	12251	13608	13491	13444	13112	13677	13372	0.9	1.0	-0.3	0.2	
Biofuels and hydrogen production	0	0	0	0	188	359	595	720	771			12.2	2.6	
District heating	0	16	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1				
Energy Branch Consumption	658	870	881	900	819	798	741	766	715	3.0	-0.7	-1.0	-0.4	
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2839	2986	3112	1.0	1.0	1.0	0.9	
Final Energy Demand	11208	13042	16937	16654	19721	20597	21063	21892	22437	4.2	1.5	0.7	0.6	
by sector														
Industry	4139	4247	5518	5656	5865	6044	6271	6556	6751	2.9	0.6	0.7	0.7	
- energy intensive industries	2497	2646	3437	3757	3849	3951	4075	4242	4357	3.2	1.1	0.6	0.7	
- other industrial sectors	1642	1601	2081	1899	2016	2093	2195	2314	2394	2.4	-0.3	0.9	0.9	
Residential	2290	2569	2804	3206	3566	3931	3996	4251	4495	2.0	2.4	1.1	1.2	
Tertiary	1052	1373	2098	2766	2819	2857	2835	2906	2971	7.2	3.0	0.1	0.5	
Transport	3728	4853	6517	7026	7471	7765	7961	8179	8219	5.7	1.4	0.6	0.3	
by fuel														
Solids	617	546	465	16	5	5	5	5	5	-2.8	-35.9	-1.6	0.0	
Oil	6683	8187	10469	10492	10623	10650	10495	10488	10190	4.6	0.1	-0.1	-0.3	
Gas	103	97	853	1307	1769	1831	1878	1947	1947	23.6	7.6	0.6	0.4	
Electricity	2024	2477	3299	3983	4340	4640	4698	5170	5736	5.0	2.8	0.8	2.0	
Heat (from CHP and District Heating)	28	36	134	328	322	311	350	391	442	16.8	9.1	0.8	2.4	
Renewable energy forms	1752	1698	1716	2529	2662	3160	3634	3887	4115	-0.2	4.5	3.2	1.3	
Other	0	0	0	0	1	1	2	3	3			15.2	1.8	
RES in Gross Final Energy Consumption ^(A)			2907	3266	5184	5961	7498	8588	9874	6.0	3.8	2.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	82.4	80.0	71.3	67.5	63.9	3.5	-0.3	-1.4	-1.1	
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	59.1	58.7	50.0	46.4	42.7	4.1	0.1	-1.7	-1.6	
Power generation/District heating	14.8	19.2	20.9	24.5	20.7	20.1	12.1	8.2	5.7	3.5	-0.1	-5.3	-7.2	
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.2	2.0	2.0	1.8	4.3	-0.2	-1.4	-1.0	
Industry	8.2	8.4	10.8	7.3	8.0	8.1	8.0	7.9	7.4	2.8	-2.9	-0.1	-0.7	
Residential	1.6	1.9	2.0	2.3	2.3	2.4	2.5	2.6	2.6	2.0	1.5	0.8	0.2	
Tertiary	1.9	2.2	3.2	4.2	4.0	3.6	3.3	3.2	2.9	5.4	2.5	-1.9	-1.5	
Transport	11.0	14.4	19.4	21.0	21.8	22.3	22.2	22.5	22.4	5.8	1.2	0.2	0.1	
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.3	6.5	6.8	6.9	4.7	-1.5	0.4	0.6	
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	15.0	14.8	14.4	14.3	1.3	-1.1	-1.4	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	136.6	132.6	118.2	111.9	105.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: Cost Efficiency Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	168.4	153.3	131.2	117.3	105.7	0.2	0.0	-2.5	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.16	2.07	1.79	1.62	1.48	0.5	-1.2	-1.8	-1.9	
Import Dependency %	86.7	89.0	87.2	88.2	80.6	78.3	72.1	68.8	64.5					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.9	25.3	29.6	33.4	35.6		3.6	3.1	1.9	
as % of GDP			10.8	12.3	13.4	13.6	13.9	13.7	13.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.1	95.7	88.2	82.5	79.1	1.7	0.3	-1.5	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	107.8	105.5	94.4	88.7	84.4	-2.0	0.8	-1.3	-1.1	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	112.1	99.1	85.9	77.3	71.0	3.9	1.1	-2.6	-1.9	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.2	37.1	34.9	32.7	30.1	0.2	-1.1	-1.2	-1.5	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.4	56.6	53.6	51.6	49.8	1.3	-0.4	-1.2	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.35	0.32	0.19	0.11	0.07	-1.0	-2.9	-6.0	-9.1	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.84	1.77	1.71	1.65	1.57	0.3	-1.3	-0.7	-0.9	
Industry	1.99	1.97	1.96	1.30	1.37	1.34	1.27	1.21	1.10	-0.1	-3.5	-0.8	-1.5	
Residential	0.71	0.74	0.71	0.70	0.65	0.61	0.63	0.60	0.57	0.0	-1.0	-0.3	-0.9	
Tertiary	1.77	1.61	1.50	1.53	1.43	1.27	1.18	1.09	0.96	-1.6	-0.5	-1.9	-2.0	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.79	2.75	2.73	0.1	-0.2	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.6	28.2	34.7	38.1	42.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.5	7.3	8.8	9.5					
Gross Electricity generation by source (in GWh)														
			43364	46180	55922	59305	60693	67158	74566		2.6	0.8	2.1	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15472	15072	7649	374	2		0.5	-6.8	-56.6	
Oil (including refinery gas)			9483	9244	6401	4952	1168	4024	818		-3.9	-15.6	-3.5	
Gas (including derived gases)			5745	11580	9348	11010	12762	15677	14158		5.0	3.2	1.0	
Biomass-waste			1802	3434	3021	4752	9090	11348	13387		5.3	11.6	3.9	
Hydro (pumping excluded)			11321	4730	10130	10134	10138	10138	10142		-1.1	0.0	0.0	
Wind			168	1773	11303	12332	15922	18240	20669		52.3	3.5	2.6	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	878	1103	1316	1392		5.2	23.6	2.4	
Net Generation Capacity in MW_e			10643	13440	21813	22338	25798	29097	36556		7.4	1.7	3.5	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10246	11261	15031	18547	26082		9.7	3.9	5.7	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5857	6326	8180	9329	11010		50.2	3.4	3.0	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	362	464	567	592				2.4	
<u>Thermal power</u>			6585	8156	11567	11077	10767	10549	10474		5.8	-0.7	-0.3	
of which cogeneration units			1372	1373	1943	2064	2307	2573	2987		3.5	1.7	2.6	
Solids fired			1903	1914	1866	1818	1818	1421	568		-0.2	-0.3	-11.0	
Gas fired			1868	3724	5989	5505	5184	5070	5452		12.4	-1.4	0.5	
Oil fired			2338	2008	1981	1919	1240	1065	1012		-1.6	-4.6	-2.0	
Biomass-waste fired			463	493	1714	1807	2492	2961	3401		14.0	3.8	3.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	28	33	33	41		2.1	7.6	2.0	
Avg. Load factor of net power capacity (%)			44.8	37.8	28.5	29.6	26.2	25.7	22.7					
Efficiency of gross thermal power generation (%)			42.1	42.6	42.2	43.6	47.1	51.2	52.7					
% of gross electricity from CHP			11.3	10.1	10.3	13.0	19.6	20.9	21.9					
Carbon free gross electricity generation (%)			30.8	21.8	44.2	47.7	64.4	70.1	79.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	44.2	47.7	64.4	70.1	79.9					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.1	123.0	133.6	145.1	155.4	5.3	2.4	1.8	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.4	11.8	12.3	12.6	12.9	1.4	-0.4	0.7	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	80.2	87.7	94.2	101.0	107.0	7.7	2.9	1.6	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.2	5.7	6.4	7.2	-3.2	0.6	1.5	2.5	
Aviation	7.1	9.1	11.7	13.2	15.3	17.9	21.1	24.6	27.7	5.1	2.7	3.3	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.4	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	50.9	56.4	61.4	66.5	70.9	4.7	2.0	1.9	1.5	
Trucks	23.1	27.3	38.9	42.6	46.9	51.9	56.4	61.1	65.3	5.4	1.9	1.9	1.5	
Rail	1.5	2.0	2.2	2.4	2.8	3.2	3.5	3.8	4.0	4.1	2.6	2.3	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.6	-7.9	3.0	2.5	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7471	7765	7961	8179	8219	5.7	1.4	0.6	0.3	
Public road transport	67	90	100	108	104	100	99	92	85	4.2	0.3	-0.5	-1.5	
Private cars and motorcycles	1575	2299	2945	3058	3246	3302	3304	3287	3148	6.5	1.0	0.2	-0.5	
Trucks	1387	1717	2551	2872	3001	3118	3212	3347	3462	6.3	1.6	0.7	0.8	
Rail	82	80	88	66	68	66	63	61	53	0.6	-2.4	-0.9	-1.6	
Aviation	574	620	790	881	1005	1126	1228	1333	1411	3.2	2.4	2.0	1.4	
Inland navigation	43	46	43	41	47	52	56	59	60	0.0	0.8	1.8	0.6	

Source: PRIMES

Portugal: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6291	7968	10484	803	1908	2941	14.6	31.5	39.0
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	-42.1	-230.2	-723.6
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6291	7968	10484	803	1908	2941	14.6	31.5	39.0
Hydro	787	974	407	871	872	872	1	1	0	0.1	0.1	0.0
Biomass & Waste	1891	2053	2936	3886	4928	5970	298	1011	1093	8.3	25.8	22.4
Wind	0	14	152	1061	1369	1778	218	361	377	25.8	35.8	26.9
Solar and others	11	18	23	346	657	1685	244	485	1468	240.8	281.7	677.6
Geothermal	3	49	66	127	142	179	43	50	4	50.4	55.0	2.0
Net Imports	15160	21588	24040	22740	20631	19071	-3111	-6832	-9103	-12.0	-24.9	-32.3
Solids	2789	3913	3223	3307	1681	5	-989	-3465	-4742	-23.0	-67.3	-99.9
Oil	12367	15556	16338	15503	14738	14741	-1419	-2744	-2867	-8.4	-15.7	-16.3
- Crude oil and Feedstocks	11360	12022	13459	13160	12832	13104	-976	-1751	-1635	-6.9	-12.0	-11.1
- Oil products	1007	3534	2878	2343	1907	1637	-443	-993	-1232	-15.9	-34.3	-42.9
Natural gas	0	2039	3893	3779	4127	4256	-702	-623	-1494	-15.7	-13.1	-26.0
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	28390	27928	28832	-2307	-4923	-6161	-7.5	-15.0	-17.6
Solids	2580	3803	3347	3307	1681	5	-989	-3465	-4742	-23.0	-67.3	-99.9
Oil	11614	15083	15410	14862	14068	14018	-1419	-2743	-2865	-8.7	-16.3	-17.0
Natural gas	0	2034	3751	3779	4127	4256	-702	-623	-1494	-15.7	-13.1	-26.0
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6291	7968	10484	803	1908	2941	14.6	31.5	39.0
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.6	6.0	0.0	-2.3	-9.6	-13.5			
Oil	68.8	62.6	57.8	52.4	50.4	48.6	-0.7	-0.8	0.4			
Natural gas	0.0	8.4	14.1	13.3	14.8	14.8	-1.3	0.3	-1.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	22.2	28.5	36.4	4.3	10.1	14.8			
Gross Electricity Generation in GWh_e	28350	43364	46180	59305	60693	74566	-9067	-16586	-18861	-13.3	-21.5	-20.2
Self consumption and grid losses	4441	5435	6125	6524	6466	8078	-1384	-2630	-3820	-17.5	-28.9	-32.1
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7094	5633	4670	-2022	-4414	-6062	-22.2	-43.9	-56.5
Solids	2027	3198	3319	3302	1676	0	-990	-3466	-4744	-23.1	-67.4	-100.0
Oil (including refinery gas)	2105	1670	1884	839	102	137	-516	-1168	-864	-38.1	-92.0	-86.3
Gas (including derived gases)	19	1234	2309	1895	2194	2258	-617	-424	-1078	-24.6	-16.2	-32.3
Biomass & Waste	149	356	430	935	1524	2101	60	597	625	6.8	64.3	42.3
Geothermal heat	3	49	65	123	136	174	41	47	0	50.4	53.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	13803	13707	14143	-936	-1631	-1575	-6.3	-10.6	-10.0
Refineries	11152	12251	13608	13444	13112	13372	-976	-1751	-1635	-6.8	-11.8	-10.9
Biofuels and hydrogen production	0	0	0	359	595	771	41	120	60	12.8	25.2	8.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	798	741	715	-113	-210	-293	-12.4	-22.1	-29.1
Non-Energy Uses	2103	2330	2405	2684	2839	3112	-2	-4	-4	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	20597	21063	22437	-1161	-2169	-2852	-5.3	-9.3	-11.3
by sector												
Industry	4139	5518	5656	6044	6271	6751	-178	-348	-393	-2.9	-5.3	-5.5
- energy intensive industries	2497	3437	3757	3951	4075	4357	-92	-195	-218	-2.3	-4.6	-4.8
- other industrial sectors	1642	2081	1899	2093	2195	2394	-86	-153	-174	-4.0	-6.5	-6.8
Residential	2290	2804	3206	3931	3996	4495	-81	-397	-475	-2.0	-9.0	-9.6
Tertiary	1052	2098	2766	2857	2835	2971	-514	-751	-1016	-15.2	-20.9	-25.5
Transport	3728	6517	7026	7765	7961	8219	-387	-672	-969	-4.8	-7.8	-10.5
by fuel												
Solids	617	465	16	5	5	5	1	1	2	23.3	37.4	72.7
Oil	6683	10469	10492	10650	10495	10190	-833	-1440	-1871	-7.3	-12.1	-15.5
Gas	103	853	1307	1831	1878	1947	-76	-192	-399	-4.0	-9.3	-17.0
Electricity	2024	3299	3983	4640	4698	5736	-659	-1197	-1289	-12.4	-20.3	-18.4
Heat (from CHP and District Heating)	28	134	328	311	350	442	-10	37	1	-3.0	12.0	0.3
Renewable energy forms	1752	1716	2529	3160	3634	4115	416	622	704	15.2	20.6	20.6
Other	0	0	0	1	2	3	0	0	0	9.2	5.6	-3.9
RES in Gross Final Energy Consumption ^(A)	2907	3266	5961	7498	9874	751	1757	2843	14.4	30.6	40.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	80.0	71.3	63.9	-11.6	-26.1	-33.6	-12.7	-26.8	-34.5
CO₂ Emissions (energy related)	39.0	58.5	61.6	58.7	50.0	42.7	-9.9	-23.7	-31.0	-14.5	-32.1	-42.1
Power generation/District heating	14.8	20.9	24.5	20.1	12.1	5.7	-7.0	-18.4	-24.0	-25.8	-60.4	-80.8
Energy Branch	1.5	2.3	2.3	2.2	2.0	1.8	-0.2	-0.4	-0.4	-9.1	-17.7	-18.7
Industry	8.2	10.8	7.3	8.1	8.0	7.4	-0.6	-1.4	-1.7	-7.1	-14.5	-19.0
Residential	1.6	2.0	2.3	2.4	2.5	2.6	-0.3	-0.4	-0.6	-10.2	-14.0	-19.7
Tertiary	1.9	3.2	4.2	3.6	3.3	2.9	-0.5	-0.7	-0.9	-12.5	-16.7	-24.4
Transport	11.0	19.4	21.0	22.3	22.2	22.4	-1.3	-2.4	-3.3	-5.5	-9.8	-12.9
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.3	6.5	6.9	-0.1	-0.2	-0.2	-1.7	-2.5	-3.5
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	15.0	14.8	14.3	-1.6	-2.2	-2.3	-9.4	-13.2	-14.0
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	132.6	118.2	105.9	-19.2	-43.2	-55.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Portugal: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	153.3	131.2	105.7	-12.5	-23.1	-22.6	-7.5	-15.0	-17.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.07	1.79	1.48	-0.17	-0.45	-0.63	-7.5	-20.1	-29.7
Import Dependency %	86.7	87.2	88.2	78.3	72.1	64.5	-4.2	-9.8	-14.4			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	25.3	29.6	35.6	0.8	1.8	2.7	3.4	6.5	8.3
as % of GDP		10.8	12.3	13.6	13.9	13.0	0.5	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.9	1.8	2.8						
as % of GDP				0.47	0.87	1.02						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	95.7	88.2	79.1	-2.8	-4.9	-4.6	-2.9	-5.3	-5.5
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	105.5	94.4	84.4	-2.2	-9.4	-8.9	-2.0	-9.0	-9.6
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	99.1	85.9	71.0	-17.8	-22.8	-24.3	-15.2	-20.9	-25.5
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.1	34.9	30.1	-0.7	-1.1	-1.2	-2.0	-3.1	-3.8
Freight transport (toe/Mtkm)	55.4	62.9	63.8	56.6	53.6	49.8	-2.3	-4.3	-6.4	-3.9	-7.5	-11.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.19	0.07	-0.06	-0.19	-0.23	-15.0	-50.5	-76.2
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.77	1.71	1.57	-0.03	-0.05	-0.08	-1.7	-2.8	-5.1
Industry	1.99	1.96	1.30	1.34	1.27	1.10	-0.06	-0.14	-0.18	-4.4	-9.7	-14.3
Residential	0.71	0.71	0.70	0.61	0.63	0.57	-0.06	-0.04	-0.07	-8.3	-5.5	-11.2
Tertiary	1.77	1.50	1.53	1.27	1.18	0.96	0.04	0.06	0.01	3.3	5.3	1.5
Transport	2.95	2.97	2.98	2.87	2.79	2.73	-0.02	-0.06	-0.07	-0.8	-2.2	-2.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	28.2	34.7	42.7	5.0	10.8	16.0				
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.5	7.3	9.5	0.7	2.0	1.8				
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15072	7649	2	-5572	-17952	-28016		-27.0	-70.1	-100.0
Oil (including refinery gas)	9483	9244	4952	1168	818	-3526	-6577	-5527		-41.6	-84.9	-87.1
Gas (including derived gases)	5745	11580	11010	12762	14158	-3252	-2889	-7429		-22.8	-18.5	-34.4
Biomass-waste	1802	3434	4752	9090	13387	-6	3555	3498		-0.1	64.2	35.4
Hydro (pumping excluded)	11321	4730	10134	10138	10142	12	6	0		0.1	0.1	0.0
Wind	168	1773	12332	15922	20669	2530	4199	4379		25.8	35.8	26.9
Solar	1	3	176	2861	14000	0	2643	13738		0.0	1211.1	5246.5
Geothermal and other renewables	80	105	878	1103	1392	745	430	495		560.8	63.9	55.2
Net Generation Capacity in MW_e	10643	13440	22338	25798	36556	337	2167	8569		1.5	9.2	30.6
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	4058	5284	11261	15031	26082	1436	4003	12510		14.6	36.3	92.2
Hydro (pumping excluded)	3958	4234	4435	4490	4490	0	0	0		0.0	0.0	0.0
Wind	100	1047	6326	8180	11010	1074	2089	2496		20.4	34.3	29.3
Solar	1	3	138	1896	9990	0	1724	9757		0.0	1001.6	4184.4
Other renewables (tidal etc.)	0	0	362	464	592	362	190	257		69.4	76.7	
<u>Thermal power</u>	6585	8156	11077	10767	10474	-1099	-1837	-3941		-9.0	-14.6	-27.3
of which cogeneration units	1372	1373	2064	2307	2987	-142	85	-175		-6.4	3.8	-5.5
Solids fired	1903	1914	1818	1818	568	-647	-1222	-2677		-26.3	-40.2	-82.5
Gas fired	1868	3724	5505	5184	5452	-412	-736	-1644		-7.0	-12.4	-23.2
Oil fired	2338	2008	1919	1240	1012	-228	-701	-535		-10.6	-36.1	-34.6
Biomass-waste fired	463	493	1807	2492	3401	176	810	916		10.8	48.1	36.9
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	13	16	28	33	41	12	12	0		76.0	57.9	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	29.6	26.2	22.7	-4.9	-9.9	-13.8				
Efficiency of gross thermal power generation (%)	42.1	42.6	43.6	47.1	52.7	-1.9	0.3	-0.3				
% of gross electricity from CHP	11.3	10.1	13.0	19.6	21.9	0.3	6.5	4.2				
Carbon free gross electricity generation (%)	30.8	21.8	47.7	64.4	79.9	11.1	27.8	39.8				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	30.8	21.8	47.7	64.4	79.9	11.1	27.8	39.8				
Transport sector												
Passenger transport activity (Gpkm)	52.7	88.5	100.7	123.0	133.6	155.4	-2.0	-3.3	-4.8	-1.6	-2.4	-3.0
Public road transport	10.3	11.8	11.1	11.8	12.3	12.9	0.3	0.4	0.5	2.5	3.5	4.1
Private cars and motorcycles	28.6	60.0	71.4	87.7	94.2	107.0	-1.8	-2.9	-4.0	-2.0	-2.9	-3.6
Rail	6.3	4.6	4.6	5.2	5.7	7.2	0.1	0.1	0.1	1.6	1.0	1.0
Aviation	7.1	11.7	13.2	17.9	21.1	27.7	-0.6	-0.9	-1.4	-3.1	-4.2	-4.8
Inland navigation	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-0.6	-0.3	-0.2
Freight transport activity (Gtkm)	26.4	41.9	46.0	56.4	61.4	70.9	-1.5	-2.3	-3.2	-2.6	-3.7	-4.4
Trucks	23.1	38.9	42.6	51.9	56.4	65.3	-1.7	-2.6	-3.6	-3.2	-4.4	-5.2
Rail	1.5	2.2	2.4	3.2	3.5	4.0	0.2	0.2	0.3	5.6	6.6	7.4
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.6	0.0	0.0	0.1	2.1	2.9	3.4
Energy demand in transport (ktoe)	3728	6517	7026	7765	7961	8219	-387	-672	-969	-4.8	-7.8	-10.5
Public road transport	67	100	108	100	99	85	0	-1	-6	0.0	-1.2	-6.5
Private cars and motorcycles	1575	2945	3058	3302	3304	3148	-123	-190	-210	-3.6	-5.4	-6.3
Trucks	1387	2551	2872	3118	3212	3462	-222	-407	-638	-6.7	-11.2	-15.6
Rail	82	88	66	66	63	53	1	2	4	0.8	3.2	8.0
Aviation	574	790	881	1126	1228	1411	-43	-77	-118	-3.6	-5.9	-7.7
Inland navigation	43	43	41	52	56	60	0	0	0	0.4	0.2	-0.7

Source: PRIMES

Romania: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	41400	32600	28774	28181	28924	29719	33190	35303	37332	-3.6	0.1	1.4	1.2
Solids	7935	7889	5879	5793	6129	3215	3047	3751	4283	-3.0	0.4	-6.7	3.5
Oil	7947	7104	6389	6120	5565	5973	6172	6167	6164	-2.2	-1.4	1.0	0.0
Natural gas	22911	14446	10968	9701	9510	10185	10726	10383	9822	-7.1	-1.4	1.2	-0.9
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4
Renewable energy sources	2607	3162	4131	5134	6247	7478	9635	11321	13308	4.7	4.2	4.4	3.3
Hydro	1460	1435	1271	1737	1711	1725	1734	1750	1788	-1.4	3.0	0.1	0.3
Biomass & Waste	1147	1726	2854	3314	4345	5338	7233	8720	10528	9.5	4.3	5.2	3.8
Wind	0	0	0	0	50	59	98	155	206			6.9	7.8
Solar and others	0	0	0	0	13	141	248	354	426			34.0	5.6
Geothermal	0	0	7	82	127	213	323	343	359		34.2	9.8	1.0
Net Imports	20360	14542	8099	10719	11860	14092	14913	17221	19709	-8.8	3.9	2.3	2.8
Solids	2423	2870	1905	2904	3040	4704	4764	4767	4987	-2.4	4.8	4.6	0.5
Oil	11194	6852	3542	3874	4969	5348	5907	6555	7178	-10.9	3.4	1.7	2.0
- Crude oil and Feedstocks	16094	8735	4836	8751	9683	10355	11193	12075	12923	-11.3	7.2	1.5	1.4
- Oil products	-4900	-1883	-1294	-4877	-4714	-5007	-5286	-5521	-5745				
Natural gas	5928	4794	2712	4190	4157	4452	4689	6370	8045	-7.5	4.4	1.2	5.5
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	61492	47109	37069	39147	40785	43811	48102	52523	57041	-4.9	1.0	1.7	1.7
Solids	10126	10796	7757	8769	9169	7919	7811	8518	9270	-2.6	1.7	-1.6	1.7
Oil	19106	13886	10148	10162	10534	11321	12079	12722	13342	-6.1	0.4	1.4	1.0
Natural gas	28838	19240	13680	13942	13667	14637	15415	16753	17867	-7.2	0.0	1.2	1.5
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	6189	7407	9539	11206	13168	4.7	4.1	4.4	3.3
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	22.5	18.1	16.2	16.2	16.3				
Oil	31.1	29.5	27.4	26.0	25.8	25.8	25.1	24.2	23.4				
Natural gas	46.9	40.8	36.9	35.6	33.5	33.4	32.0	31.9	31.3				
Nuclear	0.0	0.0	3.8	3.7	3.6	6.5	7.5	7.0	6.6				
Renewable energy forms	4.2	6.7	11.2	13.0	15.2	16.9	19.8	21.3	23.1				
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	63204	70689	80699	94704	109431	-2.0	2.0	2.5	3.1
Self consumption and grid losses	14388	11292	8909	10341	8986	8364	9308	11294	13652	-4.7	0.1	0.4	3.9
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8163	7287	8551	10992	13534	-7.6	-2.6	0.5	4.7
Solids	8166	7352	5442	5982	6027	4486	4500	5518	6667	-4.0	1.0	-2.9	4.0
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	13	-12.2	-29.1		
Gas (including derived gases)	8984	6090	3507	3343	2083	2466	2447	2847	2966	-9.0	-5.1	1.6	1.9
Biomass & Waste	36	37	4	3	0	282	1604	2627	3888	-19.0			9.3
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	25764	21571	14558	17946	19238	20448	21280	22039	22819	-5.5	2.8	1.0	0.7
Refineries	23718	15646	11318	14978	15248	16327	17365	18242	19086	-7.1	3.0	1.3	0.9
Biofuels and hydrogen production	0	0	0	0	82	184	295	535	906			13.6	11.9
District heating	496	1901	1737	823	1234	1003	911	870	807	13.4	-3.4	-3.0	-1.2
Derived gases, cokeries etc.	1551	4024	1503	2144	2674	2934	2708	2392	2019	-0.3	5.9	0.1	-2.9
Energy Branch Consumption	3594	5270	4137	4184	4274	4358	4514	4747	5027	1.4	0.3	0.5	1.1
Non-Energy Uses	908	1326	2291	2448	2425	2633	2921	3226	3524	9.7	0.6	1.9	1.9
Final Energy Demand	36548	26449	22374	24625	27639	30659	33861	36940	40177	-4.8	2.1	2.1	1.7
by sector													
Industry	25106	14528	8788	9751	10870	12365	13719	15141	16831	-10.0	2.1	2.4	2.1
- energy intensive industries	15699	10582	5962	6928	7600	8481	9203	9950	10802	-9.2	2.5	1.9	1.6
- other industrial sectors	9407	3946	2826	2823	3271	3884	4515	5190	6029	-11.3	1.5	3.3	2.9
Residential	4190	6461	8557	8093	8311	8736	9550	10309	10929	7.4	-0.3	1.4	1.4
Tertiary	2845	2401	1646	2576	3147	3381	3561	3566	3534	-5.3	6.7	1.2	-0.1
Transport	4407	3058	3384	4204	5311	6177	7033	7924	8882	-2.6	4.6	2.8	2.4
by fuel													
Solids	2678	1529	703	1429	1823	1974	1914	1711	1474	-12.5	10.0	0.5	-2.6
Oil	8030	5234	5292	6547	7600	8423	9194	9809	10388	-4.1	3.7	1.9	1.2
Gas	20495	10249	6885	7721	8463	9098	9601	10116	10703	-10.3	2.1	1.3	1.1
Electricity	4355	3282	3122	3481	3882	4438	5183	6206	7260	-3.3	2.2	2.9	3.4
Heat (from CHP and District Heating)	377	4679	3570	2135	1534	1536	1996	2605	3329	25.2	-8.1	2.7	5.2
Renewable energy forms	612	1476	2802	3312	4336	5189	5971	6488	7017	16.4	4.5	3.3	1.6
Other	0	0	0	0	1	1	2	4	5			13.5	9.6
RES in Gross Final Energy Consumption ^(A)			4197	5132	6161	7312	9239	10716	12429		3.9	4.1	3.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	153.9	146.5	149.2	152.0	155.1	-6.4	1.1	-0.3	0.4
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	92.7	91.3	94.3	99.8	103.3	-6.7	1.0	0.2	0.9
Power generation/District heating	75.9	59.2	40.6	37.2	33.0	26.6	26.4	29.7	31.2	-6.1	-2.0	-2.2	1.7
Energy Branch	6.2	7.5	7.4	8.0	8.3	8.5	8.7	8.9	9.1	1.8	1.1	0.4	0.4
Industry	58.1	30.2	17.6	20.9	23.2	25.9	26.6	26.6	26.5	-11.3	2.8	1.4	-0.1
Residential	7.5	5.2	6.5	7.2	7.6	7.4	7.7	8.3	9.1	-1.4	1.5	0.1	1.7
Tertiary	6.7	3.1	1.8	4.4	5.4	5.4	5.2	4.5	4.0	-12.1	11.3	-0.4	-2.5
Transport	12.3	8.6	9.6	12.1	15.2	17.5	19.7	21.6	23.4	-2.4	4.7	2.6	1.8
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.8	21.4	24.0	26.6	29.1	-5.6	3.4	3.0	1.9
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	43.3	33.8	31.0	25.6	22.8	-6.0	0.6	-3.3	-3.0
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	57.9	55.1	56.2	57.2	58.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Romania: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	388.9	310.5	259.8	220.3	189.0	-3.3	-4.5	-4.0	-3.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.27	2.08	1.96	1.90	1.81	-1.8	0.1	-1.5	-0.8
Import Dependency %	33.1	30.9	21.8	27.4	29.1	32.2	31.0	32.8	34.6				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	21.3	27.1	33.7	39.6	46.3		4.3	4.7	3.2
as % of GDP			23.4	18.7	20.3	19.2	18.2	16.6	15.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	74.9	64.8	56.5	49.9	44.9	-7.5	-2.8	-2.8	-2.3
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	47.9	37.3	31.0	26.0	21.7	8.2	-7.1	-4.2	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	105.8	83.8	66.3	50.8	39.3	-4.0	0.6	-4.6	-5.1
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.5	27.9	26.4	25.1	25.0	7.6	-2.7	-1.1	-0.5
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	29.9	28.2	26.7	25.6	24.5	0.5	-3.2	-1.1	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.36	0.27	0.23	0.22	0.20	-10.1	-0.6	-4.3	-1.6
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.86	1.83	1.75	1.66	1.57	-3.7	1.6	-0.6	-1.1
Industry	2.31	2.08	2.00	2.14	2.13	2.09	1.94	1.76	1.57	-1.4	0.6	-0.9	-2.1
Residential	1.78	0.81	0.76	0.89	0.91	0.84	0.80	0.81	0.83	-8.2	1.8	-1.3	0.4
Tertiary	2.37	1.30	1.12	1.69	1.72	1.59	1.45	1.27	1.14	-7.2	4.3	-1.7	-2.4
Transport	2.79	2.81	2.85	2.89	2.86	2.83	2.80	2.73	2.64	0.2	0.1	-0.2	-0.6
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	21.4	23.1	26.4	28.1	29.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.9	9.0				
Gross Electricity generation by source (in GWh)													
			51925	59402	63204	70689	80699	94704	109431		2.0	2.5	3.1
Nuclear energy			5455	5554	6207	11614	14892	15219	15554		1.3	9.1	0.4
Solids			16409	19761	22116	20263	21086	26628	33250		3.0	-0.5	4.7
Oil (including refinery gas)			4145	3256	243	243	0	0	59		-24.7		
Gas (including derived gases)			11002	10316	13588	16015	15978	18621	19524		2.1	1.6	2.0
Biomass-waste			138	311	563	1798	7437	12061	17794		15.1	29.4	9.1
Hydro (pumping excluded)			14775	20203	19899	20063	20159	20347	20795		3.0	0.1	0.3
Wind			0	0	583	685	1135	1797	2397			6.9	7.8
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			19962	19838	23158	22547	22953	20318	20885		1.5	-0.1	-0.9
<u>Nuclear energy</u>			654	650	1330	1342	1726	1764	1802		7.4	2.6	0.4
<u>Renewable energy</u>			5935	6215	6790	7213	7845	8388	8992		1.4	1.5	1.4
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	422	494	843	1317	1900			7.2	8.5
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	15037	13992	13383	10166	10091		1.2	-1.2	-2.8
of which cogeneration units			5378	5459	1660	2127	3220	4104	5505		-11.1	6.9	5.5
Solids fired			7285	7139	7122	7250	7345	4579	3754		-0.2	0.3	-6.5
Gas fired			3692	3459	5380	4732	3482	2972	2878		3.8	-4.3	-1.9
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	93	308	1352	2174	3161		16.4	30.6	8.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	29.1	34.2	38.3	50.3	55.9				
Efficiency of gross thermal power generation (%)			25.6	28.6	38.5	45.2	44.8	44.8	44.9				
% of gross electricity from CHP			30.2	25.8	17.6	19.4	23.6	26.4	30.3				
Carbon free gross electricity generation (%)			39.2	43.9	43.1	48.3	54.1	52.2	51.7				
- nuclear			10.5	9.3	9.8	16.4	18.5	16.1	14.2				
- renewable energy forms			28.7	34.5	33.3	31.9	35.6	36.2	37.5				
Transport sector													
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.5	120.7	147.0	176.5	-2.7	4.1	4.6	3.9
Public road transport	24.0	12.3	7.7	9.4	11.9	14.8	17.3	19.5	21.6	-10.7	4.4	3.8	2.2
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.1	70.3	87.3	106.9	129.1	9.6	5.7	4.7	4.0
Rail	30.6	18.9	11.6	8.0	8.2	9.9	12.1	14.6	16.9	-9.2	-3.4	3.9	3.4
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.1	9.0	1.6	7.3	9.2	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.6	122.4	144.3	165.8	182.8	-8.4	11.8	3.6	2.4
Trucks	29.0	19.7	14.3	51.5	71.1	86.1	101.3	116.1	126.5	-6.8	17.4	3.6	2.2
Rail	48.9	17.9	16.4	16.6	18.8	21.7	25.4	29.3	33.5	-10.4	1.4	3.0	2.8
Inland navigation	2.1	3.1	2.6	8.4	11.7	14.5	17.6	20.5	22.8	2.3	16.1	4.1	2.6
Energy demand in transport (ktoe)	4407	3058	3384	4204	5311	6177	7033	7924	8882	-2.6	4.6	2.8	2.4
Public road transport	329	176	117	93	111	130	143	144	147	-9.9	-0.5	2.6	0.3
Private cars and motorcycles	591	845	1681	1609	1977	2361	2739	3152	3757	11.0	1.6	3.3	3.2
Trucks	2617	1272	893	2130	2785	3164	3529	3893	4121	-10.2	12.0	2.4	1.6
Rail	282	470	449	208	221	243	241	251	251	4.8	-6.8	0.9	0.4
Aviation	275	192	128	113	147	193	278	367	478	-7.3	1.3	6.6	5.6
Inland navigation	312	103	115	51	70	86	102	117	128	-9.5	-4.8	3.8	2.3

Source: PRIMES

Romania: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	29719	33190	37332	-2478	-1783	617	-7.7	-5.1	1.7
Solids	7935	5879	5793	3215	3047	4283	-2476	-3907	-3183	-43.5	-56.2	-42.6
Oil	7947	6389	6120	5973	6172	6164	-210	0	0	-3.4	0.0	0.0
Natural gas	22911	10968	9701	10185	10726	9822	-740	-282	0	-6.8	-2.6	0.0
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Renewable energy sources	2607	4131	5134	7478	9635	13308	948	2406	3800	14.5	33.3	40.0
Hydro	1460	1271	1737	1725	1734	1788	93	81	0	5.7	4.9	0.0
Biomass & Waste	1147	2854	3314	5338	7233	10528	608	1883	3115	12.9	35.2	42.0
Wind	0	0	0	59	98	206	51	83	180	634.7	591.3	695.4
Solar and others	0	0	0	141	248	426	106	177	300	299.6	250.8	237.8
Geothermal	0	7	82	213	323	359	90	181	204	73.5	127.7	131.7
Net Imports	20360	8099	10719	14092	14913	19709	-657	-3106	-5808	-4.5	-17.2	-22.8
Solids	2423	1905	2904	4704	4764	4987	59	-813	-2675	1.3	-14.6	-34.9
Oil	11194	3542	3874	5348	5907	7178	-385	-1111	-1607	-6.7	-15.8	-18.3
- Crude oil and Feedstocks	16094	4836	8751	10355	11193	12923	-604	-1515	-2178	-5.5	-11.9	-14.4
- Oil products	-4900	-1294	-4877	-5007	-5286	-5745	219	404	571	-4.2	-7.1	-9.0
Natural gas	5928	2712	4190	4452	4689	8045	-323	-1157	-1485	-6.8	-19.8	-15.6
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	43811	48102	57041	-3135	-4889	-5191	-6.7	-9.2	-8.3
Solids	10126	7757	8769	7919	7811	9270	-2417	-4720	-5858	-23.4	-37.7	-38.7
Oil	19106	10148	10162	11321	12079	13342	-595	-1111	-1607	-5.0	-8.4	-10.7
Natural gas	28838	13680	13942	14637	15415	17867	-1063	-1438	-1485	-6.8	-8.5	-7.7
Nuclear	0	1407	1433	2869	3609	3755	0	0	0	0.0	0.0	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7407	9539	13168	940	2381	3758	14.5	33.3	39.9
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	18.1	16.2	16.3	-3.9	-7.4	-8.1			
Oil	31.1	27.4	26.0	25.8	25.1	23.4	0.5	0.2	-0.6			
Natural gas	46.9	36.9	35.6	33.4	32.0	31.3	0.0	0.2	0.2			
Nuclear	0.0	3.8	3.7	6.5	7.5	6.6	0.4	0.7	0.5			
Renewable energy forms	4.2	11.2	13.0	16.9	19.8	23.1	3.1	6.3	8.0			
Gross Electricity Generation in GWh_e	63398	51925	59402	70689	80699	109431	-8994	-12239	-10293	-11.3	-13.2	-8.6
Self consumption and grid losses	14388	8909	10341	8364	9308	13652	-1883	-2398	-1216	-18.4	-20.5	-8.2
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7287	8551	13534	-2563	-3668	-2356	-26.0	-30.0	-14.8
Solids	8166	5442	5982	4486	4500	6667	-2586	-4549	-5176	-36.6	-50.3	-43.7
Oil (including refinery gas)	6202	1684	775	54	0	13	54	0	13			
Gas (including derived gases)	8984	3507	3343	2466	2447	2966	-287	-368	395	-10.4	-13.1	15.3
Biomass & Waste	36	4	3	282	1604	3888	256	1249	2413	983.9	352.4	163.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	20448	21280	22819	-580	-1473	-2351	-2.8	-6.5	-9.3
Refineries	23718	11318	14978	16327	17365	19086	-814	-1515	-2178	-4.8	-8.0	-10.2
Biofuels and hydrogen production	0	0	0	184	295	906	22	61	106	13.9	26.2	13.3
District heating	496	1737	823	1003	911	807	-46	-155	-244	-4.4	-14.5	-23.2
Derived gases, cokeries etc.	1551	1503	2144	2934	2708	2019	259	136	-34	9.7	5.3	-1.7
Energy Branch Consumption	3594	4137	4184	4358	4514	5027	-295	-464	-505	-6.3	-9.3	-9.1
Non-Energy Uses	908	2291	2448	2633	2921	3524	-3	-5	-4	-0.1	-0.2	-0.1
Final Energy Demand	36548	22374	24625	30659	33861	40177	-1360	-2045	-2975	-4.2	-5.7	-6.9
by sector												
Industry	25106	8788	9751	12365	13719	16831	-143	-398	-744	-1.1	-2.8	-4.2
- energy intensive industries	15699	5962	6928	8481	9203	10802	-10	-206	-429	-0.1	-2.2	-3.8
- other industrial sectors	9407	2826	2823	3884	4515	6029	-133	-192	-315	-3.3	-4.1	-5.0
Residential	4190	8557	8093	8736	9550	10929	-490	-445	-496	-5.3	-4.5	-4.3
Tertiary	2845	1646	2576	3381	3561	3534	-430	-602	-983	-11.3	-14.5	-21.8
Transport	4407	3384	4204	6177	7033	8882	-297	-600	-752	-4.6	-7.9	-7.8
by fuel												
Solids	2678	703	1429	1974	1914	1474	123	22	-98	6.6	1.2	-6.2
Oil	8030	5292	6547	8423	9194	10388	-534	-1005	-1467	-6.0	-9.9	-12.4
Gas	20495	6885	7721	9098	9601	10703	-544	-817	-1868	-5.6	-7.8	-14.9
Electricity	4355	3122	3481	4438	5183	7260	-605	-821	-736	-12.0	-13.7	-9.2
Heat (from CHP and District Heating)	377	3570	2135	1536	1996	3329	-281	-320	101	-15.4	-13.8	3.1
Renewable energy forms	612	2802	3312	5189	5971	7017	480	896	1093	10.2	17.7	18.4
Other	0	0	0	1	2	5	0	0	0	10.2	0.6	-0.7
RES in Gross Final Energy Consumption ^(A)		4197	5132	7312	9239	12429	902	2188	3384	14.1	31.0	37.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	146.5	149.2	155.1	-24.3	-40.6	-49.4	-14.2	-21.4	-24.1
CO₂ Emissions (energy related)	166.7	83.6	89.7	91.3	94.3	103.3	-14.3	-26.1	-37.1	-13.5	-21.7	-26.4
Power generation/District heating	75.9	40.6	37.2	26.6	26.4	31.2	-11.4	-20.3	-26.5	-29.9	-43.5	-45.9
Energy Branch	6.2	7.4	8.0	8.5	8.7	9.1	-0.7	-1.0	-1.3	-7.8	-10.5	-12.4
Industry	58.1	17.6	20.9	25.9	26.6	26.5	1.0	0.2	-2.2	3.9	0.7	-7.6
Residential	7.5	6.5	7.2	7.4	7.7	9.1	-1.3	-1.5	-1.9	-14.5	-16.2	-17.5
Tertiary	6.7	1.8	4.4	5.4	5.2	4.0	-0.9	-1.4	-2.4	-14.8	-21.0	-37.0
Transport	12.3	9.6	12.1	17.5	19.7	23.4	-1.0	-2.1	-2.8	-5.3	-9.5	-10.6
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.4	24.0	29.1	0.3	-0.8	-1.6	1.2	-3.1	-5.1
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	33.8	31.0	22.8	-10.2	-13.8	-10.8	-23.2	-30.8	-32.1
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	55.1	56.2	58.4	-9.1	-15.3	-18.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Romania: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	310.5	259.8	189.0	-22.2	-26.4	-17.2	-6.7	-9.2	-8.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.08	1.96	1.81	-0.17	-0.31	-0.44	-7.3	-13.7	-19.7
Import Dependency %	33.1	21.8	27.4	32.2	31.0	34.6	0.7	-3.0	-6.5			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	27.1	33.7	46.3	0.9	1.4	3.2	3.4	4.5	7.3
as % of GDP		23.4	18.7	19.2	18.2	15.3	0.6	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				1.1	1.8	3.5						
as % of GDP				0.76	0.95	1.15						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	64.8	56.5	44.9	-0.7	-1.6	-2.0	-1.1	-2.8	-4.2
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	37.3	31.0	21.7	-2.1	-1.4	-1.0	-5.3	-4.5	-4.3
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	83.8	66.3	39.3	-10.7	-11.2	-10.9	-11.3	-14.5	-21.8
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	27.9	26.4	25.0	-0.7	-1.0	0.5	-2.3	-3.7	1.8
Freight transport (toe/Mtkm)	39.2	41.4	30.7	28.2	26.7	24.5	-1.5	-2.6	-3.5	-5.0	-9.0	-12.6
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.27	0.23	0.20	-0.07	-0.12	-0.15	-20.2	-34.6	-42.4
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.83	1.75	1.57	0.01	-0.03	-0.11	0.5	-1.8	-6.4
Industry	2.31	2.00	2.14	2.09	1.94	1.57	0.10	0.07	-0.06	5.1	3.6	-3.5
Residential	1.78	0.76	0.89	0.84	0.80	0.83	-0.09	-0.11	-0.13	-9.7	-12.3	-13.7
Tertiary	2.37	1.12	1.69	1.59	1.45	1.14	-0.07	-0.12	-0.28	-4.0	-7.6	-19.5
Transport	2.79	2.85	2.89	2.83	2.80	2.64	-0.02	-0.05	-0.08	-0.8	-1.8	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	23.1	26.4	29.9	3.8	7.5	9.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	9.0	0.4	1.0	1.8			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	70689	80699	109431		-8994	-12239	-10293	-11.3	-13.2	-8.6
Nuclear energy	5455	5554	11614	14892	15554		0	0	0	0.0	0.0	0.0
Solids	16409	19761	20263	21086	33250		-9678	-17603	-26007	-32.3	-45.5	-43.9
Oil (including refinery gas)	4145	3256	243	0	59		243	0	59			
Gas (including derived gases)	11002	10316	16015	15978	19524		-2817	-2804	1675	-15.0	-14.9	9.4
Biomass-waste	138	311	1798	7437	17794		1585	6257	11884	740.8	530.6	201.1
Hydro (pumping excluded)	14775	20203	20063	20159	20795		1081	940	0	5.7	4.9	0.0
Wind	0	0	685	1135	2397		592	971	2096	634.7	591.3	695.4
Solar	0	0	7	12	58		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	19962	19838	22547	22953	20885		-97	859	463	-0.4	3.9	2.3
<u>Nuclear energy</u>	654	650	1342	1726	1802		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	5935	6215	7213	7845	8992		424	722	1682	6.2	10.1	23.0
Hydro (pumping excluded)	5935	6212	6713	6993	7046		0	0	0	0.0	0.0	0.0
Wind	0	0	494	843	1900		424	722	1682	604.1	598.9	771.6
Solar	0	3	6	9	46		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	13373	12972	13992	13383	10091		-521	137	-1219	-3.6	1.0	-10.8
of which cogeneration units	5378	5459	2127	3220	5505		-89	77	1149	-4.0	2.4	26.4
Solids fired	7285	7139	7250	7345	3754		-425	-521	-3411	-5.5	-6.6	-47.6
Gas fired	3692	3459	4732	3482	2878		-383	-383	168	-7.5	-9.9	6.2
Oil fired	2375	2354	1702	1204	298		0	0	0	0.0	0.0	0.0
Biomass-waste fired	20	20	308	1352	3161		286	1041	2024	1314.5	335.2	178.1
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	27.0	30.8	34.2	38.3	55.9		-3.8	-7.1	-6.8			
Efficiency of gross thermal power generation (%)	25.6	28.6	45.2	44.8	44.9		2.5	3.5	-0.1			
% of gross electricity from CHP	30.2	25.8	19.4	23.6	30.3		1.0	2.9	6.8			
Carbon free gross electricity generation (%)	39.2	43.9	48.3	54.1	51.7		9.5	15.9	16.1			
- nuclear	10.5	9.3	16.4	18.5	14.2		1.9	2.4	1.2			
- renewable energy forms	28.7	34.5	31.9	35.6	37.5		7.7	13.5	14.9			
Transport sector												
Passenger transport activity (Gpkm)	68.0	51.7	60.9	97.5	120.7	176.5	-0.6	-1.3	-3.4	-0.6	-1.1	-1.9
Public road transport	24.0	7.7	9.4	14.8	17.3	21.6	0.4	0.7	1.0	3.0	4.0	4.9
Private cars and motorcycles	12.6	31.5	42.4	70.3	87.3	129.1	-1.3	-2.3	-4.9	-1.8	-2.5	-3.6
Rail	30.6	11.6	8.0	9.9	12.1	16.9	0.3	0.4	0.7	2.9	3.7	4.4
Aviation	0.7	0.8	1.2	2.4	4.0	9.0	-0.1	-0.1	-0.3	-2.2	-2.9	-2.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.3
Freight transport activity (Gtkm)	80.0	33.3	76.5	122.4	144.3	182.8	-1.1	-2.0	-3.6	-0.9	-1.4	-1.9
Trucks	29.0	14.3	51.5	86.1	101.3	126.5	-2.7	-4.5	-7.3	-3.1	-4.2	-5.4
Rail	48.9	16.4	16.6	21.7	25.4	33.5	1.3	1.9	2.9	6.5	8.1	9.3
Inland navigation	2.1	2.6	8.4	14.5	17.6	22.8	0.3	0.5	0.8	2.4	3.1	3.7
Energy demand in transport (ktoe)	4407	3384	4204	6177	7033	8882	-297	-600	-752	-4.6	-7.9	-7.8
Public road transport	329	117	93	130	143	147	1	-1	-14	0.7	-0.6	-8.8
Private cars and motorcycles	591	1681	1609	2361	2739	3757	-78	-149	30	-3.2	-5.2	0.8
Trucks	2617	893	2130	3164	3529	4121	-227	-440	-751	-6.7	-11.1	-15.4
Rail	282	449	208	243	241	251	11	-2	3	4.6	-0.9	1.1
Aviation	275	128	113	193	278	478	-4	-9	-20	-2.2	-3.3	-4.0
Inland navigation	312	115	51	86	102	128	1	1	1	1.6	1.5	0.8

Source: PRIMES

Slovak Republic: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	5248	4808	5970	6305	5332	6347	6618	7450	7979	1.3	-1.1	2.2	1.9	
Solids	1397	1017	1018	637	846	691	581	590	716	-3.1	-1.8	-3.7	2.1	
Oil	81	74	59	55	36	35	36	36	36	-3.1	-4.7	-0.1	0.2	
Natural gas	338	264	133	126	115	125	122	132	123	-8.9	-1.4	0.6	0.2	
Nuclear	3105	2950	4255	4573	3191	4036	4070	4494	4632	3.2	-2.8	2.5	1.3	
Renewable energy sources	328	503	506	914	1144	1459	1810	2198	2471	4.4	8.5	4.7	3.2	
Hydro	162	427	406	399	406	433	435	437	438	9.7	0.0	0.7	0.1	
Biomass & Waste	166	76	100	507	711	950	1188	1484	1689	-5.0	21.7	5.3	3.6	
Wind	0	0	0	1	17	20	85	121	131			17.7	4.5	
Solar and others	0	0	0	0	7	52	94	143	199			29.1	7.8	
Geothermal	0	0	0	8	3	4	8	12	13			12.3	4.9	
Net Imports	16086	12482	11623	13163	12673	12788	13349	13638	14286	-3.2	0.9	0.5	0.7	
Solids	6055	4131	3437	3794	3581	3242	3232	2754	3565	-5.5	0.4	-1.0	1.0	
Oil	4231	3704	2711	3935	3916	3731	3689	3688	3726	-4.4	3.7	-0.6	0.1	
- Crude oil and Feedstocks	5892	5405	5283	5768	5830	5694	5661	5681	5739	-1.1	1.0	-0.3	0.1	
- Oil products	-1661	-1701	-2573	-1833	-1914	-1963	-1972	-1993	-2013					
Natural gas	5353	4528	5707	5757	5276	5740	5581	6071	5666	0.6	-0.8	0.6	0.2	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18005	19135	19967	21088	22265	-1.8	0.3	1.0	1.1	
Solids	7771	5414	4261	4288	4428	3933	3813	3344	4281	-5.8	0.4	-1.5	1.2	
Oil	4229	3487	2925	4045	3952	3767	3725	3724	3762	-3.6	3.1	-0.6	0.1	
Natural gas	5088	5217	5776	5925	5391	5866	5703	6203	5789	1.3	-0.7	0.6	0.2	
Nuclear	3105	2950	4255	4573	3191	4036	4070	4494	4632	3.2	-2.8	2.5	1.3	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	1065	1589	2701	3581	4045	4.3	7.9	9.8	4.1	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	24.6	20.6	19.1	15.9	19.2					
Oil	20.2	19.7	16.7	20.8	22.0	19.7	18.7	17.7	16.9					
Natural gas	24.3	29.5	33.0	30.5	29.9	30.7	28.6	29.4	26.0					
Nuclear	14.8	16.7	24.3	23.6	17.7	21.1	20.4	21.3	20.8					
Renewable energy forms	1.6	2.8	2.8	4.4	5.9	8.3	13.5	17.0	18.2					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30404	34691	38829	47586	54226	2.6	0.0	2.5	3.4	
Self consumption and grid losses	4853	5351	5235	4704	3352	3653	4185	5012	7156	0.8	-4.4	2.2	5.5	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2614	2400	3099	3870	4919	-1.9	-0.2	1.7	4.7	
Solids	2054	1835	1617	1638	1467	907	734	397	1503	-2.4	-1.0	-6.7	7.4	
Oil (including refinery gas)	243	119	37	99	4	39	0	5	0	-17.1	-20.3			
Gas (including derived gases)	936	1216	1002	845	1024	1192	927	1305	1076	0.7	0.2	-1.0	1.5	
Biomass & Waste	0	0	0	40	119	263	1438	2163	2340			28.3	5.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	9822	9824	9886	9876	9770	-1.2	2.0	0.1	-0.1	
Refineries	6314	5182	5410	6374	6631	6509	6543	6624	6699	-1.5	2.1	-0.1	0.2	
Biofuels and hydrogen production	0	0	0	11	51	119	217	252	285			15.5	2.8	
District heating	237	731	584	717	739	758	635	580	518	9.4	2.4	-1.5	-2.0	
Derived gases, cokeries etc.	2458	2060	2026	2233	2401	2439	2490	2421	2268	-1.9	1.7	0.4	-0.9	
Energy Branch Consumption	1154	990	905	2482	1994	2017	1995	2037	2092	-2.4	8.2	0.0	0.5	
Non-Energy Uses	1203	651	1109	1239	1252	1332	1498	1667	1773	-0.8	1.2	1.8	1.7	
Final Energy Demand	14893	11085	10822	10560	11365	11899	12496	12999	13391	-3.1	0.5	1.0	0.7	
by sector														
Industry	6706	4339	3953	4413	4913	5237	5427	5549	5591	-5.1	2.2	1.0	0.3	
- energy intensive industries	4081	3091	3145	3590	4021	4297	4406	4481	4486	-2.6	2.5	0.9	0.2	
- other industrial sectors	2626	1248	808	823	892	940	1022	1068	1105	-11.1	1.0	1.4	0.8	
Residential	2275	2158	2822	2533	2510	2533	2780	3005	3229	2.2	-1.2	1.0	1.5	
Tertiary	4473	3078	2498	1809	1835	1919	2039	2147	2253	-5.7	-3.0	1.1	1.0	
Transport	1440	1509	1549	1805	2107	2209	2250	2297	2317	0.7	3.1	0.7	0.3	
by fuel														
Solids	4319	2322	1511	1455	1890	1958	1959	1853	1743	-10.0	2.3	0.4	-1.2	
Oil	3294	1873	1870	2195	2417	2439	2388	2391	2381	-5.5	2.6	-0.1	0.0	
Gas	4319	3907	4537	3651	3465	3575	3668	3694	3735	0.5	-2.7	0.6	0.2	
Electricity	2013	1868	1893	1965	2238	2537	2858	3317	3715	-0.6	1.7	2.5	2.7	
Heat (from CHP and District Heating)	781	1111	1011	951	1196	1047	1202	1187	1150	2.6	1.7	0.1	-0.4	
Renewable energy forms	166	4	1	344	159	343	421	555	666	-42.8	74.1	10.2	4.7	
Other	0	0	0	0	0	0	1	1	1			15.8	2.2	
RES in Gross Final Energy Consumption ^(A)			407	761	898	1235	2391	3198	3614		8.2	10.3	4.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	51.7	50.0	49.1	47.5	44.6	-3.7	0.9	-0.5	-1.0	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	37.7	36.1	34.7	33.3	30.4	-4.1	0.7	-0.8	-1.3	
Power generation/District heating	12.1	12.9	10.6	10.5	9.7	7.9	6.1	5.3	3.6	-1.3	-0.9	-4.5	-5.3	
Energy Branch	2.5	1.8	1.5	5.0	4.4	3.9	4.2	4.0	3.3	-4.6	11.0	-0.4	-2.2	
Industry	17.8	12.2	10.3	10.4	12.2	12.6	12.7	12.0	11.4	-5.3	1.7	0.4	-1.1	
Residential	4.4	2.9	4.1	3.5	3.3	3.5	3.7	4.1	4.5	-0.6	-2.3	1.2	2.0	
Tertiary	12.6	5.7	4.2	2.5	2.2	2.1	2.0	1.8	1.6	-10.3	-6.2	-1.2	-1.9	
Transport	4.0	4.2	4.4	5.2	6.0	6.2	6.0	6.1	6.0	0.8	3.3	0.0	0.0	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.1	5.9	6.3	6.5	-0.7	3.0	3.0	1.0	
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	8.7	8.6	7.9	7.6	-3.3	1.0	-1.1	-1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	74.9	72.4	71.1	68.8	64.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: Cost Efficiency Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1	
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	359.9	304.9	257.4	228.4	210.6	-3.2	-4.6	-3.3	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	1.89	1.74	1.58	1.37	-2.3	0.4	-1.9	-2.4	
Import Dependency %	76.7	70.6	66.5	67.8	70.4	66.8	66.9	64.7	64.2					
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.5	11.5	13.6	15.7	17.0		2.9	3.6	2.3	
as % of GDP			23.3	19.5	19.0	18.3	17.5	17.0	16.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.8	46.3	39.3	34.5	31.9	-6.4	-5.8	-3.3	-2.1	
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	56.9	46.6	42.0	38.5	36.3	2.0	-5.5	-3.0	-1.4	
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	53.9	45.0	38.8	34.2	30.5	-5.6	-6.0	-3.2	-2.4	
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.0	27.7	26.3	25.0	23.6	3.6	0.5	-1.0	-1.1	
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	23.8	22.6	20.9	19.8	19.1	2.0	0.8	-1.3	-0.9	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.16	0.11	0.08	0.05	-3.8	-1.5	-6.1	-7.4	
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.08	2.04	1.95	1.84	1.76	-2.0	-0.2	-0.7	-1.0	
Industry	2.65	2.82	2.61	2.37	2.47	2.40	2.33	2.16	2.04	-0.2	-0.5	-0.6	-1.4	
Residential	1.93	1.35	1.46	1.39	1.30	1.36	1.33	1.37	1.39	-2.8	-1.1	0.2	0.5	
Tertiary	2.81	1.87	1.69	1.37	1.21	1.09	0.96	0.84	0.72	-4.9	-3.3	-2.3	-2.8	
Transport	2.80	2.76	2.82	2.89	2.86	2.79	2.68	2.64	2.60	0.1	0.1	-0.7	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.6	10.0	18.5	23.7	25.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.7	8.4	9.6	10.9					
Gross Electricity generation by source (in GWh)														
			30431	31346	30404	34691	38829	47586	54226		0.0	2.5	3.4	
Nuclear energy			16491	17724	12371	16030	16180	19142	19768		-2.8	2.7	2.0	
Solids			4969	4825	5474	4028	3600	2310	8769		1.0	-4.1	9.3	
Oil (including refinery gas)			144	455	296	501	0	126	0		7.5			
Gas (including derived gases)			4102	3527	6779	7694	6985	9999	7840		5.2	0.3	1.2	
Biomass-waste			0	172	572	1161	5994	9485	11180			26.5	6.4	
Hydro (pumping excluded)			4725	4637	4716	5038	5064	5079	5094		0.0	0.7	0.1	
Wind			0	7	194	230	987	1413	1525			17.7	4.5	
Solar			0	0	2	9	18	33	49			24.7	10.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			6795	7307	7789	8298	8753	10209	10997		1.4	1.2	2.3	
<u>Nuclear energy</u>			2326	2439	1652	2102	2132	2342	2415		-3.4	2.6	1.3	
<u>Renewable energy</u>			1669	1838	2047	2189	2745	3060	3158		2.1	3.0	1.4	
Hydro (pumping excluded)			1668	1832	1906	2018	2026	2026	2029		1.3	0.6	0.0	
Wind			1	5	139	164	704	1008	1089		63.8	17.6	4.5	
Solar			0	0	2	7	15	26	40			24.6	10.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2800	3031	4090	4007	3876	4806	5424		3.9	-0.5	3.4	
of which cogeneration units			1220	1400	1686	1558	2296	2775	3041		3.3	3.1	2.8	
Solids fired			1598	1661	1846	1502	1034	681	888		1.5	-5.6	-1.5	
Gas fired			1184	1221	2052	2173	1585	2073	2121		5.7	-2.5	3.0	
Oil fired			18	115	115	115	115	115	115		20.7	0.0	0.0	
Biomass-waste fired			1	34	76	217	1141	1937	2300		54.6	31.0	7.3	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.5	44.3	42.4	45.7	48.3	50.7	52.2					
Efficiency of gross thermal power generation (%)			29.8	29.4	43.2	48.0	46.0	48.7	48.6					
% of gross electricity from CHP			26.0	15.8	32.1	26.7	32.7	30.2	25.8					
Carbon free gross electricity generation (%)			69.7	71.9	58.7	64.8	72.7	73.9	69.4					
- nuclear			54.2	56.5	40.7	46.2	41.7	40.2	36.5					
- renewable energy forms			15.5	15.4	18.0	18.6	31.1	33.6	32.9					
Transport sector														
Passenger transport activity (Gpkm)	41.5	34.2	35.8	36.4	38.8	41.8	46.6	51.6	55.9	-1.5	0.8	1.8	1.8	
Public road transport	19.5	11.2	8.4	8.1	8.0	7.9	7.9	7.8	7.9	-8.1	-0.5	-0.2	0.0	
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.2	31.2	35.8	40.6	44.6	4.5	1.6	2.4	2.2	
Rail	6.4	4.6	3.2	2.5	2.4	2.5	2.6	2.7	2.8	-6.6	-2.9	0.6	1.0	
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.2	4.6	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	35.6	29.7	25.6	32.0	41.3	46.5	48.9	50.9	52.4	-3.3	4.9	1.7	0.7	
Trucks	14.2	15.9	14.3	22.6	31.0	34.8	36.5	38.0	39.3	0.1	8.0	1.6	0.8	
Rail	21.4	13.8	11.2	9.5	10.3	11.7	12.5	12.8	13.0	-6.2	-0.8	1.9	0.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1440	1509	1549	1805	2107	2209	2250	2297	2317	0.7	3.1	0.7	0.3	
Public road transport	96	79	70	59	55	50	47	43	40	-3.1	-2.4	-1.5	-1.7	
Private cars and motorcycles	671	729	886	964	1002	1029	1100	1158	1179	2.8	1.2	0.9	0.7	
Trucks	572	583	510	693	947	1014	987	973	965	-1.1	6.4	0.4	-0.2	
Rail	100	119	83	49	50	51	48	46	45	-1.9	-4.9	-0.4	-0.7	
Aviation	0	0	0	39	54	65	67	78	88			2.3	2.7	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovak Republic: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	6347	6618	7979	384	129	351	6.4	2.0	4.6
Solids	1397	1018	637	691	581	716	-154	-250	-48	-18.2	-30.1	-6.3
Oil	81	59	55	35	36	36	-3	-4	-4	-6.7	-9.6	-9.5
Natural gas	338	133	126	125	122	123	-20	-35	-58	-13.6	-22.5	-32.1
Nuclear	3105	4255	4573	4036	4070	4632	182	4	-77	4.7	0.1	-1.6
Renewable energy sources	328	506	914	1459	1810	2471	378	414	538	34.9	29.7	27.8
Hydro	162	406	399	433	435	438	9	4	0	2.0	0.9	0.0
Biomass & Waste	166	100	507	950	1188	1689	311	257	265	48.6	27.6	18.6
Wind	0	0	1	20	85	131	15	74	103	353.6	672.3	360.8
Solar and others	0	0	0	52	94	199	41	75	161	370.4	381.3	417.4
Geothermal	0	0	8	4	8	13	2	5	10	86.1	198.6	295.2
Net Imports	16086	11623	13163	12788	13349	14286	-1568	-1995	-2429	-10.9	-13.0	-14.5
Solids	6055	3437	3794	3242	3232	3565	-455	-798	-889	-12.3	-19.8	-20.0
Oil	4231	2711	3935	3731	3689	3726	-407	-573	-587	-9.8	-13.4	-13.6
- Crude oil and Feedstocks	5892	5283	5768	5694	5661	5739	-439	-661	-675	-7.2	-10.4	-10.5
- Oil products	-1661	-2573	-1833	-1963	-1972	-2013	32	88	89	-1.6	-4.3	-4.2
Natural gas	5353	5707	5757	5740	5581	5666	-906	-1617	-2684	-13.6	-22.5	-32.1
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19135	19967	22265	-1184	-1866	-2078	-5.8	-8.5	-8.5
Solids	7771	4261	4288	3933	3813	4281	-608	-1049	-937	-13.4	-21.6	-18.0
Oil	4229	2925	4045	3767	3725	3762	-410	-577	-590	-9.8	-13.4	-13.6
Natural gas	5088	5776	5925	5866	5703	5789	-926	-1653	-2743	-13.6	-22.5	-32.1
Nuclear	3105	4255	4573	4036	4070	4632	182	4	-77	4.7	0.1	-1.6
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1589	2701	4045	578	1408	2269	57.2	108.9	127.8
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	20.6	19.1	19.2	-1.8	-3.2	-2.2			
Oil	20.2	16.7	20.8	19.7	18.7	16.9	-0.9	-1.0	-1.0			
Natural gas	24.3	33.0	30.5	30.7	28.6	26.0	-2.8	-5.1	-9.0			
Nuclear	14.8	24.3	23.6	21.1	20.4	20.8	2.1	1.8	1.5			
Renewable energy forms	1.6	2.8	4.4	8.3	13.5	18.2	3.3	7.6	10.9			
Gross Electricity Generation in GWh_e	23428	30431	31346	34691	38829	54226	-2973	-4203	-927	-7.9	-9.8	-1.7
Self consumption and grid losses	4853	5235	4704	3653	4185	7156	-337	-420	1036	-8.5	-9.1	16.9
Fuel Inputs to Thermal Power Generation	3232	2656	2622	2400	3099	4919	-917	-878	-70	-27.6	-22.1	-1.4
Solids	2054	1617	1638	907	734	1503	-687	-1067	-773	-43.1	-59.2	-34.0
Oil (including refinery gas)	243	37	99	39	0	0	-72	-118	-10	-64.7	-100.0	-100.0
Gas (including derived gases)	936	1002	845	1192	927	1076	-248	-802	-799	-17.2	-46.4	-42.6
Biomass & Waste	0	0	40	263	1438	2340	91	1110	1512	52.7	338.0	182.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	9824	9886	9770	-398	-672	-941	-3.9	-6.4	-8.8
Refineries	6314	5410	6374	6509	6543	6699	-445	-671	-685	-6.4	-9.3	-9.3
Biofuels and hydrogen production	0	0	11	119	217	285	13	42	20	11.8	23.9	7.4
District heating	237	584	717	758	635	518	-62	-73	-236	-7.5	-10.3	-31.3
Derived gases, cokeries etc.	2458	2026	2233	2439	2490	2268	96	30	-40	4.1	1.2	-1.7
Energy Branch Consumption	1154	905	2482	2017	1995	2092	-120	-227	-246	-5.6	-10.2	-10.5
Non-Energy Uses	1203	1109	1239	1332	1498	1773	-6	-10	-10	-0.4	-0.7	-0.6
Final Energy Demand	14893	10822	10560	11899	12496	13391	-686	-1016	-1459	-5.5	-7.5	-9.8
by sector												
Industry	6706	3953	4413	5237	5427	5591	-31	-156	-271	-0.6	-2.8	-4.6
- energy intensive industries	4081	3145	3590	4297	4406	4486	2	-102	-171	0.0	-2.3	-3.7
- other industrial sectors	2626	808	823	940	1022	1105	-32	-54	-100	-3.3	-5.0	-8.3
Residential	2275	2822	2533	2533	2780	3229	-274	-243	-247	-9.8	-8.0	-7.1
Tertiary	4473	2498	1809	1919	2039	2253	-241	-374	-623	-11.2	-15.5	-21.7
Transport	1440	1549	1805	2209	2250	2317	-139	-243	-318	-5.9	-9.7	-12.1
by fuel												
Solids	4319	1511	1455	1958	1959	1743	38	-16	-179	2.0	-0.8	-9.3
Oil	3294	1870	2195	2439	2388	2381	-156	-288	-355	-6.0	-10.8	-13.0
Gas	4319	4537	3651	3575	3668	3735	-198	-351	-999	-5.2	-8.7	-21.1
Electricity	2013	1893	1965	2537	2858	3715	-228	-323	-165	-8.2	-10.2	-4.2
Heat (from CHP and District Heating)	781	1011	951	1047	1202	1150	-188	-41	-57	-15.2	-3.3	-4.7
Renewable energy forms	166	1	344	343	421	666	46	4	296	15.4	1.0	79.9
Other	0	0	0	0	1	1	0	0	0	7.8	5.8	-32.1
RES in Gross Final Energy Consumption ^(A)		407	761	1235	2391	3614	397	1324	2170	47.4	124.0	150.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	50.0	49.1	44.6	-7.0	-11.6	-19.4	-12.3	-19.2	-30.3
CO₂ Emissions (energy related)	53.3	35.1	37.1	36.1	34.7	30.4	-5.8	-9.7	-17.5	-13.8	-22.0	-36.6
Power generation/District heating	12.1	10.6	10.5	7.9	6.1	3.6	-4.3	-7.3	-11.8	-35.4	-54.6	-76.8
Energy Branch	2.5	1.5	5.0	3.9	4.2	3.3	-0.7	-0.7	-1.7	-14.9	-13.7	-33.0
Industry	17.8	10.3	10.4	12.6	12.7	11.4	0.3	0.0	-1.3	2.2	0.3	-10.3
Residential	4.4	4.1	3.5	3.5	3.7	4.5	-0.4	-0.5	-0.9	-9.5	-12.8	-17.2
Tertiary	12.6	4.2	2.5	2.1	2.0	1.6	-0.2	-0.4	-0.8	-8.9	-16.3	-32.8
Transport	4.0	4.4	5.2	6.2	6.0	6.0	-0.5	-0.9	-1.1	-6.9	-12.5	-15.2
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.1	5.9	6.5	0.0	-0.2	-0.3	-0.6	-2.7	-3.9
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	8.7	8.6	7.6	-1.2	-1.7	-1.6	-12.3	-16.8	-17.4
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	72.4	71.1	64.6	-10.2	-16.9	-28.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	304.9	257.4	210.6	-18.9	-24.1	-19.7	-5.8	-8.5	-8.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	1.89	1.74	1.37	-0.17	-0.30	-0.60	-8.4	-14.7	-30.7
Import Dependency %	76.7	66.5	67.8	66.8	66.9	64.2	-3.8	-3.4	-4.5			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.5	13.6	17.0	0.6	0.9	1.2	5.3	6.8	7.9
as % of GDP		23.3	19.5	18.3	17.5	16.1	0.9	1.1	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	0.9	1.3						
as % of GDP				0.96	1.17	1.22						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.3	39.3	31.9	-0.3	-1.1	-1.5	-0.6	-2.8	-4.6
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	46.6	42.0	36.3	-5.0	-3.7	-2.8	-9.8	-8.0	-7.1
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	45.0	38.8	30.5	-5.7	-7.1	-8.4	-11.2	-15.5	-21.7
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	27.7	26.3	23.6	-0.8	-1.3	-1.3	-2.7	-4.7	-5.4
Freight transport (toe/Mtkm)	17.9	21.9	22.7	22.6	20.9	19.1	-1.5	-2.4	-3.0	-6.0	-10.3	-13.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.16	0.11	0.05	-0.06	-0.11	-0.16	-28.6	-51.6	-76.8
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.04	1.95	1.76	0.05	0.02	-0.10	2.6	0.9	-5.6
Industry	2.65	2.61	2.37	2.40	2.33	2.04	0.06	0.07	-0.13	2.8	3.2	-5.9
Residential	1.93	1.46	1.39	1.36	1.33	1.39	0.00	-0.07	-0.17	0.3	-5.2	-10.8
Tertiary	2.81	1.69	1.37	1.09	0.96	0.72	0.03	-0.01	-0.12	2.5	-0.9	-14.3
Transport	2.80	2.82	2.89	2.79	2.68	2.60	-0.03	-0.08	-0.10	-1.1	-3.0	-3.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	10.0	18.5	25.7	3.6	10.8	16.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.7	8.4	10.9	0.7	2.3	2.1			
Gross Electricity generation by source (in GWh_e)												
Gross electricity generation	30431	31346	34691	38829	54226	54226	-2973	-4203	-927	-7.9	-9.8	-1.7
Nuclear energy	16491	17724	16030	16180	19768	19768	787	0	-366	5.2	0.0	-1.8
Solids	4969	4825	4028	3600	8769	8769	-2117	-4195	-3744	-34.4	-53.8	-29.9
Oil (including refinery gas)	144	455	501	0	0	0	0	-529	-162	0.0	-100.0	-100.0
Gas (including derived gases)	4102	3527	7694	6985	7840	7840	-2313	-4675	-4568	-23.1	-40.1	-36.8
Biomass-waste	0	172	1161	5994	11180	11180	390	4293	6720	50.7	252.4	150.6
Hydro (pumping excluded)	4725	4637	5038	5064	5094	5094	100	45	0	2.0	0.9	0.0
Wind	0	7	230	987	1525	1525	179	859	1194	353.6	672.3	360.8
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	6795	7307	8298	8753	10997	10997	-273	773	2008	-3.2	9.7	22.3
<u>Nuclear energy</u>	2326	2439	2102	2132	2415	2415	91	0	-42	4.5	0.0	-1.7
<u>Renewable energy</u>	1669	1838	2189	2745	3158	3158	151	627	853	7.4	29.6	37.0
Hydro (pumping excluded)	1668	1832	2018	2026	2029	2029	22	13	0	1.1	0.6	0.0
Wind	1	5	164	704	1089	1089	129	614	853	367.1	681.5	361.6
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	4007	3876	5424	5424	-515	146	1197	-11.4	3.9	28.3
of which cogeneration units	1220	1400	1558	2296	3041	3041	-69	606	1221	-4.2	35.9	67.1
Solids fired	1598	1661	1502	1034	888	888	-194	-367	-787	-11.4	-26.2	-47.0
Gas fired	1184	1221	2173	1585	2121	2121	-474	-498	24	-17.9	-23.9	1.2
Oil fired	18	115	115	115	115	115	0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	217	1141	2300	2300	153	1010	1959	241.2	771.6	574.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	45.7	48.3	52.2	52.2	-2.4	-10.6	-14.4			
Efficiency of gross thermal power generation (%)	29.8	29.4	48.0	46.0	48.6	48.6	2.8	-0.9	-2.3			
% of gross electricity from CHP	26.0	15.8	26.7	32.7	25.8	25.8	3.2	8.1	4.1			
Carbon free gross electricity generation (%)	69.7	71.9	64.8	72.7	69.4	69.4	9.0	19.2	14.9			
- nuclear	54.2	56.5	46.2	41.7	36.5	36.5	5.7	4.1	-0.1			
- renewable energy forms	15.5	15.4	18.6	31.1	32.9	32.9	3.2	15.1	14.9			
Transport sector												
Passenger transport activity (Gpkm)	41.5	35.8	36.4	41.8	46.6	55.9	-0.7	-1.2	-1.9	-1.6	-2.6	-3.4
Public road transport	19.5	8.4	8.1	7.9	7.9	7.9	0.1	0.2	0.2	1.8	2.6	3.2
Private cars and motorcycles	15.6	24.1	25.6	31.2	35.8	44.6	-0.9	-1.5	-2.3	-2.7	-4.0	-4.8
Rail	6.4	3.2	2.5	2.5	2.6	2.8	0.1	0.1	0.1	2.4	2.9	3.9
Aviation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-3.7	-5.0	-5.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	35.6	25.6	32.0	46.5	48.9	52.4	-0.9	-1.3	-1.7	-1.8	-2.6	-3.2
Trucks	14.2	14.3	22.6	34.8	36.5	39.3	-1.5	-2.1	-2.7	-4.0	-5.5	-6.4
Rail	21.4	11.2	9.5	11.7	12.5	13.0	0.6	0.8	0.9	5.4	6.8	7.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)	1440	1549	1805	2209	2250	2317	-139	-243	-318	-5.9	-9.7	-12.1
Public road transport	96	70	59	50	47	40	0	-1	-3	-0.8	-2.2	-6.6
Private cars and motorcycles	671	886	964	1029	1100	1179	-45	-76	-99	-4.2	-6.4	-7.7
Trucks	572	510	693	1014	987	965	-89	-149	-195	-8.1	-13.1	-16.8
Rail	100	83	49	51	48	45	0	-1	-1	0.2	-1.2	-1.2
Aviation	0	0	39	65	67	88	-4	-16	-21	-6.5	-19.5	-19.4
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	2902	3020	3085	3492	3567	3146	3498	3833	4857	0.6	1.5	-0.2	3.3		
Solids	1432	1216	1062	1184	1144	493	394	428	1269	-2.9	0.8	-10.1	12.4		
Oil	3	2	1	0	0	0	0	0	0	-10.4					
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.8				
Nuclear	1192	1245	1228	1518	1483	1483	1483	1518	1518	0.3	1.9	0.0	0.2		
Renewable energy sources	254	542	788	787	935	1170	1621	1888	2070	12.0	1.7	5.7	2.5		
Hydro	254	279	330	298	344	348	352	361	371	2.7	0.4	0.2	0.5		
Biomass & Waste	0	263	458	489	578	714	1089	1303	1431	2.4	6.5	2.8			
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4		
Solar and others	0	0	0	0	12	108	178	222	265			30.8	4.0		
Geothermal	0	0	0	0	0	0	0	0	0			5.9	2.9		
Net Imports	2567	3056	3369	3810	4325	4767	4776	4632	4210	2.8	2.5	1.0	-1.3		
Solids	130	187	245	323	291	338	327	320	231	6.5	1.7	1.2	-3.4		
Oil	1798	2231	2418	2589	2879	2993	2988	2998	2956	3.0	1.8	0.4	-0.1		
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.4	0.0		
- Oil products	1202	1644	2267	2589	2878	2991	2987	2997	2954	6.5	2.4	0.4	-0.1		
Natural gas	723	750	820	925	1103	1213	1243	1272	1110	1.3	3.0	1.2	-1.1		
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5			
Gross Inland Consumption	5517	6103	6415	7305	7892	7913	8274	8465	9067	1.5	2.1	0.5	0.9		
Solids	1645	1402	1306	1539	1435	831	721	747	1500	-2.3	1.0	-6.7	7.6		
Oil	1748	2281	2381	2560	2879	2993	2988	2998	2956	3.1	1.9	0.4	-0.1		
Natural gas	763	746	826	929	1107	1213	1243	1272	1110	0.8	3.0	1.2	-1.1		
Nuclear	1192	1245	1228	1518	1483	1483	1483	1518	1518	0.3	1.9	0.0	0.2		
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5			
Renewable energy forms	254	571	788	787	935	1170	1621	1888	2070	12.0	1.7	5.7	2.5		
as % in Gross Inland Consumption															
Solids	29.8	23.0	20.4	21.1	18.2	10.5	8.7	8.8	16.5						
Oil	31.7	37.4	37.1	35.0	36.5	37.8	36.1	35.4	32.6						
Natural gas	13.8	12.2	12.9	12.7	14.0	15.3	15.0	15.0	12.2						
Nuclear	21.6	20.4	19.1	20.8	18.8	18.7	17.9	17.9	16.7						
Renewable energy forms	4.6	9.3	12.3	10.8	11.8	14.8	19.6	22.3	22.8						
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15490	14262	16027	20372	25383	0.9	1.3	0.3	4.7		
Self consumption and grid losses	1516	1427	1625	1908	2034	1818	1998	2704	4216	0.7	2.3	-0.2	7.8		
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1393	868	1081	1386	2153	-1.4	0.4	-2.5	7.1		
Solids	1296	1315	1253	1411	1320	704	580	573	1324	-0.3	0.5	-7.9	8.6		
Oil (including refinery gas)	155	119	12	9	1	1	0	0	0	-22.8	-20.3	-9.4	-9.5		
Gas (including derived gases)	92	90	62	58	42	78	155	393	254	-3.8	-3.8	13.9	5.1		
Biomass & Waste	0	0	15	30	29	86	345	420	574		6.6	28.1	5.2		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	594	580	253	90	194	267	318	325	303	-8.2	-2.6	5.1	-0.5		
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.4	0.0		
Biofuels and hydrogen production	0	0	0	0	44	117	207	242	274			16.8	2.8		
District heating	53	76	83	89	149	148	110	82	28	4.7	5.9	-3.0	-12.8		
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0						
Energy Branch Consumption	122	121	112	104	117	93	97	154	265	-0.9	0.4	-1.8	10.6		
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9		
Final Energy Demand	3368	3940	4431	4880	5474	5868	6160	6303	6440	2.8	2.1	1.2	0.4		
by sector															
Industry	1468	1179	1423	1655	1829	1925	2004	2050	2104	-0.3	2.5	0.9	0.5		
- energy intensive industries	728	587	839	1036	1143	1226	1285	1323	1356	1.4	3.1	1.2	0.5		
- other industrial sectors	740	593	584	619	686	699	719	728	748	-2.3	1.6	0.5	0.4		
Residential	850	1176	1122	1183	1229	1309	1400	1398	1429	2.8	0.9	1.3	0.2		
Tertiary	122	259	578	573	577	567	578	575	569	16.9	0.0	0.0	-0.2		
Transport	928	1326	1309	1469	1839	2067	2178	2280	2339	3.5	3.5	1.7	0.7		
by fuel															
Solids	243	115	97	80	84	91	102	132	131	-8.8	-1.4	1.9	2.5		
Oil	1507	2098	2231	2392	2678	2766	2744	2742	2683	4.0	1.8	0.2	-0.2		
Gas	603	468	569	665	788	850	825	640	663	-0.6	3.3	0.5	-2.2		
Electricity	837	807	905	1096	1197	1282	1412	1547	1720	0.8	2.8	1.7	2.0		
Heat (from CHP and District Heating)	177	192	195	196	189	189	209	198	181	1.0	-0.3	1.0	-1.4		
Renewable energy forms	0	260	435	452	539	689	868	1043	1061	2.2	4.9	2.0			
Other	0	0	0	0	0	0	1	1	1			19.4	3.0		
RES in Gross Final Energy Consumption ^(A)			780	767	920	1131	1536	1786	1945		1.7	5.3	2.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.4	18.2	17.6	16.2	15.5	0.3	1.0	-1.5	-1.3		
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.1	14.0	13.5	12.1	11.4	0.6	1.4	-1.7	-1.7		
Power generation/District heating	6.2	6.2	5.5	6.2	5.9	3.4	3.0	1.9	1.3	-1.1	0.6	-6.6	-7.9		
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9					
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.1	2.1	-0.7	0.5	0.2	-1.5		
Residential	1.7	2.1	1.3	1.4	1.5	1.4	1.4	1.4	1.3	-2.5	1.1	-0.3	-1.0		
Tertiary	0.0	0.0	1.0	1.0	1.0	0.8	0.7	0.7	0.5	46.9	0.3	-2.8	-3.5		
Transport	2.7	3.9	3.8	4.3	5.3	5.8	5.9	6.1	6.2	3.5	3.5	1.1	0.4		
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.2	-1.2	0.3	1.4	0.8		
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.2	3.0	2.9	2.9	-0.6	-0.4	-1.3	-0.4		
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	113.6	101.3	97.9	90.1	86.0						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: Cost Efficiency Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1	
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9	
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	234.3	204.0	190.3	176.0	173.3	-0.3	-1.6	-2.1	-0.9	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.04	1.77	1.63	1.43	1.26	-0.9	-0.7	-2.2	-2.6	
Import Dependency %	46.5	50.1	52.5	52.2	54.8	60.2	57.7	54.7	46.4					
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.3	7.2	8.1	8.6		3.7	3.3	1.7	
as % of GDP			15.6	14.5	15.5	16.2	16.7	16.9	16.5					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.4	74.5	70.4	68.1	-0.9	-1.5	-1.4	-0.9	
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	74.0	71.0	64.3	60.6	0.2	-2.3	-1.1	-1.6	
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	69.0	59.0	53.5	47.7	42.9	14.2	-3.6	-2.5	-2.2	
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	43.1	40.0	37.9	36.9	5.3	-1.5	-1.3	-0.8	
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	46.1	45.9	44.7	42.0	2.3	-1.0	0.4	-0.9	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.32	0.20	0.16	0.08	0.05	-2.0	-0.7	-6.9	-11.3	
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.81	1.72	1.63	1.57	-0.8	-0.1	-0.8	-0.9	
Industry	1.72	1.55	1.65	1.38	1.35	1.34	1.25	1.01	1.02	-0.4	-2.0	-0.7	-2.0	
Residential	1.98	1.80	1.17	1.21	1.18	1.07	1.01	0.98	0.90	-5.2	0.1	-1.6	-1.2	
Tertiary	0.17	0.13	1.65	1.76	1.70	1.49	1.27	1.18	0.90	25.7	0.3	-2.8	-3.4	
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.72	2.68	2.64	0.0	0.0	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.1	18.7	24.1	27.2	28.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.8	8.0	9.0	10.0					
Gross Electricity generation by source (in GWh)														
			13622	15114	15490	14262	16027	20372	25383		1.3	0.3	4.7	
Nuclear energy			4760	5883	5751	5751	5751	6874	6874		1.9	0.0	1.8	
Solids			4484	5229	5292	3132	2729	3837	8963		1.7	-6.4	12.6	
Oil (including refinery gas)			106	36	5	3	3	1	2		-25.9	-6.4	-4.6	
Gas (including derived gases)			321	324	208	733	1549	2729	1880		-4.3	22.2	2.0	
Biomass-waste			117	181	228	593	1880	2703	3313		6.9	23.5	5.8	
Hydro (pumping excluded)			3833	3460	4004	4043	4094	4200	4319		0.4	0.2	0.5	
Wind			0	0	2	6	19	25	30			27.1	4.4	
Solar			0	0	0	1	1	2	3			11.2	8.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2861	3188	3255	3379	3226	3603	4052		1.3	-0.1	2.3	
<u>Nuclear energy</u>			656	656	666	666	666	794	794		0.2	0.0	1.8	
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3	
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2	
Wind			0	0	2	7	22	29	34			27.1	4.4	
Solar			0	0	0	1	1	1	2			11.2	8.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			1241	1557	1607	1673	1500	1740	2165		2.6	-0.7	3.7	
of which cogeneration units			244	363	330	388	576	675	774		3.0	5.7	3.0	
Solids fired			996	1013	1029	1071	710	707	963		0.3	-3.6	3.1	
Gas fired			81	374	375	370	390	546	641		16.6	0.4	5.1	
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.4	
Biomass-waste fired			21	71	102	158	363	487	561		17.1	13.5	4.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			51.1	50.7	50.8	45.7	54.0	60.0	63.9					
Efficiency of gross thermal power generation (%)			32.2	32.9	35.4	44.2	49.0	57.5	56.6					
% of gross electricity from CHP			3.5	3.2	5.2	15.1	21.1	17.8	15.5					
Carbon free gross electricity generation (%)			63.9	63.0	64.5	72.9	73.3	67.8	57.3					
- nuclear			34.9	38.9	37.1	40.3	35.9	33.7	27.1					
- renewable energy forms			29.0	24.1	27.3	32.6	37.4	34.0	30.2					
Transport sector														
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.1	23.1	25.1	27.4	29.5	-0.5	2.1	1.8	1.6	
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.3	1.2	
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.7	22.4	24.2	25.9	3.9	2.6	1.7	1.5	
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.5	1.6	-6.8	2.6	3.3	2.5	
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	5.0	4.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	19.9	23.2	25.5	27.8	29.8	-1.1	9.3	2.5	1.6	
Trucks	4.9	3.3	5.3	11.0	15.4	17.9	19.8	21.5	22.9	0.8	11.2	2.6	1.4	
Rail	4.2	3.1	2.9	3.2	4.5	5.3	5.7	6.3	7.0	-3.8	4.8	2.3	2.0	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	928	1326	1309	1469	1839	2067	2178	2280	2339	3.5	3.5	1.7	0.7	
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	0.0	-0.4	
Private cars and motorcycles	498	727	867	828	923	958	961	987	1029	5.7	0.6	0.4	0.7	
Trucks	330	492	368	582	845	1028	1132	1202	1222	1.1	8.7	3.0	0.8	
Rail	29	29	34	29	39	44	43	42	32	1.4	1.3	1.0	-2.7	
Aviation	27	20	25	23	24	29	35	42	48	-0.8	-0.1	3.6	3.3	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovenia: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3146	3498	4857	-333	-200	808	-9.6	-5.4	20.0
Solids	1432	1062	1184	493	394	1269	-533	-712	-25	-52.0	-64.4	-1.9
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1518	0	0	156	0.0	0.0	11.4
Renewable energy sources	254	788	787	1170	1621	2070	201	512	678	20.7	46.2	48.7
Hydro	254	330	298	348	352	371	35	29	0	11.2	8.8	0.0
Biomass & Waste	0	458	489	714	1089	1431	91	369	508	14.7	51.2	55.0
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	108	178	265	74	115	170	221.9	182.5	179.2
Geothermal	0	0	0	0	0	0	0	0	0	57.6	88.0	133.5
Net Imports	2567	3369	3810	4767	4776	4210	-440	-752	-1520	-8.4	-13.6	-26.5
Solids	130	245	323	338	327	231	-46	-133	-278	-12.0	-28.9	-54.6
Oil	1798	2418	2589	2993	2988	2956	-324	-495	-764	-9.8	-14.2	-20.5
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-9.3	-13.5	-19.0
- Oil products	1202	2267	2589	2991	2987	2954	-324	-494	-763	-9.8	-14.2	-20.5
Natural gas	723	820	925	1213	1243	1110	-70	-124	-479	-5.4	-9.1	-30.1
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	7913	8274	9067	-773	-951	-712	-8.9	-10.3	-7.3
Solids	1645	1306	1539	831	721	1500	-580	-844	-303	-41.1	-54.0	-16.8
Oil	1748	2381	2560	2993	2988	2956	-324	-495	-764	-9.8	-14.2	-20.5
Natural gas	763	826	929	1213	1243	1110	-70	-124	-479	-5.4	-9.1	-30.1
Nuclear	1192	1228	1518	1483	1483	1518	0	0	156	0.0	0.0	11.4
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1170	1621	2070	201	512	678	20.7	46.2	48.7
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	10.5	8.7	16.5	-5.7	-8.3	-1.9			
Oil	31.7	37.1	35.0	37.8	36.1	32.6	-0.4	-1.6	-5.4			
Natural gas	13.8	12.9	12.7	15.3	15.0	12.2	0.6	0.2	-4.0			
Nuclear	21.6	19.1	20.8	18.7	17.9	16.7	1.7	1.8	2.8			
Renewable energy forms	4.6	12.3	10.8	14.8	19.6	22.8	3.6	7.6	8.6			
Gross Electricity Generation in GWh_e	12440	13622	15114	14262	16027	25383	-1812	-1965	1118	-11.3	-10.9	4.6
Self consumption and grid losses	1516	1625	1908	1818	1998	4216	-391	-475	1038	-17.7	-19.2	32.7
Fuel Inputs to Thermal Power Generation	1543	1342	1507	868	1081	2153	-568	-538	-21	-39.5	-33.2	-1.0
Solids	1296	1253	1411	704	580	1324	-588	-848	-336	-45.5	-59.4	-20.2
Oil (including refinery gas)	155	12	9	1	0	0	-1	-1	-1	-47.4	-60.6	-85.5
Gas (including derived gases)	92	62	58	78	155	254	-33	36	-61	-29.8	30.7	-19.4
Biomass & Waste	0	15	30	86	345	574	54	274	377	168.2	385.9	190.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	267	318	303	5	7	-35	2.0	2.1	-10.4
Refineries	540	169	1	1	1	1	0	0	0	-9.3	-13.5	-19.0
Biofuels and hydrogen production	0	0	0	117	207	274	11	38	18	10.8	22.2	7.0
District heating	53	83	89	148	110	28	-6	-31	-53	-3.8	-21.9	-65.3
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	93	97	265	-22	-29	91	-19.0	-22.7	52.0
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5688	6160	6440	-380	-565	-817	-6.1	-8.4	-11.3
by sector												
Industry	1468	1423	1655	1925	2004	2104	-44	-68	-90	-2.3	-3.3	-4.1
- energy intensive industries	728	839	1036	1226	1285	1356	-15	-29	-38	-1.2	-2.2	-2.7
- other industrial sectors	740	584	619	699	719	748	-29	-39	-52	-4.0	-5.2	-6.5
Residential	850	1122	1183	1309	1400	1429	-60	-66	-133	-4.4	-4.5	-8.5
Tertiary	122	578	573	567	578	569	-119	-161	-231	-17.4	-21.8	-28.9
Transport	928	1309	1469	2067	2178	2339	-156	-271	-363	-7.0	-11.1	-13.4
by fuel												
Solids	243	97	80	91	102	131	9	3	33	10.4	3.2	33.5
Oil	1507	2231	2392	2766	2744	2683	-322	-493	-762	-10.4	-15.2	-22.1
Gas	603	569	665	850	825	663	-32	-116	-355	-3.6	-12.4	-34.9
Electricity	837	905	1096	1282	1412	1720	-122	-128	6	-8.7	-8.3	0.4
Heat (from CHP and District Heating)	177	195	196	189	209	181	-22	-21	-28	-10.3	-9.0	-13.5
Renewable energy forms	0	435	452	689	868	1061	110	190	289	18.9	28.0	37.4
Other	0	0	0	0	1	1	0	0	0	4.1	-1.3	-9.5
RES in Gross Final Energy Consumption ^(A)		780	767	1131	1536	1945	191	467	627	20.3	43.7	47.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	18.2	17.6	15.5	-3.8	-5.6	-9.8	-17.2	-24.2	-38.8
CO₂ Emissions (energy related)	13.2	14.0	15.2	14.0	13.5	11.4	-3.5	-5.3	-9.5	-20.2	-28.0	-45.3
Power generation/District heating	6.2	5.5	6.2	3.4	3.0	1.3	-2.5	-3.5	-6.4	-43.0	-54.4	-83.2
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.6	-12.8	-32.5
Industry	2.5	2.3	2.3	2.6	2.5	2.1	-0.1	-0.2	-0.6	-2.0	-6.0	-20.8
Residential	1.7	1.3	1.4	1.4	1.4	1.3	-0.2	-0.3	-0.7	-14.3	-19.0	-33.8
Tertiary	0.0	1.0	1.0	0.8	0.7	0.5	-0.2	-0.3	-0.6	-21.6	-31.4	-53.6
Transport	2.7	3.8	4.3	5.8	5.9	6.2	-0.5	-0.9	-1.2	-8.0	-13.5	-16.3
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.1	1.1	1.2	0.0	0.0	0.0	-1.3	-2.3	-3.7
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.2	3.0	2.9	-0.2	-0.3	-0.3	-7.0	-9.8	-10.2
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	101.3	97.9	86.0	-21.1	-31.2	-54.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	204.0	190.3	173.3	-19.9	-21.9	-13.6	-8.9	-10.3	-7.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.77	1.63	1.26	-0.25	-0.40	-0.88	-12.4	-19.8	-41.0
Import Dependency %	46.5	52.5	52.2	60.2	57.7	46.4	0.3	-2.2	-12.2			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.3	7.2	8.6	0.2	0.4	0.7	3.7	5.3	8.4
as % of GDP		15.6	14.5	16.2	16.7	16.5	0.6	0.8	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.7						
as % of GDP				0.59	0.86	1.30						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.4	74.5	68.1	-1.8	-2.5	-2.9	-2.3	-3.3	-4.1
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	74.0	71.0	60.6	-3.4	-3.3	-5.6	-4.4	-4.5	-8.5
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	59.0	53.5	42.9	-12.4	-14.9	-17.5	-17.4	-21.8	-28.9
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	43.1	40.0	36.9	-0.9	-1.4	-1.6	-2.0	-3.3	-4.1
Freight transport (toe/Mtkm)	39.1	48.9	42.6	46.1	45.9	42.0	-3.0	-5.3	-6.4	-6.1	-10.3	-13.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.20	0.16	0.05	-0.11	-0.15	-0.24	-35.9	-48.9	-83.7
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.81	1.72	1.57	-0.05	-0.12	-0.24	-2.9	-6.4	-13.1
Industry	1.72	1.65	1.38	1.34	1.25	1.02	0.00	-0.04	-0.21	0.2	-2.8	-17.4
Residential	1.98	1.17	1.21	1.07	1.01	0.90	-0.12	-0.18	-0.34	-10.4	-15.2	-27.7
Tertiary	0.17	1.65	1.76	1.49	1.27	0.90	-0.08	-0.18	-0.48	-5.1	-12.3	-34.7
Transport	2.88	2.89	2.94	2.81	2.72	2.64	-0.03	-0.08	-0.09	-1.0	-2.8	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.7	24.1	28.5	28.5	4.1	8.8	11.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	8.0	10.0	0.8	2.2	2.0			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14262	16027	25383	25383	-1812	-1965	1118	-11.3	-10.9	4.6
Nuclear energy	4760	5883	5751	5751	6874	6874	0	0	705	0.0	0.0	11.4
Solids	4484	5229	3132	2729	8963	8963	-2398	-3948	-772	-43.4	-59.1	-7.9
Oil (including refinery gas)	106	36	3	3	2	2	-4	-2	-5	-54.4	-45.2	-74.6
Gas (including derived gases)	321	324	733	1549	1880	1880	-116	397	-853	-13.7	34.4	-31.2
Biomass-waste	117	181	593	1880	3313	3313	298	1257	2043	101.1	201.9	160.8
Hydro (pumping excluded)	3833	3460	4043	4094	4319	4319	408	332	0	11.2	8.8	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3379	3226	4052	4052	-134	-339	-30	-3.8	-9.5	-0.7
<u>Nuclear energy</u>	656	656	666	666	794	794	0	0	81	0.0	0.0	11.4
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1673	1500	2165	2165	-134	-339	-112	-7.4	-18.4	-4.9
of which cogeneration units	244	363	388	576	774	774	-16	-14	-8	-3.9	-2.4	-1.1
Solids fired	996	1013	1071	710	963	963	-45	-307	-241	-4.1	-30.2	-20.1
Gas fired	81	374	370	390	641	641	-155	-242	-242	-29.6	-38.3	-27.5
Oil fired	142	99	73	37	0	0	0	-23	0	0.0	-37.6	-51.4
Biomass-waste fired	21	71	158	363	561	561	67	232	372	73.5	178.7	197.1
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	45.7	54.0	63.9	63.9	-3.4	-0.2	0.5			
Efficiency of gross thermal power generation (%)	32.2	32.9	44.2	49.0	56.6	56.6	4.2	4.1	2.2			
% of gross electricity from CHP	3.5	3.2	15.1	21.1	15.5	15.5	2.0	1.8	-0.9			
Carbon free gross electricity generation (%)	63.9	63.0	72.9	73.3	57.3	57.3	12.6	16.8	8.7			
- nuclear	34.9	38.9	40.3	35.9	27.1	27.1	4.5	3.9	1.7			
- renewable energy forms	29.0	24.1	32.6	37.4	30.2	30.2	8.1	12.9	7.0			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.1	25.1	29.5	-0.5	-0.8	-1.1	-2.1	-3.0	-3.5
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.0	2.3	3.3	3.8
Private cars and motorcycles	10.0	14.7	16.8	20.7	22.4	25.9	-0.5	-0.8	-1.2	-2.5	-3.6	-4.3
Rail	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.0	0.1	2.9	4.0	5.3
Aviation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	0.0	-3.4	-4.6	-5.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.2	25.5	29.8	-0.9	-1.4	-1.8	-3.8	-5.1	-5.6
Trucks	4.9	5.3	11.0	17.9	19.8	22.9	-1.1	-1.6	-2.1	-5.7	-7.4	-8.5
Rail	4.2	2.9	3.2	5.3	5.7	7.0	0.2	0.2	0.3	3.3	4.2	5.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2067	2178	2339	-156	-271	-363	-7.0	-11.1	-13.4
Public road transport	43	15	7	8	8	7	0	0	-1	-0.7	-2.7	-11.8
Private cars and motorcycles	498	867	828	958	961	1029	-41	-63	-81	-4.1	-6.2	-7.3
Trucks	330	368	582	1028	1132	1222	-115	-205	-275	-10.1	-15.3	-18.4
Rail	29	34	29	44	43	32	1	0	-1	2.3	0.7	-3.0
Aviation	27	25	23	29	35	48	-1	-2	-5	-4.2	-6.5	-9.7
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: Cost Efficiency Scenario											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
Annual % Change															
Primary Production	33724	31355	31345	30126	35372	37276	41118	40193	45877	-0.7	1.2	1.5	1.1		
Solids	11679	10170	7740	6265	5856	3300	2356	3062	2552	-4.0	-2.8	-8.7	0.8		
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8			
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3				
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4		
Renewable energy sources	6276	5722	7185	8710	13469	18737	23673	28313	32674	1.4	6.5	5.8	3.3		
Hydro	2184	1987	2534	1681	2474	2428	2450	2498	2552	1.5	-0.2	-0.1	0.4		
Biomass & Waste	4067	3684	4205	5129	7512	9617	12021	15026	16925	0.3	6.0	4.8	3.5		
Wind	1	23	406	1825	3032	5186	6868	8081	9252	79.0	22.3	8.5	3.0		
Solar and others	21	25	33	68	441	1495	2320	2691	3926	4.5	29.7	18.1	5.4		
Geothermal	2	3	8	8	10	12	15	17	18	12.3	2.4	4.5	1.5		
Net Imports	59857	75415	98351	122830	125443	126202	122562	122555	114060	5.1	2.5	-0.2	-0.7		
Solids	7038	9146	12636	14418	15655	14877	9979	10312	6873	6.0	2.2	-4.4	-3.7		
Oil	49166	58363	69866	78279	78285	77986	77354	76646	73956	3.6	1.1	-0.1	-0.4		
- Crude oil and Feedstocks	53256	55362	58393	59850	60595	60340	60048	59792	58709	0.9	0.4	-0.1	-0.2		
- Oil products	-4091	3001	11473	18429	17690	17646	17305	16854	15248			4.4	-0.2	-1.3	
Natural gas	3690	7521	15467	30248	31239	30576	28351	26785	23279	15.4	7.3	-1.0	-2.0		
Electricity	-36	386	382	-115	264	334	225	-20	3			-3.6	-1.6	-34.6	
Gross Inland Consumption	89401	102207	122698	143487	152300	154491	154320	153145	150316	3.2	2.2	0.1	-0.3		
Solids	18942	19515	20643	20698	21511	18177	12336	13374	9425	0.9	0.4	-5.4	-2.7		
Oil	45547	54556	63223	69507	69934	69149	68094	67043	64335	3.3	1.0	-0.3	-0.6		
Natural gas	4970	7722	15219	29844	31369	30676	28351	26785	23279	11.8	7.5	-1.0	-2.0		
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4		
Electricity	-36	385	382	-115	264	334	225	-20	3			-3.6	-1.6	-34.6	
Renewable energy forms	6276	5723	7185	8711	13469	21167	30326	37145	42622	1.4	6.5	8.5	3.5		
as % in Gross Inland Consumption															
Solids	21.2	19.1	16.8	14.4	14.1	11.8	8.0	8.7	6.3						
Oil	50.9	53.4	51.5	48.4	45.9	44.8	44.1	43.8	42.8						
Natural gas	5.6	7.6	12.4	20.8	20.6	19.9	18.4	17.5	15.5						
Nuclear	15.3	14.0	13.1	10.3	10.3	9.7	9.7	5.8	7.1						
Renewable energy forms	7.0	5.6	5.9	6.1	8.8	13.7	19.7	24.3	28.4						
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	307911	317582	338662	373189	395797	4.0	3.3	1.0	1.6		
Self consumption and grid losses	21388	24573	32539	40790	38986	38862	40084	46955	49293	4.3	1.8	0.3	2.1		
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33516	29309	26184	31238	26893	4.7	2.4	-2.4	0.3		
Solids	13881	13585	18249	17641	18899	15461	9661	10900	7956	2.8	0.4	-6.5	-1.9		
Oil (including refinery gas)	2170	3654	4442	5246	1593	579	758	799	794	7.4	-9.7	-7.2	0.5		
Gas (including derived gases)	486	987	3075	11140	11125	9457	10143	12613	10318	20.3	13.7	-0.9	0.2		
Biomass & Waste	145	377	694	1389	1899	3811	5622	6931	7819	16.9	10.6	11.5	3.4		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	57883	58965	63144	63843	64756	66514	67247	66728	65440	0.9	0.3	0.4	-0.3		
Refineries	53753	56041	60048	60507	60330	60302	60085	59795	58747	1.1	0.0	0.0	-0.2		
Biofuels and hydrogen production	0	0	65	259	2185	4078	5426	5552	5572			42.1	9.5	0.3	
District heating	0	0	0	0	0	0	0	0	0			-0.2	-2.7		
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2134	1736	1380	1121	-3.0	-3.0	-2.5	-4.3		
Energy Branch Consumption	4757	5473	6118	6397	5753	5730	5673	5879	5788	2.5	-0.6	-0.1	0.2		
Non-Energy Uses	5847	8006	9094	7823	8080	8580	9063	9401	9585	4.5	-1.2	1.2	0.6		
Final Energy Demand	56647	63536	79422	97170	106261	111284	113218	113874	112911	3.4	3.0	0.6	0.0		
by sector															
Industry	20014	20476	25474	31036	33980	36470	38157	38546	38673	2.4	2.9	1.2	0.1		
- energy intensive industries	13069	13620	17260	20421	22150	23750	24490	24534	24512	2.8	2.5	1.0	0.0		
- other industrial sectors	6945	6856	8213	10615	11830	12720	13667	14012	14162	1.7	3.7	1.5	0.4		
Residential	9266	9986	11871	15150	16464	16725	16364	15955	15398	2.5	3.3	-0.1	-0.6		
Tertiary	5041	7007	9219	11556	11729	11483	11278	11129	10839	6.2	2.4	-0.4	-0.4		
Transport	22326	26069	32858	39428	44089	46607	47419	48244	47999	3.9	3.0	0.7	0.1		
by fuel															
Solids	3524	2235	1671	1782	1614	1812	1922	1874	987	-7.2	-0.3	1.8	-6.4		
Oil	33488	38971	45784	52776	56083	55882	54278	52980	50726	3.2	2.0	-0.3	-0.7		
Gas	4873	6841	12141	17978	20121	20955	17809	13616	12290	9.6	5.2	-1.2	-3.6		
Electricity	10817	12116	16205	20827	22832	23743	25350	27539	29291	4.1	3.5	1.1	1.5		
Heat (from CHP and District Heating)	0	39	74	0	18	22	27	28	25			-13.1	4.0	-0.6	
Renewable energy forms	3945	3335	3547	3806	5590	8862	13819	17822	19575	-1.1	4.7	9.5	3.5		
Other	0	0	0	0	3	7	14	16	16			15.4	1.8		
RES in Gross Final Energy Consumption ^(A)			6709	8189	12609	19852	28568	35279	40043		6.5	8.5	3.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	458.3	433.7	398.1	395.9	364.7	3.1	1.7	-1.4	-0.9		
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	345.6	326.6	293.6	290.0	257.5	3.4	2.0	-1.6	-1.3		
Power generation/District heating	63.6	68.2	94.1	113.2	106.2	85.2	64.4	75.3	58.5	4.0	1.2	-4.9	-1.0		
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.5	13.3	13.1	11.4	1.6	0.0	-0.2	-1.6		
Industry	41.9	43.4	48.9	58.2	63.4	65.2	57.8	46.1	37.8	1.6	2.6	-0.9	-4.2		
Residential	12.9	13.6	16.4	20.4	20.7	19.1	16.5	13.1	10.3	2.5	2.3	-2.2	-4.6		
Tertiary	7.7	10.5	12.9	16.2	15.6	14.7	13.9	13.1	12.0	5.3	1.9	-1.2	-1.4		
Transport	65.6	76.9	97.3	116.7	126.1	128.9	127.7	129.3	127.5	4.0	2.6	0.1	0.0		
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.8	40.3	39.7	38.9	38.1	1.6	2.9	0.2	-0.4		
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	66.8	64.8	67.0	69.1	2.5	-0.2	-1.3	0.7		
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	159.6	151.1	138.6	137.9	127.0						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Spain: Cost Efficiency Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Int. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.0	124.4	109.4	98.4	89.8	0.2	-1.0	-2.6	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.11	1.90	1.89	1.71	0.1	-0.2	-1.7	-1.0
Import Dependency %	64.2	71.6	76.5	81.2	78.0	77.2	74.9	75.3	71.3				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	102.0	119.9	138.1	152.2	163.0		3.6	3.1	1.7
as % of GDP			9.2	9.1	9.6	9.7	9.8	9.8	9.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	98.8	90.3	83.5	79.1	0.3	0.8	-1.8	-1.3
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	100.2	88.0	76.3	67.8	61.2	-0.4	0.0	-2.7	-2.2
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.2	78.3	67.6	60.8	55.4	3.8	-0.7	-3.2	-2.0
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.5	36.1	34.8	34.1	0.6	-0.4	-1.2	-0.6
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	58.0	54.0	51.1	48.1	-2.3	-1.3	-1.2	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.27	0.19	0.20	0.15	0.0	-2.0	-5.8	-2.5
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.13	2.05	1.91	1.77	1.66	-0.2	-0.4	-1.1	-1.4
Industry	2.10	2.12	1.92	1.87	1.87	1.79	1.51	1.20	0.98	-0.9	-0.3	-2.1	-4.3
Residential	1.39	1.36	1.39	1.34	1.26	1.14	1.01	0.82	0.67	0.0	-1.0	-2.2	-4.0
Tertiary	1.53	1.50	1.40	1.40	1.33	1.28	1.23	1.18	1.11	-0.9	-0.5	-0.8	-1.0
Transport	2.94	2.95	2.96	2.96	2.86	2.77	2.69	2.68	2.66	0.1	-0.3	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.5	17.3	24.5	29.9	34.2				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	8.6	11.5	11.9	12.3				
Gross Electricity generation by source (in GWh)													
			222776	290555	307911	317582	338662	373189	395797		3.3	1.0	1.6
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	68381	44409	60276	46124		0.3	-5.9	0.4
Oil (including refinery gas)			19567	23770	8411	3820	4948	5172	5222		-8.1	-5.2	0.5
Gas (including derived gases)			24741	85513	84302	79322	78066	77177	61942		13.0	-0.8	-2.3
Biomass-waste			3374	5457	8279	17885	37879	63743	74021		9.4	16.4	6.9
Hydro (pumping excluded)			29465	19549	28771	28230	28484	29049	29674		-0.2	-0.1	0.4
Wind			4723	21215	35251	60298	79860	93965	107586		22.3	8.5	3.0
Solar			18	78	674	1549	6580	9242	22315		43.7	25.6	13.0
Geothermal and other renewables			0	0	0	0	340	389	424				2.2
Net Generation Capacity in MW_e			60718	80297	92105	101208	112408	120448	142582		4.3	2.0	2.4
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40537	51281	59585	80963		7.4	5.3	4.7
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25718	33080	39616	52441		22.0	7.3	4.7
Solar			14	52	435	998	4202	5945	14480		41.5	25.5	13.2
Other renewables (tidal etc.)			0	0	0	0	176	202	220				2.2
<u>Thermal power</u>			38166	50004	54056	53685	54140	56756	56019		3.5	0.0	0.3
of which cogeneration units			5017	7578	8141	9286	10471	11417	11337		5.0	2.5	0.8
Solids fired			11352	11485	11277	10503	10163	10311	9605		-0.1	-1.0	-0.6
Gas fired			19801	32257	35544	34165	32637	30874	30374		6.0	-0.8	-0.7
Oil fired			6518	5375	5589	5203	3912	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1646	3814	7429	12323	13536		12.8	16.3	6.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	36.9	34.7	33.3	34.0	30.6				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.7	49.7	54.3	56.8	59.9				
% of gross electricity from CHP			7.4	13.5	12.5	15.3	18.6	19.0	18.2				
Carbon free gross electricity generation (%)			44.8	35.7	43.5	52.3	62.4	61.8	71.4				
- nuclear			27.9	19.8	19.8	18.3	17.2	9.2	12.3				
- renewable energy forms			16.9	15.9	23.7	34.0	45.2	52.6	59.1				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	686.6	750.8	804.8	840.0	5.3	2.9	2.1	1.1
Public road transport	33.4	39.6	50.3	54.6	57.8	60.9	64.2	66.8	69.1	4.2	1.4	1.1	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	470.0	504.9	531.1	544.6	5.5	3.1	1.8	0.8
Rail	19.9	20.8	25.4	27.2	29.7	32.4	36.6	42.2	48.2	2.5	1.6	2.1	2.8
Aviation	39.5	51.4	73.6	82.2	99.3	121.0	142.7	162.3	175.7	6.4	3.0	3.7	2.1
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	347.2	375.4	395.7	401.3	4.1	5.1	1.8	0.7
Trucks	83.8	101.6	148.7	233.2	267.4	293.0	315.4	333.3	337.8	5.9	6.0	1.7	0.7
Rail	11.2	11.0	11.6	11.1	12.8	14.6	16.2	17.3	17.7	0.4	1.0	2.4	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	39.7	43.8	45.1	45.7	-0.6	1.3	2.2	0.4
Energy demand in transport (ktoe)	22326	26069	32858	39428	44089	46607	47419	48244	47999	3.9	3.0	0.7	0.1
Public road transport	224	221	275	284	283	279	277	267	269	2.1	0.3	-0.2	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17626	18206	18243	18267	18234	6.2	2.1	0.3	0.0
Trucks	9634	9647	11587	14854	16950	17693	17677	17653	17166	1.9	3.9	0.4	-0.3
Rail	528	626	847	1166	1233	1309	1333	1277	902	4.8	3.8	0.8	-3.8
Aviation	2456	3105	4486	5323	6324	7313	7967	8840	9501	6.2	3.5	2.3	1.8
Inland navigation	1655	1871	1378	1534	1673	1808	1923	1939	1928	-1.8	2.0	1.4	0.0

Source: PRIMES

Spain: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	37276	41118	45877	870	569	6629	2.4	1.4	16.9
Solids	11679	7740	6265	3300	2356	2552	-1364	-1895	-25	-29.3	-44.6	-1.0
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	-1082.4
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Renewable energy sources	6276	7185	8710	18737	23673	32674	2235	2464	6655	13.5	11.6	25.6
Hydro	2184	2534	1681	2428	2450	2552	184	151	0	8.2	6.6	0.0
Biomass & Waste	4067	4205	5129	9617	12021	16925	1039	620	1996	12.1	5.4	13.4
Wind	1	406	1825	5186	6868	9252	1	145	1960	0.0	2.2	26.9
Solar and others	21	33	68	1495	2320	3926	1006	1541	2690	205.6	197.8	217.5
Geothermal	2	8	8	12	15	18	4	7	9	48.9	82.8	114.9
Net Imports	59857	98351	122830	126202	122562	114060	-13884	-18170	-28612	-9.9	-12.9	-20.1
Solids	7038	12636	14418	14877	9979	6873	-1926	-7414	-16832	-11.5	-42.6	-71.0
Oil	49166	69866	78279	77986	77354	73956	-4150	-7068	-11288	-5.1	-8.4	-13.2
- Crude oil and Feedstocks	53256	58393	59850	60340	60048	58709	-2856	-4797	-6876	-4.5	-7.4	-10.5
- Oil products	-4091	11473	18429	17646	17305	15248	-1294	-2272	-4413	-6.8	-11.6	-22.4
Natural gas	3690	15467	30248	30576	28351	23279	-9988	-10010	-10007	-24.6	-26.1	-30.1
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	154491	154320	150316	-13008	-17586	-21962	-7.8	-10.2	-12.7
Solids	18942	20643	20698	18177	12336	9425	-3291	-9309	-16858	-15.3	-43.0	-64.1
Oil	45547	63223	69507	69149	68094	64335	-4144	-7053	-11268	-5.7	-9.4	-14.9
Natural gas	4970	15219	29844	30676	28351	23279	-9988	-10010	-10007	-24.6	-26.1	-30.1
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	21167	30326	42622	4415	8786	16170	26.4	40.8	61.1
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	11.8	8.0	6.3	-1.1	-4.6	-9.0			
Oil	50.9	51.5	48.4	44.8	44.1	42.8	1.0	0.4	-1.1			
Natural gas	5.6	12.4	20.8	19.9	18.4	15.5	-4.4	-3.9	-3.8			
Nuclear	15.3	13.1	10.3	9.7	9.7	7.1	0.8	1.0	0.9			
Renewable energy forms	7.0	5.9	6.1	13.7	19.7	28.4	3.7	7.1	13.0			
Gross Electricity Generation in GWh_e	150944	222776	290555	317582	338662	395797	-46179	-48157	-20997	-12.7	-12.4	-5.0
Self consumption and grid losses	21388	32539	40790	38862	40084	49293	-6019	-7805	-6041	-13.4	-16.3	-10.9
Fuel Inputs to Thermal Power Generation	16682	26461	35416	29309	26184	26893	-10132	-12076	-12939	-25.7	-31.6	-32.5
Solids	13881	18249	17641	15461	9661	7956	-3604	-9670	-16237	-18.9	-50.0	-67.1
Oil (including refinery gas)	2170	4442	5246	579	758	799	22	154	73	4.0	25.6	10.1
Gas (including derived gases)	486	3075	11140	9457	10143	10318	-8560	-3309	1801	-47.5	-24.6	21.1
Biomass & Waste	145	694	1389	3811	5622	7819	2010	749	1424	111.5	15.4	22.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	66514	67247	65440	-2163	-3686	-6558	-3.1	-5.2	-9.1
Refineries	53753	60048	60507	60302	60085	58747	-2855	-4797	-6876	-4.5	-7.4	-10.5
Biofuels and hydrogen production	0	65	259	4078	5426	5572	427	1022	401	11.7	23.2	7.8
District heating	0	0	0	0	0	0	0	0	0	-14.0	-9.9	-35.1
Derived gases, cokeries etc.	4131	3031	3077	2134	1736	1121	265	89	-83	14.2	5.4	-6.9
Energy Branch Consumption	4757	6118	6397	5730	5673	5788	-245	-478	-761	-4.1	-7.8	-11.6
Non-Energy Uses	5847	9094	7823	8580	9063	9585	-20	-18	-28	-0.2	-0.2	-0.3
Final Energy Demand	56647	79422	97170	111234	113218	112911	-6371	-9440	-13238	-5.4	-7.7	-10.5
by sector												
Industry	20014	25474	31036	36470	38157	38673	-907	-1233	-1859	-2.4	-3.1	-4.6
- energy intensive industries	13069	17260	20421	23750	24490	24512	-402	-650	-1070	-1.7	-2.6	-4.2
- other industrial sectors	6945	8213	10615	12720	13667	14162	-506	-583	-789	-3.8	-4.1	-5.3
Residential	9266	11871	15150	16725	16364	15398	-941	-1404	-2265	-5.3	-7.9	-12.8
Tertiary	5041	9219	11556	11483	11278	10839	-1972	-2473	-3133	-14.7	-18.0	-22.4
Transport	22326	32858	39428	46607	47419	47999	-2550	-4330	-5981	-5.2	-8.4	-11.1
by fuel												
Solids	3524	1671	1782	1812	1922	987	221	320	-611	13.9	20.0	-38.2
Oil	33488	45784	52776	55882	54278	50726	-4061	-7047	-10701	-6.8	-11.5	-17.4
Gas	4873	12141	17978	20955	17809	12290	-1208	-6468	-11739	-5.5	-26.6	-48.9
Electricity	10817	16205	20827	23743	25350	29291	-3445	-3449	-1246	-12.7	-12.0	-4.1
Heat (from CHP and District Heating)	0	74	0	22	27	25	1	-1	1	6.5	-2.3	3.9
Renewable energy forms	3945	3547	3806	8862	13819	19575	2121	7203	11059	31.5	108.9	129.9
Other	0	0	0	7	14	16	1	1	0	9.8	6.3	-2.5
RES in Gross Final Energy Consumption ^(A)		6709	8189	19852	28568	40043	4378	8863	15883	28.3	45.0	65.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	433.7	398.1	364.7	-57.4	-93.8	-137.8	-11.7	-19.1	-27.4
CO₂ Emissions (energy related)	203.3	283.2	339.4	326.6	293.6	257.5	-49.2	-81.7	-123.8	-13.1	-21.8	-32.5
Power generation/District heating	63.6	94.1	113.2	85.2	64.4	58.5	-34.5	-45.7	-59.5	-28.8	-41.5	-50.4
Energy Branch	11.5	13.6	14.7	13.5	13.3	11.4	-0.5	-0.7	-1.7	-3.3	-5.1	-13.1
Industry	41.9	48.9	58.2	65.2	57.8	37.8	-1.0	-12.3	-29.5	-1.5	-17.5	-43.8
Residential	12.9	16.4	20.4	19.1	16.5	10.3	-2.5	-4.4	-9.6	-11.5	-21.2	-48.2
Tertiary	7.7	12.9	16.2	14.7	13.9	12.0	-1.8	-2.4	-3.3	-11.1	-14.9	-21.4
Transport	65.6	97.3	116.7	128.9	127.7	127.5	-8.9	-16.1	-20.2	-6.4	-11.2	-13.7
CO₂ Emissions (non energy related)	24.9	29.2	36.5	40.3	39.7	38.1	-0.4	-1.1	-1.6	-1.0	-2.8	-4.0
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	66.8	64.8	69.1	-7.8	-11.1	-12.4	-10.5	-14.6	-15.2
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	151.1	138.6	127.0	-20.0	-32.7	-48.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Spain: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	124.4	109.4	89.8	-10.5	-12.5	-13.1	-7.8	-10.2	-12.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.11	1.90	1.71	-0.13	-0.28	-0.50	-5.8	-12.8	-22.6
Import Dependency %	64.2	76.5	81.2	77.2	74.9	71.3	-2.2	-2.8	-7.1			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	119.9	138.1	163.0	6.4	9.6	17.2	5.6	7.5	11.8
as % of GDP		9.2	9.1	9.7	9.8	9.7	0.5	0.7	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				6.5	9.8	17.5						
as % of GDP				0.53	0.70	1.04						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	98.8	90.3	79.1	-2.5	-2.9	-3.8	-2.4	-3.1	-4.6
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	88.0	76.3	61.2	-4.9	-6.5	-9.0	-5.3	-7.9	-12.8
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	78.3	67.6	55.4	-13.4	-14.8	-16.0	-14.7	-18.0	-22.4
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.5	36.1	34.1	-0.7	-1.2	-1.8	-1.9	-3.1	-5.1
Freight transport (toe/Mtkm)	87.8	69.3	61.1	58.0	54.0	48.1	-2.5	-4.5	-5.9	-4.1	-7.7	-11.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.27	0.19	0.15	-0.06	-0.09	-0.14	-18.5	-33.2	-47.8
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.05	1.91	1.66	-0.01	-0.14	-0.32	-0.5	-6.9	-16.2
Industry	2.10	1.92	1.87	1.79	1.51	0.98	0.02	-0.26	-0.68	0.9	-14.9	-41.1
Residential	1.39	1.39	1.34	1.14	1.01	0.67	-0.08	-0.17	-0.46	-6.6	-14.4	-40.6
Tertiary	1.53	1.40	1.40	1.28	1.23	1.11	0.05	0.04	0.01	4.2	3.8	1.3
Transport	2.94	2.96	2.96	2.77	2.69	2.66	-0.04	-0.08	-0.08	-1.3	-3.1	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	17.3	24.5	34.2	4.6	8.9	15.7			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	8.6	11.5	12.3	1.3	3.0	2.3			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	62195	57529	58096	58096	48490	48490	0	0	0	0.0	0.0	0.0
Solids	78694	77443	68381	44409	46124	46124	-13512	-43061	-86805	-16.5	-49.2	-65.3
Oil (including refinery gas)	19567	23770	3820	4948	5222	5222	72	1082	1251	1.9	28.0	31.5
Gas (including derived gases)	24741	85513	79322	78066	61942	61942	-44627	-28639	-16658	-36.0	-26.8	-21.2
Biomass-waste	3374	5457	17885	37879	74021	74021	9523	14944	41688	113.9	65.2	128.9
Hydro (pumping excluded)	29465	19549	28230	28484	29674	29674	2135	1759	0	8.2	6.6	0.0
Wind	4723	21215	60298	79860	107586	107586	17	1683	22788	0.0	2.2	26.9
Solar	18	78	1549	6580	22315	22315	212	3736	16314	15.8	131.4	271.9
Geothermal and other renewables	0	0	0	340	424	424	0	340	424			
Net Generation Capacity in MW_e	60718	80297	101208	112408	142582	142582	2475	3274	25124	2.5	3.0	21.4
<u>Nuclear energy</u>	7579	7579	6986	6986	5600	5600	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	14974	22714	40537	51281	80963	80963	141	1937	24774	0.3	3.9	44.1
Hydro (pumping excluded)	12725	12725	13820	13822	13822	13822	0	0	0	0.0	0.0	0.0
Wind	2235	9937	25718	33080	52441	52441	7	-612	13932	0.0	-1.8	36.2
Solar	14	52	998	4202	14480	14480	134	2372	10622	15.5	129.6	275.3
Other renewables (tidal etc.)	0	0	0	176	220	220	0	176	220			
<u>Thermal power</u>	38166	50004	53685	54140	56019	56019	2334	1337	350	4.5	2.5	0.6
of which cogeneration units	5017	7578	9286	10471	11337	11337	1234	15	-145	15.3	0.1	-1.3
Solids fired	11352	11485	10503	10163	9605	9605	-68	-1179	-6773	-0.6	-10.4	-41.4
Gas fired	19801	32257	34165	32637	30374	30374	-302	-1246	-1430	-0.9	-3.7	-4.5
Oil fired	6518	5375	5203	3912	2504	2504	-14	-14	0	-0.3	-0.3	0.0
Biomass-waste fired	495	887	3814	7429	13536	13536	2717	3775	8553	247.7	103.3	171.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	34.7	33.3	30.6	30.6	-6.1	-5.8	-8.1			
Efficiency of gross thermal power generation (%)	41.1	46.7	49.7	54.3	59.9	59.9	2.2	4.6	6.4			
% of gross electricity from CHP	7.4	13.5	15.3	18.6	18.2	18.2	4.0	4.0	3.5			
Carbon free gross electricity generation (%)	44.8	35.7	52.3	62.4	71.4	71.4	9.9	13.6	23.1			
- nuclear	27.9	19.8	18.3	17.2	12.3	12.3	2.3	2.1	0.6			
- renewable energy forms	16.9	15.9	34.0	45.2	59.1	59.1	7.6	11.4	22.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	33.4	50.3	54.6	60.9	64.2	69.1	1.5	2.2	2.7	2.5	3.5	4.0
Private cars and motorcycles	182.0	310.7	369.2	470.0	504.9	544.6	-11.3	-18.3	-23.4	-2.4	-3.5	-4.1
Rail	19.9	25.4	27.2	32.4	36.6	48.2	0.2	0.7	1.5	0.6	1.8	3.3
Aviation	39.5	73.6	82.2	121.0	142.7	175.7	-3.7	-6.2	-8.7	-3.0	-4.1	-4.7
Inland navigation	2.1	1.9	2.1	2.3	2.4	2.4	0.0	0.0	0.0	-1.1	-1.0	-1.1
Freight transport activity (Gtkm)												
Trucks	83.8	148.7	233.2	293.0	315.4	337.8	-12.0	-17.9	-22.0	-3.9	-5.4	-6.1
Rail	11.2	11.6	11.1	14.6	16.2	17.7	0.6	0.9	1.2	4.5	6.1	7.2
Inland navigation	33.0	31.0	32.0	39.7	43.8	45.7	0.5	0.9	1.0	1.4	2.0	2.3
Energy demand in transport (ktoe)												
Public road transport	224	275	284	279	277	269	0	-3	-18	0.0	-1.2	-6.1
Private cars and motorcycles	7830	14286	16266	18206	18243	18234	-728	-1140	-1315	-3.8	-5.9	-6.7
Trucks	9634	11587	14854	17693	17677	17166	-1555	-2688	-3461	-8.1	-13.2	-16.8
Rail	528	847	1166	1309	1333	902	22	25	-37	1.7	1.9	-3.9
Aviation	2456	4486	5323	7313	7967	9501	-287	-517	-1171	-3.8	-6.1	-11.0
Inland navigation	1655	1378	1534	1808	1923	1928	-2	-7	20	-0.1	-0.4	1.1

Source: PRIMES

Sweden: Cost Efficiency Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)								
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	29728	31514	30077	34378	35798	37163	36115	35552	34757	0.1	1.8	0.1	-0.4	
Solids	216	321	231	302	299	99	59	7	5	0.7	2.6	-14.9	-21.6	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19475	19476	16828	14556	12006	-1.8	2.8	-1.5	-3.3	
Renewable energy sources	11745	13149	15065	15406	16023	17589	19227	20989	22746	2.5	0.6	1.8	1.7	
Hydro	6234	5856	6757	6260	6259	6269	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9158	10631	12227	13239	13685	4.1	1.0	2.9	1.1	
Wind	1	9	39	80	570	572	579	1317	2611	54.2	30.7	0.2	16.3	
Solar and others	3	5	5	6	36	117	141	153	169	5.3	21.1	14.6	1.8	
Geothermal	0	0	0	0	0	0	0	0	0			4.8	-0.6	
Net Imports	17923	19281	19172	19867	20486	19443	18750	18462	17441	0.7	0.7	-0.9	-0.7	
Solids	2329	2657	2340	2462	2902	3182	3093	3012	2561	0.0	2.2	0.6	-1.9	
Oil	15169	16014	15654	17198	17514	16239	15222	14972	14639	0.3	1.1	-1.4	-0.4	
- Crude oil and Feedstocks	16989	17815	20372	19825	20256	19435	18759	18556	18303	1.8	-0.1	-0.8	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2742	-3196	-3536	-3584	-3664					
Natural gas	577	755	776	843	999	1485	1846	1802	1599	3.0	2.6	6.3	-1.4	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54247	54497	52681	51747	49856	0.1	1.3	-0.3	-0.5	
Solids	2677	2893	2442	2626	3201	3280	3152	3019	2566	-0.9	2.7	-0.2	-2.0	
Oil	14555	15754	14382	14646	15477	14130	13039	12705	12297	-0.1	0.7	-1.7	-0.6	
Natural gas	577	755	776	843	999	1485	1846	1802	1599	3.0	2.6	6.3	-1.4	
Nuclear	17764	18040	14781	18670	19475	19476	16828	14556	12006	-1.8	2.8	-1.5	-3.3	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16023	17589	19227	20989	22746	2.5	0.6	1.8	1.7	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.0	6.0	5.8	5.1					
Oil	30.9	31.2	30.1	28.4	28.5	25.9	24.8	24.6	24.7					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.5	3.5	3.2					
Nuclear	37.7	35.8	30.9	36.2	35.9	35.7	31.9	28.1	24.1					
Renewable energy forms	24.9	26.1	31.5	29.9	29.5	32.3	36.5	40.6	45.6					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166954	179375	178300	186774	195157	0.0	1.4	0.7	0.9	
Self consumption and grid losses	13436	14222	14818	15557	16991	17629	17601	19606	20019	1.0	1.4	0.4	1.3	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3927	4053	4692	5546	4989	8.1	1.9	1.8	0.6	
Solids	558	705	467	494	543	10	0	0	0	-1.8	1.5			
Oil (including refinery gas)	253	737	276	316	44	22	21	1	1	0.9	-16.8	-7.0	-30.1	
Gas (including derived gases)	253	406	414	490	4	16	12	0	0	5.0	-37.5	12.3	-37.1	
Biomass & Waste	427	1398	2083	3166	3336	4006	4659	5545	4988	17.2	4.8	3.4	0.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24200	23417	22808	22321	21774	2.1	-0.4	-0.6	-0.5	
Refineries	18041	19475	21618	20537	20234	19425	18754	18554	18302	1.8	-0.7	-0.8	-0.2	
Biofuels and hydrogen production	0	0	0	210	436	697	966	1033	1123			8.3	1.5	
District heating	1123	2373	1973	1722	1583	1350	1176	859	658	5.8	-2.2	-2.9	-5.6	
Derived gases, cokeries etc.	1415	1615	1704	1835	1947	1945	1912	1876	1691	1.9	1.3	-0.2	-1.2	
Energy Branch Consumption	1758	1629	1532	1424	1539	1587	1586	1646	1573	-1.4	0.0	0.3	-0.1	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2602	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34371	35302	35244	35318	35991	0.9	0.3	0.3	0.2	
by sector														
Industry	11857	11527	12047	12042	13159	14488	15143	15421	16237	0.2	0.9	1.4	0.7	
- energy intensive industries	8574	8572	9161	9204	9942	10996	11488	11674	12346	0.7	0.8	1.5	0.7	
- other industrial sectors	3283	2955	2886	2838	3217	3493	3655	3746	3890	-1.3	1.1	1.3	0.6	
Residential	6840	8032	7546	7882	7826	7347	6702	6349	6129	1.0	0.4	-1.5	-0.9	
Tertiary	4555	5378	5581	4577	4493	4480	4341	4336	4283	2.1	-2.1	-0.3	-0.1	
Transport	7263	7666	8128	8643	8893	8986	9057	9212	9342	1.1	0.9	0.2	0.3	
by fuel														
Solids	1231	1192	1141	1345	1618	2209	2104	2041	1687	-0.8	3.6	2.7	-2.2	
Oil	12004	12567	12341	11087	11293	10153	9762	9629	9455	0.3	-0.9	-1.4	-0.3	
Gas	587	611	673	746	1523	1983	2005	1969	1588	1.4	8.5	2.8	-2.3	
Electricity	10348	10711	11068	11382	11697	12176	12164	12831	13508	0.7	0.6	0.4	1.1	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3728	3240	2814	2129	1832	7.6	0.5	-2.8	-4.2	
Renewable energy forms	4639	3981	4528	4410	4510	5539	6392	6715	7916	-0.2	0.0	3.6	2.2	
Other	0	0	0	0	1	2	3	4	4			14.6	2.7	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14602	16250	17647	18950	21207		-0.1	1.9	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.3	67.7	64.7	62.9	59.5	-0.1	-0.1	-1.0	-0.8	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.7	48.4	45.8	44.5	41.5	0.0	0.0	-1.0	-1.0	
Power generation/District heating	6.3	7.9	5.1	5.5	3.5	1.2	0.5	0.0	0.0	-2.0	-3.7	-18.1		
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.4	2.0	2.0	1.8	2.3	1.3	-0.7	-1.2	
Industry	11.6	12.5	11.0	12.2	16.1	16.8	15.9	15.3	12.6	-0.5	3.9	-0.1	-2.3	
Residential	4.8	4.6	3.7	1.4	1.5	1.3	1.2	0.9	0.6	-2.6	-8.4	-2.7	-6.1	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.8	2.7	2.6	2.6	0.0	-6.2	-0.8	-0.4	
Transport	20.7	21.8	23.2	24.0	24.3	23.9	23.4	23.7	23.8	1.1	0.5	-0.4	0.1	
CO ₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.7	6.6	6.5	6.4	-0.3	0.7	-0.5	-0.3	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.6	12.4	11.9	11.7			-1.0	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.7	92.8	88.7	86.2	81.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Int. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.5	144.0	125.1	111.5	99.2	-1.9	-1.4	-2.5	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.93	0.89	0.87	0.86	0.83	-0.1	-1.2	-0.7	-0.4
Import Dependency %	37.5	37.5	39.0	37.2	36.4	34.3	34.2	34.2	33.4				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.1	39.4	43.5	47.3	50.6		3.8	2.2	1.5
as % of GDP			9.5	10.7	10.5	10.4	10.3	10.2	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.7	71.8	66.7	61.5	59.9	-5.6	-2.9	-1.1	-1.1
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	83.9	71.1	59.0	51.3	46.0	-0.7	-1.7	-3.5	-2.5
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.4	56.1	48.8	44.0	39.9	0.5	-4.5	-2.6	-2.0
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	35.1	33.6	32.0	30.6	-0.6	-0.9	-0.9	-0.9
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	39.4	36.2	34.8	33.6	1.3	-0.3	-1.7	-0.8
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.00	-3.1	-4.7		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.31	1.27	1.23	1.20	1.10	-0.7	0.0	-0.6	-1.1
Industry	0.97	1.08	0.91	1.01	1.23	1.16	1.05	0.99	0.78	-0.6	3.0	-1.5	-3.0
Residential	0.70	0.57	0.49	0.18	0.20	0.18	0.18	0.14	0.10	-3.5	-8.7	-1.2	-5.3
Tertiary	1.23	1.00	1.00	0.68	0.65	0.62	0.62	0.61	0.61	-2.0	-4.1	-0.5	-0.3
Transport	2.85	2.85	2.85	2.77	2.74	2.66	2.59	2.57	2.54	0.0	-0.4	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.7	44.0	47.9	51.2	56.2				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.0	9.9	10.7	11.7				
Gross Electricity generation by source (in GWh)													
			145524	158341	166954	179375	178300	186774	195157		1.4	0.7	0.9
Nuclear energy			57306	72364	75517	75565	65297	56486	46583		2.8	-1.4	-3.3
Solids			1141	1241	785	266	0	0	0		-3.7	-53.6	
Oil (including refinery gas)			1828	1004	261	192	144	3	3		-17.7	-5.8	-32.1
Gas (including derived gases)			1714	1394	154	190	72	1	1		-21.4	-7.4	-38.3
Biomass-waste			4508	8607	10826	23607	33021	41939	45175		9.2	11.8	3.2
Hydro (pumping excluded)			78570	72795	72776	72900	73024	73024	73024		-0.8	0.0	0.0
Wind			457	936	6632	6651	6735	15309	30357		30.7	0.2	16.3
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	35997	36222	35601	41514	49344		1.0	-0.1	3.3
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	18268	18286	18324	21238	26846		1.4	0.0	3.9
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	2607	2613	2641	5617	11210		27.4	0.1	15.6
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8685	8490	7828	10827	13049		2.2	-1.0	5.2
of which cogeneration units			3791	4762	3306	4060	4245	4182	4460		-1.4	2.5	0.5
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	537	498	2504	4422		1.3	-1.6	24.4
Oil fired			4271	4366	4135	3022	1586	1573	1489		-0.3	-9.1	-0.6
Biomass-waste fired			1389	1842	3292	4642	5513	6535	7006		9.0	5.3	2.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	51.5	54.8	55.3	49.5	43.6				
Efficiency of gross thermal power generation (%)			24.4	23.6	26.3	51.5	60.9	65.0	77.9				
% of gross electricity from CHP			5.9	7.5	5.8	11.5	13.7	12.9	13.5				
Carbon free gross electricity generation (%)			96.8	97.7	99.3	99.6	99.9	100.0	100.0				
- nuclear			39.4	45.7	45.2	42.1	36.6	30.2	23.9				
- renewable energy forms			57.4	52.0	54.0	57.5	63.3	69.8	76.1				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	154.4	165.3	175.9	186.9	196.9	1.1	1.4	1.3	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.5	9.9	10.3	10.7	1.7	-0.3	0.7	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	112.9	118.6	125.3	130.8	0.6	1.4	1.0	1.0
Rail	8.6	8.8	10.2	11.0	12.2	13.9	15.4	16.1	17.5	1.7	1.8	2.3	1.3
Aviation	8.1	10.8	13.8	15.6	18.8	21.7	24.5	27.4	30.1	5.4	3.1	2.7	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.3	7.5	7.7	7.8	-1.3	0.0	0.4	0.4
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	74.6	81.0	87.1	93.2	98.8	1.4	1.9	1.6	1.3
Trucks	26.5	31.6	35.6	38.6	42.3	44.5	47.2	50.8	53.8	3.0	1.7	1.1	1.3
Rail	19.1	19.4	19.5	21.7	25.1	28.7	31.6	33.6	36.1	0.2	2.6	2.3	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.8	8.9	-1.8	0.6	1.3	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	8893	8986	9057	9212	9342	1.1	0.9	0.2	0.3
Public road transport	230	275	189	156	146	143	141	140	139	-2.0	-2.5	-0.4	-0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4433	4430	4364	4301	0.2	0.8	0.0	-0.3
Trucks	1872	2066	2471	2695	2863	2827	2791	2886	2959	2.8	1.5	-0.3	0.6
Rail	252	273	299	332	368	386	388	376	382	1.7	2.1	0.5	-0.2
Aviation	760	849	928	846	936	1051	1159	1294	1409	2.0	0.1	2.2	2.0
Inland navigation	143	103	154	141	143	146	149	152	151	0.8	-0.8	0.4	0.1

Source: PRIMES

Sweden: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	37163	36115	34757	468	-1201	-3711	1.3	-3.2	-9.6
Solids	216	231	302	99	59	5	-207	-211	-140	-67.8	-78.1	-96.4
Oil	3	0	0	0	0	0	0	0	0	-733.3	-220.0	181.8
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19476	16828	12006	0	-2649	-7473	0.0	-13.6	-38.4
Renewable energy sources	11745	15065	15406	17589	19227	22746	675	1659	3903	4.0	9.4	20.7
Hydro	6234	6757	6260	6269	6280	6280	17	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	10631	12227	13685	428	1407	1683	4.2	13.0	14.0
Wind	1	39	80	572	579	2611	149	154	2105	35.3	36.2	416.2
Solar and others	3	5	6	117	141	169	81	98	114	229.8	222.1	204.3
Geothermal	0	0	0	0	0	0	0	0	0	46.4	69.6	61.8
Net Imports	17923	19172	19867	19443	18750	17441	-3499	-4497	-5445	-15.2	-19.3	-23.8
Solids	2329	2340	2462	3182	3093	2561	-1883	-2084	-2215	-37.2	-40.3	-46.4
Oil	15169	15654	17198	16239	15222	14639	-956	-1492	-1976	-5.6	-8.9	-11.9
- Crude oil and Feedstocks	16989	20372	19825	19435	18759	18303	-676	-1011	-1390	-3.4	-5.1	-7.1
- Oil products	-1820	-4718	-2626	-3196	-3536	-3664	-280	-480	-586	9.6	15.7	19.0
Natural gas	577	776	843	1485	1846	1599	-659	-921	-1254	-30.8	-33.3	-44.0
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	54497	52681	49856	-3030	-5696	-9154	-5.3	-9.8	-15.5
Solids	2677	2442	2626	3280	3152	2566	-2091	-2295	-2355	-38.9	-42.1	-47.9
Oil	14555	14382	14646	14130	13039	12297	-955	-1490	-1974	-6.3	-10.3	-13.8
Natural gas	577	776	843	1485	1846	1599	-659	-921	-1254	-30.8	-33.3	-44.0
Nuclear	17764	14781	18670	19476	16828	12006	0	-2649	-7473	0.0	-13.6	-38.4
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	17589	19227	22746	675	1659	3903	4.0	9.4	20.7
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.0	6.0	5.1	-3.3	-3.3	-3.2			
Oil	30.9	30.1	28.4	25.9	24.8	24.7	-0.3	-0.1	0.5			
Natural gas	1.2	1.6	1.6	2.7	3.5	3.2	-1.0	-1.2	-1.6			
Nuclear	37.7	30.9	36.2	35.7	31.9	24.1	1.9	-1.4	-8.9			
Renewable energy forms	24.9	31.5	29.9	32.3	36.5	45.6	2.9	6.4	13.7			
Gross Electricity Generation in GWh_e	145958	145524	158341	179375	178300	195157	-6545	-10446	3571	-3.5	-5.5	1.9
Self consumption and grid losses	13436	14818	15557	17629	17601	20019	-1107	-1364	207	-5.9	-7.2	1.0
Fuel Inputs to Thermal Power Generation	1491	3239	4465	4053	4692	4989	-2238	-1503	-523	-35.6	-24.3	-9.5
Solids	558	467	494	10	0	0	-990	-646	-166	-99.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	22	21	1	-31	7	0	-58.8	53.0	-18.9
Gas (including derived gases)	253	414	490	16	12	0	-385	-465	-596	-96.1	-97.5	-100.0
Biomass & Waste	427	2083	3166	4006	4659	4988	-832	-398	240	-17.2	-7.9	5.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	23417	22808	21774	-1002	-1514	-2450	-4.1	-6.2	-10.1
Refineries	18041	21618	20537	19425	18754	18302	-676	-1011	-1390	-3.4	-5.1	-7.1
Biofuels and hydrogen production	0	0	210	697	966	1123	66	172	69	10.4	21.7	6.6
District heating	1123	1973	1722	1350	1176	658	-399	-587	-1006	-22.8	-33.3	-60.5
Derived gases, cokeries etc.	1415	1704	1835	1945	1912	1691	8	-89	-124	0.4	-4.4	-6.8
Energy Branch Consumption	1758	1532	1424	1587	1586	1573	-74	-94	-162	-4.4	-5.6	-9.4
Non-Energy Uses	1769	1771	2344	2550	2570	2602	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	35302	35244	35991	-1730	-3016	-3947	-4.7	-7.9	-9.9
by sector												
Industry	11857	12047	12042	14488	15143	16237	228	212	382	1.6	1.4	2.4
- energy intensive industries	8574	9161	9204	10996	11488	12346	307	345	551	2.9	3.1	4.7
- other industrial sectors	3283	2886	2838	3493	3655	3890	-79	-133	-169	-2.2	-3.5	-4.2
Residential	6840	7546	7882	7347	6702	6129	-923	-1606	-2245	-11.2	-19.3	-26.8
Tertiary	4555	5581	4577	4480	4341	4283	-494	-749	-966	-9.9	-14.7	-18.4
Transport	7263	8128	8643	8986	9057	9342	-541	-874	-1118	-5.7	-8.8	-10.7
by fuel												
Solids	1231	1141	1345	2209	2104	1687	-637	-1073	-1480	-22.4	-33.8	-46.7
Oil	12004	12341	11087	10153	9762	9455	-815	-1372	-1925	-7.4	-12.3	-16.9
Gas	587	673	746	1983	2005	1588	-265	-401	-514	-11.8	-16.7	-24.5
Electricity	10348	11068	11382	12176	12164	13508	-464	-749	373	-3.7	-5.8	2.8
Heat (from CHP and District Heating)	1706	3550	4174	3240	2814	1832	-741	-1199	-2144	-18.6	-29.9	-53.9
Renewable energy forms	4639	4528	4410	5539	6392	7916	1192	1777	1745	27.4	38.5	28.3
Other	0	0	0	2	3	4	1	0	-1	41.9	8.2	-22.7
RES in Gross Final Energy Consumption ^(A)		14717	14682	16250	17647	21207	1042	1713	3701	6.9	10.8	21.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	67.7	64.7	59.5	-14.1	-17.9	-20.8	-17.2	-21.7	-25.9
CO₂ Emissions (energy related)	50.5	50.5	48.5	48.4	45.8	41.5	-12.7	-15.7	-18.2	-20.8	-25.5	-30.5
Power generation/District heating	6.3	5.1	5.5	1.2	0.5	0.0	-7.0	-6.2	-5.4	-85.1	-92.8	-100.0
Energy Branch	1.5	1.9	2.3	2.4	2.0	1.8	-0.2	-0.2	-0.2	-6.8	-8.7	-9.6
Industry	11.6	11.0	12.2	16.8	15.9	12.6	-3.0	-5.0	-6.6	-15.0	-24.0	-34.2
Residential	4.8	3.7	1.4	1.3	1.2	0.6	-0.4	-0.6	-1.5	-21.7	-33.4	-70.7
Tertiary	5.6	5.6	3.1	2.8	2.7	2.6	-0.4	-0.6	-0.8	-12.6	-17.5	-22.7
Transport	20.7	23.2	24.0	23.9	23.4	23.8	-1.8	-3.1	-3.7	-7.0	-11.6	-13.5
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.7	6.6	6.4	-0.2	-0.6	-0.9	-3.3	-7.8	-12.0
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.6	12.4	11.7	-1.2	-1.7	-1.7	-8.4	-11.9	-13.0
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	92.8	88.7	81.5	-19.3	-24.5	-28.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Sweden: Cost Efficiency Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	144.0	125.1	99.2	-8.0	-13.5	-18.2	-5.3	-9.8	-15.5
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.89	0.87	0.83	-0.17	-0.18	-0.18	-16.4	-17.5	-17.7
Import Dependency %	37.5	39.0	37.2	34.3	34.2	33.4	-4.1	-4.2	-3.9			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.4	43.5	50.6	1.5	2.7	5.9	4.0	6.7	13.1
as % of GDP		9.5	10.7	10.4	10.3	10.1	0.4	0.7	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				1.5	2.8	5.9						
as % of GDP				0.41	0.66	1.18						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	71.8	66.7	59.9	1.1	0.9	1.4	1.6	1.4	2.4
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	71.1	59.0	46.0	-8.9	-14.1	-16.8	-11.2	-19.3	-26.8
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	56.1	48.8	39.9	-6.2	-8.4	-9.0	-9.9	-14.7	-18.4
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	35.1	33.6	30.6	-0.8	-1.2	-1.6	-2.1	-3.4	-4.9
Freight transport (toe/Mtkm)	38.8	44.2	44.6	39.4	36.2	33.6	-2.8	-4.4	-4.7	-6.5	-10.9	-12.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.01	0.00	0.00	-0.03	-0.03	-0.02	-84.0	-92.0	-100.0
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.27	1.23	1.10	-0.09	-0.15	-0.21	-6.6	-10.6	-15.7
Industry	0.97	0.91	1.01	1.16	1.05	0.78	-0.23	-0.35	-0.43	-16.3	-25.1	-35.7
Residential	0.70	0.49	0.18	0.18	0.18	0.10	-0.02	-0.04	-0.15	-11.9	-17.5	-60.0
Tertiary	1.23	1.00	0.68	0.62	0.62	0.61	-0.02	-0.02	-0.03	-3.0	-3.3	-5.2
Transport	2.85	2.85	2.77	2.66	2.59	2.54	-0.04	-0.08	-0.08	-1.4	-3.1	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.0	47.9	56.2	4.8	8.1	14.2			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.0	9.9	11.7	1.1	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	179375	178300	195157	195157	-6545	-10446	3571	-3.5	-5.5	1.9
Nuclear energy	57306	72364	75565	65297	46583	46583	-316	-10589	-29310	-0.4	-14.0	-38.6
Solids	1141	1241	266	0	0	0	-3339	-2381	-1157	-92.6	-100.0	-100.0
Oil (including refinery gas)	1828	1004	192	144	3	3	-304	-54	-1	-61.3	-27.2	-17.3
Gas (including derived gases)	1714	1394	190	72	1	1	-3554	-3962	-3866	-94.9	-98.2	-100.0
Biomass-waste	4508	8607	23607	33021	45175	45175	-961	4737	13418	-3.9	16.7	42.3
Hydro (pumping excluded)	78570	72795	72900	73024	73024	73024	195	11	11	0.3	0.0	0.0
Wind	457	936	6651	6735	30357	30357	1735	1791	24476	35.3	36.2	416.2
Solar	0	0	5	7	14	14	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	32460	33376	36222	35601	49344	49344	-22	-1414	9192	-0.1	-3.8	22.9
<u>Nuclear energy</u>	9584	9630	9446	9449	9449	9449	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	18286	18324	26846	26846	742	761	9026	4.2	4.3	50.6
Hydro (pumping excluded)	15625	15651	15651	15651	15576	15576	0	0	0	0.0	0.0	0.0
Wind	231	493	2613	2641	11210	11210	742	761	9026	39.6	40.4	413.3
Solar	0	4	22	32	61	61	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	8490	7828	13049	13049	-764	-2175	166	-8.3	-21.7	1.3
of which cogeneration units	3791	4762	4060	4245	4460	4460	-1008	-1189	-1438	-19.9	-21.9	-24.4
Solids fired	847	868	290	232	133	133	-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	537	498	4422	4422	-760	-2498	-841	-58.6	-83.4	-16.0
Oil fired	4271	4366	3022	1586	1489	1489	0	0	-430	0.0	0.0	-22.4
Biomass-waste fired	1389	1842	4642	5513	7006	7006	431	757	1566	10.2	15.9	28.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.8	55.3	43.6	43.6	-1.9	-1.0	-8.9			
Efficiency of gross thermal power generation (%)	24.4	23.6	51.5	60.9	77.9	77.9	7.2	12.5	20.5			
% of gross electricity from CHP	5.9	7.5	11.5	13.7	13.5	13.5	-1.9	-1.4	-3.5			
Carbon free gross electricity generation (%)	96.8	97.7	99.6	99.9	100.0	100.0	3.9	3.4	2.6			
- nuclear	39.4	45.7	42.1	36.6	23.9	23.9	1.3	-3.6	-15.7			
- renewable energy forms	57.4	52.0	57.5	63.3	76.1	76.1	2.5	7.0	18.4			
Transport sector												
Passenger transport activity (Gpkm)	120.6	134.0	142.2	165.3	175.9	196.9	-3.4	-5.1	-6.9	-2.0	-2.8	-3.4
Public road transport	8.0	9.5	9.0	9.5	9.9	10.7	0.1	0.2	0.3	1.4	2.1	2.5
Private cars and motorcycles	87.6	93.3	99.4	112.9	118.6	130.8	-3.0	-4.7	-6.4	-2.6	-3.8	-4.7
Rail	8.6	10.2	11.0	13.9	15.4	17.5	0.4	0.7	1.0	2.8	4.7	6.1
Aviation	8.1	13.8	15.6	21.7	24.5	30.1	-0.8	-1.2	-1.7	-3.5	-4.8	-5.4
Inland navigation	8.3	7.2	7.2	7.3	7.5	7.8	-0.1	-0.1	-0.1	-1.1	-1.0	-1.0
Freight transport activity (Gtkm)	53.9	62.0	67.3	81.0	87.1	98.8	-1.7	-2.4	-3.2	-2.1	-2.7	-3.1
Trucks	26.5	35.6	38.6	44.5	47.2	53.8	-2.7	-3.9	-5.3	-5.7	-7.7	-8.9
Rail	19.1	19.5	21.7	28.7	31.6	36.1	1.0	1.5	2.1	3.6	5.2	6.2
Inland navigation	8.3	6.9	7.0	7.8	8.3	8.9	0.0	0.0	-0.1	-0.5	-0.5	-0.6
Energy demand in transport (ktoe)	7263	8128	8643	8986	9057	9342	-541	-874	-1118	-5.7	-8.8	-10.7
Public road transport	230	189	156	143	141	139	-2	-8	-12	-1.4	-5.2	-7.9
Private cars and motorcycles	4004	4086	4472	4433	4430	4301	-200	-307	-398	-4.3	-6.5	-8.5
Trucks	1872	2471	2695	2827	2791	2959	-293	-481	-576	-9.4	-14.7	-16.3
Rail	252	299	332	386	388	382	-2	-3	-7	-0.5	-0.7	-1.9
Aviation	760	928	846	1051	1159	1409	-41	-72	-120	-3.8	-5.9	-7.8
Inland navigation	143	154	141	146	149	151	-2	-3	-5	-1.5	-2.2	-3.4

Source: PRIMES

United Kingdom: Cost Efficiency Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	205508	249865	268722	202300	170581	110864	79349	76105	75674	2.7	-4.4	-7.4	-0.5	
Solids	54125	30516	18577	12172	10500	6599	6065	2754	3406	-10.1	-5.5	-5.3	-5.6	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Renewable energy sources	1070	1996	2635	4048	8339	13347	16767	19663	21957	9.4	12.2	7.2	2.7	
Hydro	436	416	437	427	480	488	494	508	523	0.0	0.9	0.3	0.6	
Biomass & Waste	627	1539	2104	3340	4922	6263	7829	9289	10488	12.9	8.9	4.8	3.0	
Wind	1	34	81	250	2621	5019	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	315	1575	2302	2579	2969	8.1	39.5	22.0	2.6	
Geothermal	1	1	1	1	2	2	5	6	7	0.0	7.4	10.9	4.4	
Net Imports	5932	-36021	-39030	32641	46969	96664	123109	120801	122768				10.1	
Solids	9122	10493	14577	27467	23774	14087	12057	5267	5945	4.8	5.0	-6.6	-6.8	
Oil	-10396	-48554	-45515	-2171	15317	39837	57525	58044	60242				14.1	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	20555	45080	63613	66048	68262				12.0	
- Oil products	-5858	-12196	-6490	-7027	-5238	-5242	-6088	-8004	-8020					
Natural gas	6178	637	-9311	5973	6061	39893	47639	50790	49391				22.9	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	215509	205452	200353	194779	196312	0.9	-0.7	-0.7	-0.2	
Solids	64305	45866	36816	38186	34274	20685	18122	8021	9351	-5.4	-0.7	-6.2	-6.4	
Oil	80903	82378	81357	82701	83276	82761	80420	75918	76111	0.1	0.2	-0.3	-0.5	
Natural gas	47203	65119	87399	84898	69061	69893	71639	68790	64391	6.4	-2.3	0.4	-1.1	
Nuclear	16574	21249	21942	21054	18742	15918	7517	15687	17312	2.8	-1.6	-8.7	8.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	9306	15270	21823	25662	28730	9.4	13.4	8.9	2.8	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	15.9	10.1	9.0	4.1	4.8					
Oil	38.3	37.8	35.2	35.6	38.6	40.3	40.1	39.0	38.8					
Natural gas	22.4	29.9	37.8	36.6	32.0	34.0	35.8	35.3	32.8					
Nuclear	7.9	9.7	9.5	9.1	8.7	7.7	3.8	8.1	8.8					
Renewable energy forms	0.5	0.9	1.1	2.0	4.3	7.4	10.9	13.2	14.6					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	380195	375350	390784	429290	479714	1.7	0.2	0.3	2.1	
Self consumption and grid losses	44516	46573	48246	50822	46035	42926	44858	49619	55788	0.8	-0.5	-0.3	2.2	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	50337	42231	46253	39638	43068	-0.1	-1.0	-0.8	-0.7	
Solids	47267	33844	27232	30920	27227	13989	11942	3064	4944	-5.4	0.0	-7.9	-8.4	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	34	186	-19.6			90.4	
Gas (including derived gases)	1668	12054	26033	26807	20374	24448	27657	27466	27139	31.6	-2.4	3.1	-0.2	
Biomass & Waste	212	620	1410	3455	2736	3794	6653	9074	10799	20.9	6.9	9.3	5.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	96152	97558	97626	94993	95333	0.1	-0.4	0.2	-0.2	
Refineries	89882	94255	89299	87320	88875	89363	88388	86088	86439	-0.1	0.0	-0.1	-0.2	
Biofuels and hydrogen production	0	0	0	80	1474	2826	4623	5026	5432				12.1	
District heating	0	0	3354	1976	1007	827	503	365	274		-11.3	-6.7	-5.9	
Derived gases, cokeries etc.	9263	8079	7682	5436	4797	4542	4112	3514	3188	-1.9	-4.6	-1.5	-2.5	
Energy Branch Consumption	12836	14401	15039	15383	12953	12458	12188	11678	11262	1.6	-1.5	-0.6	-0.8	
Non-Energy Uses	11173	12550	11152	11510	11819	12178	12591	13005	13359	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151500	146949	145108	144367	139625	139528	1.0	-0.3	-0.2	-0.3	
by sector														
Industry	34962	35132	35909	33889	33761	34118	34322	34620	35052	0.3	-0.6	0.2	0.2	
- energy intensive industries	19483	19965	19215	16289	16382	16538	16358	16168	16075	-0.1	-1.6	0.0	-0.2	
- other industrial sectors	15479	15167	16694	17600	17379	17580	17963	18452	18976	0.8	0.4	0.3	0.6	
Residential	37939	39567	43072	43284	38889	36984	36236	33949	32556	1.3	-1.0	-0.7	-1.1	
Tertiary	18596	20863	20359	19170	17320	16140	15791	15565	15426	0.9	-1.6	-0.9	-0.2	
Transport	45451	46867	52324	55236	56979	57866	58018	55490	56494	1.4	0.9	0.2	-0.3	
by fuel														
Solids	12266	8891	5683	4422	4787	4679	4363	3430	3042	-7.4	-1.7	-0.9	-3.5	
Oil	58770	60197	62437	65731	67505	66734	64154	59545	59486	0.6	0.8	-0.5	-0.8	
Gas	41893	47140	52180	49853	42106	38974	37747	35405	31539	2.2	-2.1	-1.1	-1.8	
Electricity	23597	25274	28325	29686	28759	28711	29859	32572	36074	1.8	0.2	0.4	1.9	
Heat (from CHP and District Heating)	0	0	2439	1317	1071	1182	1426	1756	1942		-7.9	2.9	3.1	
Renewable energy forms	421	926	600	572	2717	4821	6803	6901	7427	3.6	16.3	9.6	0.9	
Other	0	0	0	0	4	7	15	16	18				14.7	
RES in Gross Final Energy Consumption ^(A)			1537	2483	7582	13280	19498	23248	26040		17.3	9.9	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	632.0	565.4	546.6	464.8	446.1	-1.1	-0.9	-1.4	-2.0	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	506.8	452.8	438.4	377.3	371.9	-0.4	-0.7	-1.4	-1.6	
Power generation/District heating	214.2	173.6	181.2	193.8	158.1	114.8	113.4	77.6	84.5	-1.7	-1.4	-3.3	-2.9	
Energy Branch	27.9	31.9	33.1	34.6	28.3	27.7	27.0	25.1	23.7	1.7	-1.6	-0.4	-1.3	
Industry	81.8	78.8	70.5	65.5	65.8	66.7	64.4	60.4	59.1	-1.5	-0.7	-0.2	-0.9	
Residential	77.8	77.3	81.9	79.7	69.6	61.6	56.4	47.3	37.5	0.5	-1.6	-2.1	-4.0	
Tertiary	32.9	35.2	26.7	24.3	21.1	18.5	17.8	16.6	15.3	-2.1	-2.3	-1.7	-1.5	
Transport	132.4	136.5	152.7	161.8	163.9	163.4	159.4	150.3	151.7	1.4	0.7	-0.3	-0.5	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.0	26.7	26.6	26.4	26.7	-1.5	1.3	-0.2	0.0	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	85.9	81.6	61.1	47.4	-3.9	-2.2	-1.8	-5.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	81.5	72.9	70.5	59.9	57.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: Cost Efficiency Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	106.0	89.8	78.3	68.9	64.0	-1.5	-3.1	-3.0	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.35	2.20	2.19	1.94	1.89	-1.3	0.0	-0.7	-1.4
Import Dependency %	2.8	-16.3	-16.7	13.9	21.6	46.6	60.8	61.3	61.9				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	152.3	173.0	193.3	208.6	219.3		0.9	2.4	1.3
as % of GDP			8.7	7.4	7.5	7.6	7.6	7.4	7.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.5	86.9	80.8	75.6	72.4	-0.6	-0.7	-1.4	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	69.6	59.1	52.0	44.3	39.3	-1.4	-3.6	-2.9	-2.8
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	61.3	50.0	43.1	38.1	34.5	-2.2	-4.8	-3.5	-2.2
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.5	42.0	40.3	36.3	35.9	0.3	-0.9	-0.8	-1.2
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	57.7	55.9	52.9	50.7	49.0	-0.5	1.1	-0.9	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.40	0.29	0.28	0.17	0.17	-4.0	-1.2	-3.6	-4.9
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.18	2.14	2.06	1.97	1.89	-0.8	0.0	-0.5	-0.9
Industry	2.34	2.24	1.96	1.93	1.95	1.96	1.88	1.74	1.69	-1.7	-0.1	-0.4	-1.1
Residential	2.05	1.95	1.90	1.84	1.79	1.67	1.56	1.39	1.15	-0.7	-0.6	-1.4	-3.0
Tertiary	1.77	1.69	1.31	1.27	1.22	1.15	1.13	1.07	0.99	-3.0	-0.7	-0.7	-1.3
Transport	2.91	2.91	2.92	2.93	2.88	2.82	2.75	2.71	2.69	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	5.0	8.9	13.1	16.1	18.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.3	8.9	9.9	10.7				
Gross Electricity generation by source (in GWh)													
			374308	397522	380195	375350	390784	429290	479714		0.2	0.3	2.1
Nuclear energy			85048	81603	72657	61709	29140	66798	77209		-1.6	-8.7	10.2
Solids			118129	134618	119798	61690	52688	17744	29292		0.1	-7.9	-5.7
Oil (including refinery gas)			7147	7622	104	104	105	259	1582		-34.5	0.1	31.1
Gas (including derived gases)			153298	152495	139815	168630	197400	209378	219417		-0.9	3.5	1.1
Biomass-waste			4653	13308	11741	17857	30561	39581	47047		9.7	10.0	4.4
Hydro (pumping excluded)			5085	4960	5580	5670	5746	5901	6076		0.9	0.3	0.6
Wind			947	2907	30477	58360	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	1279	3694	4818	6185				5.3
Net Generation Capacity in MW_e			84356	90824	102025	112016	101528	114933	126921		1.9	0.0	2.3
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	8621	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	12017	22890	30101	35765	39860		21.2	9.6	2.8
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10528	20685	26591	31578	34823		38.5	9.7	2.7
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	664	1917	2500	3210				5.3
<u>Thermal power</u>			69560	75978	79285	79861	67015	70548	77859		1.3	-1.7	1.5
of which cogeneration units			6116	8041	7052	8660	10979	13858	15846		1.4	4.5	3.7
Solids fired			30684	30627	28669	23771	7478	4721	3798		-0.7	-12.6	-6.6
Gas fired			27319	33944	38246	41652	40857	45683	53979		3.4	0.7	2.8
Oil fired			10540	9879	9357	9164	7715	3397	1748		-1.2	-1.9	-13.8
Biomass-waste fired			1017	1528	3012	5273	10965	16746	18334		11.5	13.8	5.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	40.9	37.0	42.6	41.2	41.8				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.4	50.6	52.2	57.9	59.4				
% of gross electricity from CHP			9.0	8.5	11.2	14.9	19.3	21.8	22.3				
Carbon free gross electricity generation (%)			25.6	25.9	31.7	38.6	36.0	47.0	47.8				
- nuclear			22.7	20.5	19.1	16.4	7.5	15.6	16.1				
- renewable energy forms			2.9	5.3	12.6	22.2	28.5	31.5	31.7				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	968.1	1024.4	1079.2	1136.9	1185.1	1.3	1.4	1.1	0.9
Public road transport	46.2	44.3	47.0	48.8	51.1	52.8	54.9	56.3	57.3	0.2	0.8	0.7	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	723.3	755.1	786.3	822.1	852.2	0.9	1.2	0.8	0.8
Rail	39.9	37.1	46.7	51.8	57.5	62.7	68.3	74.7	80.5	1.6	2.1	1.7	1.7
Aviation	49.3	66.8	94.0	110.0	129.8	147.1	163.2	177.1	188.4	6.7	3.3	2.3	1.4
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.6	6.7	6.7	-2.1	-0.1	0.1	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	257.9	266.1	273.8	280.9	284.5	1.1	0.6	0.6	0.4
Trucks	145.7	161.5	165.6	167.5	170.8	177.2	183.0	188.7	191.5	1.3	0.3	0.7	0.5
Rail	16.0	13.3	18.1	22.1	24.8	26.6	28.0	29.1	29.8	1.2	3.2	1.2	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.4	62.8	63.0	63.2	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	56979	57866	58018	55490	56494	1.4	0.9	0.2	-0.3
Public road transport	514	493	518	490	482	482	481	478	476	0.1	-0.7	0.0	-0.1
Private cars and motorcycles	25438	25836	27031	25783	25683	25654	25440	25197	25714	0.6	-0.5	-0.1	0.1
Trucks	10387	10366	11277	13316	13172	13088	12803	12778	12754	0.8	1.6	-0.3	0.0
Rail	1063	1233	1464	1532	1621	1457	1280	1089	829	3.2	1.0	-2.3	-4.3
Aviation	6779	7822	11115	12847	14744	15921	16776	14739	15535	5.1	2.9	1.3	-0.8
Inland navigation	1269	1117	920	1269	1278	1265	1239	1210	1187	-3.2	3.3	-0.3	-0.4

Source: PRIMES

United Kingdom: Cost Efficiency Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	110864	79349	75674	2798	3910	4918	2.6	5.2	7.0
Solids	54125	18577	12172	6599	6065	3406	-2401	-1935	-2594	-26.7	-24.2	-43.2
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Renewable energy sources	1070	2635	4048	13347	16767	21957	5199	5845	6455	63.8	53.5	41.6
Hydro	436	437	427	488	494	523	52	42	0	11.8	9.3	0.0
Biomass & Waste	627	2104	3340	6263	7829	10488	289	477	803	4.8	6.5	8.3
Wind	1	81	250	5019	6138	7970	3659	3657	3611	269.1	147.4	82.8
Solar and others	5	11	30	1575	2302	2969	1198	1666	2037	317.5	262.2	218.4
Geothermal	1	1	1	2	5	7	1	3	4	80.6	149.0	176.5
Net Imports	5932	-39030	32641	96664	123109	122768	-29163	-29639	-36749	-23.2	-19.4	-23.0
Solids	9122	14577	27467	14087	12057	5945	-19759	-19280	-21588	-58.4	-61.5	-78.4
Oil	-10396	-45515	-2171	39837	57525	60242	-3916	-7712	-14601	-9.0	-11.8	-19.5
- Crude oil and Feedstocks	-4537	-39025	4856	45080	63613	68262	-3949	-6912	-11885	-8.1	-9.8	-14.8
- Oil products	-5858	-6490	-7027	-5242	-6088	-8020	33	-800	-2716	-0.6	15.1	51.2
Natural gas	6178	-9311	5973	39893	47639	49391	-6236	-6258	-5429	-13.5	-11.6	-9.9
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	205452	200353	196312	-26362	-25720	-31819	-11.4	-11.4	-13.9
Solids	64305	36816	38186	20685	18122	9351	-22160	-21215	-24182	-51.7	-53.9	-72.1
Oil	80903	81357	82701	82761	80420	76111	-3913	-7703	-14589	-4.5	-8.7	-16.1
Natural gas	47203	87399	84898	69893	71639	64391	-6236	-6258	-5429	-8.2	-8.0	-7.8
Nuclear	16574	21942	21054	15918	7517	17312	0	0	1057	0.0	0.0	6.5
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	15270	21823	28730	5947	9456	11325	63.8	76.5	65.1
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	10.1	9.0	4.8	-8.4	-8.4	-9.9			
Oil	38.3	35.2	35.6	40.3	40.1	38.8	2.9	1.2	-1.0			
Natural gas	22.4	37.8	36.6	34.0	35.8	32.8	1.2	1.3	2.2			
Nuclear	7.9	9.5	9.1	7.7	3.8	8.8	0.9	0.4	1.7			
Renewable energy forms	0.5	1.1	2.0	7.4	10.9	14.6	3.4	5.4	7.0			
Gross Electricity Generation in GWh_e	316937	374308	397522	375350	390784	479714	-56166	-60712	490	-13.0	-13.4	0.1
Self consumption and grid losses	44516	48246	50822	42926	44858	55788	-7913	-11343	-4765	-15.6	-20.2	-7.9
Fuel Inputs to Thermal Power Generation	56319	55481	61996	42231	46253	43068	-23007	-18673	-11729	-35.3	-28.8	-21.4
Solids	47267	27232	30920	13989	11942	4944	-22133	-20934	-23390	-61.3	-63.7	-82.6
Oil (including refinery gas)	7172	806	815	0	0	186	0	0	186	-49.6	74975.2	
Gas (including derived gases)	1668	26033	26807	24448	27657	27139	-1408	-437	6283	-5.4	-1.6	30.1
Biomass & Waste	212	1410	3455	3794	6653	10799	533	2699	5192	16.4	68.2	92.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	97558	97626	95333	-3635	-6402	-11976	-3.6	-6.2	-11.2
Refineries	89882	89299	87320	89363	88388	86439	-3948	-6912	-11885	-4.2	-7.3	-12.1
Biofuels and hydrogen production	0	0	80	2826	4623	5432	243	782	348	9.4	20.3	6.8
District heating	0	3354	1976	827	503	274	-70	-288	-362	-7.8	-36.4	-56.9
Derived gases, cokeries etc.	9263	7682	5436	4542	4112	3188	140	16	-77	3.2	0.4	-2.4
Energy Branch Consumption	12836	15039	15383	12458	12188	11262	-973	-1413	-1709	-7.2	-10.4	-13.2
Non-Energy Uses	11173	11152	11510	12178	12591	13359	-10	-8	-3	-0.1	-0.1	0.0
Final Energy Demand	136947	151665	151580	145108	144367	139528	-10526	-14068	-22630	-6.8	-8.9	-14.0
by sector												
Industry	34962	35909	33889	34118	34322	35052	-1029	-1577	-1625	-2.9	-4.4	-4.4
- energy intensive industries	19483	19215	16289	16538	16358	16075	-302	-639	-597	-1.8	-3.8	-3.6
- other industrial sectors	15479	16694	17600	17580	17963	18976	-727	-938	-1029	-4.0	-5.0	-5.1
Residential	37939	43072	43284	36984	36236	32556	-3751	-4086	-7006	-9.2	-10.1	-17.7
Tertiary	18596	20359	19170	16140	15791	15426	-2851	-3440	-4076	-15.0	-17.9	-20.9
Transport	45451	52324	55236	57866	58018	56494	-2895	-4965	-9923	-4.8	-7.9	-14.9
by fuel												
Solids	12266	5683	4422	4679	4363	3042	57	-318	-410	1.2	-6.8	-11.9
Oil	58770	62437	65731	66734	64154	59486	-3755	-7407	-13993	-5.3	-10.4	-19.0
Gas	41893	52180	49853	38974	37747	31539	-4255	-4797	-11216	-9.8	-11.3	-26.2
Electricity	23597	28325	29686	28711	29859	36074	-4130	-4209	512	-12.6	-12.4	1.4
Heat (from CHP and District Heating)	0	2439	1317	1182	1426	1942	28	117	376	2.4	8.9	24.0
Renewable energy forms	421	600	572	4821	6803	7427	1528	2545	2106	46.4	59.7	39.6
Other	0	0	0	7	15	18	0	1	-5	5.4	5.4	-20.7
RES in Gross Final Energy Consumption ^(A)		1537	2483	13280	19498	26040	6250	9370	10956	88.9	92.5	72.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	565.4	546.6	446.1	-125.1	-137.7	-166.2	-18.1	-20.1	-27.1
CO₂ Emissions (energy related)	566.9	546.0	559.7	452.8	438.4	371.9	-113.6	-121.5	-151.9	-20.1	-21.7	-29.0
Power generation/District heating	214.2	181.2	193.8	114.8	113.4	84.5	-90.9	-84.5	-78.7	-44.2	-42.7	-48.2
Energy Branch	27.9	33.1	34.6	27.7	27.0	23.7	-1.7	-2.1	-3.3	-5.8	-7.3	-12.1
Industry	81.8	70.5	65.5	66.7	64.4	59.1	0.2	-2.8	-5.6	0.2	-4.2	-8.7
Residential	77.8	81.9	79.7	61.6	56.4	37.5	-8.9	-11.8	-27.3	-12.6	-17.3	-42.1
Tertiary	32.9	26.7	24.3	18.5	17.8	15.3	-3.0	-3.4	-5.6	-14.1	-16.1	-26.7
Transport	132.4	152.7	161.8	163.4	159.4	151.7	-9.1	-16.8	-31.4	-5.3	-9.5	-17.2
CO₂ Emissions (non energy related)	27.5	23.7	26.8	26.7	26.6	26.7	-0.6	-1.1	-1.5	-2.1	-4.1	-5.2
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	85.9	81.6	47.4	-11.0	-15.1	-12.9	-11.4	-15.6	-21.3
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	72.9	70.5	57.5	-16.1	-17.8	-21.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: Cost Efficiency Scenario											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	89.8	78.3	64.0	-11.5	-10.0	-10.4	-11.4	-11.4	-13.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.20	2.19	1.89	-0.24	-0.29	-0.40	-9.8	-11.6	-17.5
Import Dependency %	2.8	-16.7	13.9	46.6	60.8	61.9	-7.2	-6.1	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	173.0	193.3	219.3	9.2	12.3	13.1	5.6	6.8	6.4
as % of GDP		8.7	7.4	7.6	7.6	7.2	0.4	0.5	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				9.3	12.6	13.4						
as % of GDP				0.41	0.49	0.44						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	86.9	80.8	72.4	-2.6	-3.7	-3.4	-2.9	-4.4	-4.4
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	59.1	52.0	39.3	-6.0	-5.9	-8.5	-9.2	-10.1	-17.7
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	50.0	43.1	34.5	-8.8	-9.4	-9.1	-15.0	-17.9	-20.9
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.0	40.3	35.9	-1.0	-1.7	-5.3	-2.3	-4.1	-12.9
Freight transport (toe/Mtkm)	54.4	51.5	59.8	55.9	52.9	49.0	-2.5	-4.6	-5.1	-4.3	-8.0	-9.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.29	0.28	0.17	-0.17	-0.15	-0.16	-36.3	-34.4	-48.7
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.14	2.06	1.89	0.01	-0.04	-0.17	0.5	-1.7	-8.2
Industry	2.34	1.96	1.93	1.96	1.88	1.69	0.06	0.00	-0.08	3.3	0.2	-4.5
Residential	2.05	1.90	1.84	1.67	1.56	1.15	-0.06	-0.14	-0.49	-3.7	-8.0	-29.7
Tertiary	1.77	1.31	1.27	1.15	1.13	0.99	0.01	0.02	-0.08	1.1	2.2	-7.3
Transport	2.91	2.92	2.93	2.82	2.75	2.69	-0.02	-0.05	-0.07	-0.5	-1.8	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	8.9	13.1	18.0	4.5	6.9	9.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	5.3	8.9	10.7	0.7	2.1	1.7			
Gross Electricity generation by source (in GWh_e)												
	374308	397522	375350	390784	479714	479714	-56166	-60712	490	-13.0	-13.4	0.1
Nuclear energy	85048	81603	61709	29140	77209		0	0	4674	0.0	0.0	6.4
Solids	118129	134618	61690	52688	29292		-97329	-120313	-132082	-61.2	-69.5	-81.8
Oil (including refinery gas)	7147	7622	104	105	1582		0	-2	1492	0.0	-1.7	1670.7
Gas (including derived gases)	153298	152495	168630	197400	219417		-6502	3125	60548	-3.7	1.6	38.1
Biomass-waste	4653	13308	17857	30561	47047		3235	11015	21060	22.1	56.4	81.0
Hydro (pumping excluded)	5085	4960	5670	5746	6076		601	488	0	11.8	9.3	0.0
Wind	947	2907	58360	71371	92670		42550	42524	41988	269.1	147.4	82.8
Solar	1	8	50	79	236		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	1279	3694	6185		1279	2451	2809		197.3	83.2
Net Generation Capacity in MW_e	84356	90824	112016	101528	126921	126921	17218	5353	18124	18.2	5.6	16.7
<u>Nuclear energy</u>	13038	11837	9265	4412	9202		0	0	540	0.0	0.0	6.2
<u>Renewable energy</u>	1758	3009	22890	30101	39860		15761	17606	18217	221.1	140.9	84.2
Hydro (pumping excluded)	1350	1437	1475	1514	1514		0	0	0	0.0	0.0	0.0
Wind	406	1562	20685	26591	34823		15174	16334	16760	275.3	159.3	92.8
Solar	2	11	66	105	313		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	664	1917	3210		587	1272	1458	762.2	197.3	83.2
<u>Thermal power</u>	69560	75978	79861	67015	77859		1456	-12253	-632	1.9	-15.5	-0.8
of which cogeneration units	6116	8041	8660	10979	15846		256	1307	2910	3.0	13.5	22.5
Solids fired	30684	30627	23771	7478	3798		0	-13286	-17006	0.0	-64.0	-81.7
Gas fired	27319	33944	41652	40857	53979		-1028	-5331	5256	-2.4	-11.5	10.8
Oil fired	10540	9879	9164	7715	1748		0	0	-2410	0.0	0.0	-58.0
Biomass-waste fired	1017	1528	5273	10965	18334		2485	6364	13527	89.1	138.3	281.4
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	48.4	47.7	37.0	42.6	41.8		-13.1	-8.7	-6.2			
Efficiency of gross thermal power generation (%)	43.9	42.7	50.6	52.2	59.4		4.6	0.9	5.0			
% of gross electricity from CHP	9.0	8.5	14.9	19.3	22.3		2.4	5.2	6.6			
Carbon free gross electricity generation (%)	25.6	25.9	38.6	36.0	47.8		16.1	17.3	14.7			
- nuclear	22.7	20.5	16.4	7.5	16.1		2.1	1.0	1.0			
- renewable energy forms	2.9	5.3	22.2	28.5	31.7		13.9	16.3	13.7			
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1024.4	1079.2	1185.1	-18.3	-28.9	-36.5	-1.8	-2.6	-3.0
Public road transport	46.2	47.0	48.8	52.8	54.9	57.3	1.2	1.8	2.1	2.4	3.4	3.8
Private cars and motorcycles	591.1	644.9	684.7	755.1	786.3	852.2	-15.0	-23.4	-32.1	-1.9	-2.9	-3.6
Rail	39.9	46.7	51.8	62.7	68.3	80.5	0.7	0.7	3.3	1.1	1.0	4.3
Aviation	49.3	94.0	110.0	147.1	163.2	188.4	-5.1	-7.9	-9.8	-3.4	-4.6	-4.9
Inland navigation	8.1	6.6	6.5	6.6	6.6	6.7	-0.1	-0.1	-0.1	-1.1	-1.1	-1.2
Freight transport activity (Gtkm)	217.5	243.7	250.8	266.1	273.8	284.5	-7.7	-10.9	-12.9	-2.8	-3.8	-4.3
Trucks	145.7	165.6	167.5	177.2	183.0	191.5	-8.5	-12.0	-14.4	-4.6	-6.1	-7.0
Rail	16.0	18.1	22.1	26.6	28.0	29.8	0.8	1.1	1.5	3.3	4.0	5.2
Inland navigation	55.8	60.0	61.2	62.4	62.8	63.2	-0.1	0.0	0.1	-0.1	0.1	0.1
Energy demand in transport (ktoe)	45451	52324	55236	57866	58018	56494	-2895	-4965	-9923	-4.8	-7.9	-14.9
Public road transport	514	518	490	482	481	476	0	-6	-23	-0.1	-1.3	-4.5
Private cars and motorcycles	25438	27031	25783	25654	25440	25714	-974	-1496	-1929	-3.7	-5.6	-7.0
Trucks	10387	11277	13316	13088	12803	12754	-1172	-1926	-2158	-8.2	-13.1	-14.5
Rail	1063	1464	1532	1457	1280	829	27	11	25	1.9	0.8	3.1
Aviation	6779	11115	12847	15921	16776	15535	-760	-1522	-5797	-4.6	-8.3	-27.2
Inland navigation	1269	920	1269	1265	1239	1187	-17	-25	-41	-1.3	-2.0	-3.3

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 7: Cost Efficiency scenario with JI/CDM

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	933011	946298	937567	896393	836308	787264	763769	759094	764338	0.0	-1.1	-0.9	0.0	
Solids	365918	277924	213693	196451	161244	138558	121787	114798	109647	-5.2	-2.8	-2.8	-1.0	
Oil	128809	170055	171665	132993	104414	76786	53069	44270	40783	2.9	-4.9	-6.5	-2.6	
Natural gas	162447	188965	207559	188021	165706	125422	111934	95458	82942	2.5	-2.2	-3.8	-3.0	
Nuclear	202589	223028	243761	257360	245166	243052	217400	207661	202700	1.9	0.1	-1.2	-0.7	
Renewable energy sources	73248	86325	100890	121568	159777	203446	259579	296908	328266	3.3	4.7	5.0	2.4	
Hydro	25101	28054	30374	26394	29697	29629	29848	30119	30301	1.9	-0.2	0.1	0.2	
Biomass & Waste	44737	54203	64774	82903	105184	131607	168816	194089	209489	3.8	5.0	4.8	2.2	
Wind	67	350	1913	6060	15203	22060	32185	41375	51634	39.8	23.0	7.8	4.8	
Solar and others	153	273	418	816	3467	13316	21723	24239	29663	10.6	23.6	20.1	3.2	
Geothermal	3190	3444	3412	5395	6226	6834	7007	7086	7179	0.7	6.2	1.2	0.2	
Net Imports	748677	730704	818875	975298	1005957	1084839	1114587	1135894	1133806	0.9	2.1	1.0	0.2	
Solids	79289	79183	98575	126702	133212	139674	132019	134609	132932	2.2	3.1	-0.1	0.1	
Oil	530805	504448	525661	589611	601767	632581	640858	641476	634645	-0.1	1.4	0.6	-0.1	
- Crude oil and Feedstocks	503539	488479	507317	574313	600257	635321	652310	659103	659230	0.1	1.7	0.8	0.1	
- Oil products	27265	15969	18344	15298	1510	-2740	-11452	-17627	-24585	-3.9	-22.1			
Natural gas	135121	145288	192531	256828	267070	301306	310781	319604	321939	3.6	3.3	1.5	0.4	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1788616	1816082	1820135	1834807	1836538	0.4	0.4	0.2	0.1	
Solids	450105	364252	321399	320065	294456	278232	253806	249407	242579	-3.3	-0.9	-1.5	-0.5	
Oil	625464	642003	650390	665514	652533	653346	635706	625565	618822	0.4	0.0	-0.3	-0.3	
Natural gas	294905	333268	393417	444804	432776	426728	422715	415061	404881	2.9	1.0	-0.2	-0.4	
Nuclear	202589	223028	243761	257360	245166	243052	217400	207661	202700	1.9	0.1	-1.2	-0.7	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	162190	213258	289468	336186	371633	3.2	4.8	6.0	2.5	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	16.5	15.3	13.9	13.6	13.2					
Oil	37.9	38.9	38.0	36.7	36.5	36.0	34.9	34.1	33.4					
Natural gas	17.9	20.2	23.0	24.6	24.2	23.5	23.2	22.6	22.0					
Nuclear	12.3	13.5	14.2	14.2	13.7	13.4	11.9	11.3	11.0					
Renewable energy forms	4.5	5.2	5.9	6.8	9.1	11.7	15.9	18.3	20.2					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3311061	3488653	3685941	4082317	4433741	1.6	1.0	1.1	1.9	
Self consumption and grid losses	335093	353101	383382	407678	377571	389423	408234	472587	523553	1.4	-0.2	0.8	2.5	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	358019	355290	370654	406605	420345	0.1	-0.7	0.3	1.3	
Solids	259913	233747	223114	229144	208114	192302	171595	171433	170429	-1.5	-0.7	-1.9	-0.1	
Oil (including refinery gas)	54361	51375	39172	29499	8694	7959	4301	4703	3319	-3.2	-14.0	-6.8	-2.6	
Gas (including derived gases)	56680	67840	102572	133257	112434	110266	117123	121875	123283	6.1	0.9	0.4	0.5	
Biomass & Waste	5861	9809	14969	26638	23542	39337	72081	102902	117414	9.8	4.6	11.8	5.0	
Geothermal heat	2774	2992	2939	4645	5234	5426	5553	5692	5900	0.6	5.9	0.6	0.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	834230	849438	849516	844489	838131	-0.2	0.2	0.2	-0.1	
Refineries	673810	699352	727451	749312	738552	746747	739648	736939	732665	0.8	0.2	0.0	-0.1	
Biofuels and hydrogen production	2	202	624	3206	15843	26965	40603	43978	46943	80.0	38.2	9.9	1.5	
District heating	33413	23351	19302	16177	16992	17847	15868	13992	12534	-5.3	0.2	-2.1	-2.3	
Derived gases, cokeries etc.	127920	86079	71473	65511	60143	57879	53397	49581	45989	-5.7	-1.7	-1.2	-1.5	
Energy Branch Consumption	81962	88206	87583	93941	87982	85624	84789	85832	86223	0.7	0.0	-0.4	0.2	
Non-Energy Uses	96068	105319	109135	111706	115841	120778	125238	128499	130902	1.3	0.6	0.8	0.4	
Final Energy Demand	1070684	1066881	1112192	1166880	1206077	1244082	1262013	1270778	1278074	0.4	0.8	0.5	0.1	
by sector														
Industry	367505	325769	324835	324493	338972	351824	359194	365248	373050	-1.2	0.4	0.6	0.4	
- energy intensive industries	236724	213853	212264	209326	217457	224927	227127	228487	230973	-1.1	0.2	0.4	0.2	
- other industrial sectors	130780	111916	112571	115167	121515	126897	132067	136761	142078	-1.5	0.8	0.8	0.7	
Residential	264548	279716	287255	307013	309306	313733	316107	313880	310596	0.8	0.7	0.2	-0.2	
Tertiary	159192	161639	160963	173669	173666	176427	176616	176641	174823	0.1	0.8	0.2	-0.1	
Transport	279440	299758	339129	361705	384133	402098	410097	415008	419604	2.0	1.3	0.7	0.2	
by fuel														
Solids	130725	85607	61781	53475	53691	54742	53215	50684	47044	-7.2	-1.4	-0.1	-1.2	
Oil	442561	455056	477166	492540	501325	501968	488267	478593	470013	0.8	0.5	-0.3	-0.4	
Gas	227872	245996	267506	287197	290365	286736	274990	262204	250076	1.6	0.8	-0.5	-0.9	
Electricity	184059	194149	217155	237501	243741	259394	274737	303377	329269	1.7	1.2	1.2	1.8	
Heat (from CHP and District Heating)	48744	45026	40988	41333	39145	39518	41579	42354	42807	-1.7	-0.5	0.6	0.3	
Renewable energy forms	36724	41048	47586	54833	77783	101668	129110	133430	138718	2.6	5.0	5.2	0.7	
Other	0	0	0	0	28	57	115	136	147			15.1	2.5	
RES in Gross Final Energy Consumption (A)			91114	104237	146590	194322	262677	303294	335186		4.9	6.0	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	4998.5	4833.0	4640.0	4493.2	4301.4	-0.9	-0.2	-0.7	-0.8	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3766.8	3679.0	3510.3	3438.5	3294.7	-0.6	-0.1	-0.7	-0.6	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1176.8	1099.9	1016.9	1024.9	962.1	-1.1	-1.1	-1.4	-0.6	
Energy Branch	154.2	172.4	173.1	184.3	166.2	158.9	150.8	142.3	132.0	1.2	-0.4	-1.0	-1.3	
Industry	801.7	684.2	632.4	599.4	622.7	633.3	606.1	586.1	568.2	-2.3	-0.2	-0.3	-0.6	
Residential	507.7	482.4	466.1	483.1	464.0	438.7	413.0	374.1	335.0	-0.9	0.0	-1.2	-2.1	
Tertiary	304.7	274.8	242.0	254.6	249.2	233.9	220.3	205.2	189.9	-2.3	0.3	-1.2	-1.5	
Transport	810.0	870.4	987.6	1050.6	1088.0	1114.3	1103.3	1106.1	1107.5	2.0	1.0	0.1	0.0	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	331.5	346.8	355.7	362.4	367.8	-0.8	0.8	0.7	0.3	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	807.2	773.9	692.3	638.9	-2.1	-0.8	-1.5	-1.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	89.6	86.6	83.2	80.6	77.1					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										EU27: Cost Efficiency with JI/CDM Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0	
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8	
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	143.9	129.2	116.0	106.3	98.3	-1.8	-1.7	-2.1	-1.6	
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.11	2.03	1.93	1.87	1.79	-0.9	-0.6	-0.9	-0.7	
Import Dependency %	44.4	43.3	46.7	52.4	54.6	57.9	59.3	59.9	59.7					
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1254.6	1410.1	1583.8	1714.6	1818.2		2.5	2.4	1.4	
as % of GDP			9.7	9.9	10.1	10.0	10.1	9.9	9.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.6	80.6	73.8	68.4	64.9	-2.7	-1.3	-1.7	-1.3	
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	86.9	78.6	71.4	64.7	59.3	-1.3	-1.4	-1.9	-1.8	
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	85.5	76.5	68.4	62.0	56.6	-2.3	-1.6	-2.2	-1.9	
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.4	33.8	32.0	30.8	0.1	-0.7	-0.8	-0.9	
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.1	48.3	45.8	44.1	42.6	0.3	-0.1	-0.9	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.30	0.27	0.24	0.22	0.19	-2.0	-2.0	-2.4	-2.2	
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.01	1.95	1.86	1.79	1.72	-0.8	-0.4	-0.8	-0.7	
Industry	2.18	2.10	1.95	1.85	1.84	1.80	1.69	1.60	1.52	-1.1	-0.6	-0.8	-1.0	
Residential	1.92	1.72	1.62	1.57	1.50	1.40	1.31	1.19	1.08	-1.7	-0.8	-1.4	-1.9	
Tertiary	1.91	1.70	1.50	1.47	1.43	1.33	1.25	1.16	1.09	-2.4	-0.5	-1.4	-1.4	
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.69	2.67	2.64	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	11.8	15.2	20.2	23.1	25.3					
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.1	6.7	10.1	10.9	11.6					
Gross Electricity generation by source (in GWh)														
			2992030	3275359	3311061	3488653	3685941	4082317	4433741		1.0	1.1	1.9	
Nuclear energy	944823	997519	950911	945558	849117	827345	861707			0.1	-1.1	0.1		
Solids	900381	918139	915583	898532	825452	886597	925421			0.2	-1.0	1.1		
Oil (including refinery gas)	176516	150480	48442	45986	29678	34078	28435			-12.1	-4.8	-0.4		
Gas (including derived gases)	535039	721024	752647	772310	834222	897731	938544			3.5	1.0	1.2		
Biomass-waste	54964	101813	108618	207205	393071	560004	648333			7.0	13.7	5.1		
Hydro (pumping excluded)	353182	306902	345308	344524	347075	350217	352335			-0.2	0.1	0.2		
Wind	22246	70469	176774	256508	374239	481110	600401			23.0	7.8	4.8		
Solar	117	1489	3731	6432	16473	26616	58127			41.4	16.0	13.4		
Geothermal and other renewables	4762	7525	9046	11598	16614	18619	20439			6.6	6.3	2.1		
Net Generation Capacity in MW_e	680864	739517	833268	865021	910404	992132	1116454			2.0	0.9	2.1		
<u>Nuclear energy</u>	135806	134187	125500	123333	112323	100880	105708			-0.8	-1.1	-0.6		
<u>Renewable energy</u>	120596	151902	199555	234382	293821	347994	426395			5.2	3.9	3.8		
Hydro (pumping excluded)	107638	109284	111492	113174	114455	115084	115626			0.4	0.3	0.1		
Wind	12786	40822	84001	113448	161898	206911	261446			20.7	6.8	4.9		
Solar	172	1797	3782	6276	13474	21048	43354			36.2	13.5	12.4		
Other renewables (tidal etc.)	0	0	280	1484	3993	4950	5969				30.4	4.1		
<u>Thermal power</u>	424462	453429	508214	507306	504260	543258	584351			1.8	-0.1	1.5		
of which cogeneration units	123462	133684	114743	126795	147472	165513	174471			-0.7	2.5	1.7		
Solids fired	191258	188695	184404	178676	153142	147339	138427			-0.4	-1.8	-1.0		
Gas fired	149738	181031	232741	235025	233278	253666	293308			4.5	0.0	2.3		
Oil fired	71858	67498	64904	45782	34097	23711	16550			-1.0	-6.2	-7.0		
Biomass-waste fired	10810	15216	25161	46778	82656	117428	134808			8.8	12.6	5.0		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat		798	988	1003	1045	1088	1114	1257		2.3	0.8	1.5		
Avg. Load factor of net power capacity (%)			47.4	47.8	43.2	44.0	44.2	44.8	43.2					
Efficiency of gross thermal power generation (%)			37.6	38.6	44.0	46.8	48.5	50.5	52.2					
% of gross electricity from CHP			12.7	12.8	16.2	18.2	21.1	22.4	22.5					
Carbon free gross electricity generation (%)			46.1	45.4	48.2	50.8	54.2	55.5	57.3					
- nuclear			31.6	30.5	28.7	27.1	23.0	20.3	19.4					
- renewable energy forms			14.5	14.9	19.4	23.7	31.1	35.2	37.9					
Transport sector														
Passenger transport activity (Gpkm)														
	4784.5	5221.8	5819.7	6245.4	6733.0	7261.4	7743.2	8229.5	8652.1	2.0	1.5	1.4	1.1	
Public road transport	555.6	498.3	514.0	529.0	548.3	567.2	594.9	617.2	635.9	-0.8	0.6	0.8	0.7	
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5059.9	5406.1	5692.5	5985.3	6227.9	2.4	1.5	1.2	0.9	
Rail	464.8	412.0	438.5	446.8	475.1	518.5	569.4	627.8	689.5	-0.6	0.8	1.8	1.9	
Aviation	247.9	325.9	442.0	506.3	600.7	719.9	835.3	946.7	1045.4	6.0	3.1	3.4	2.3	
Inland navigation	57.0	55.4	49.4	48.9	49.1	49.8	51.1	52.4	53.5	-1.4	-0.1	0.4	0.5	
Freight transport activity (Gtkm)														
	1878.9	1929.0	2174.9	2463.9	2737.1	3009.4	3236.9	3446.0	3602.8	1.5	2.3	1.7	1.1	
Trucks	1096.9	1279.3	1507.5	1790.0	2002.5	2209.5	2375.7	2537.2	2655.6	3.2	2.9	1.7	1.1	
Rail	524.8	385.0	396.1	393.9	438.7	485.1	526.2	560.3	587.2	-2.8	1.0	1.8	1.1	
Inland navigation	257.2	264.7	271.3	280.1	295.8	314.9	334.9	348.5	360.0	0.5	0.9	1.2	0.7	
Energy demand in transport (ktoe)														
	279440	299758	339129	361705	384133	402098	410097	415008	419604	2.0	1.3	0.7	0.2	
Public road transport	5216	4538	4464	4316	4292	4251	4259	4136	4036	-1.5	-0.4	-0.1	-0.5	
Private cars and motorcycles	148125	159084	174735	175721	180795	183918	184076	182953	182098	1.7	0.3	0.2	-0.1	
Trucks	80641	85832	99349	116963	126284	133554	136359	140646	143739	2.1	2.4	0.8	0.5	
Rail	9605	9409	9710	9605	10012	10100	9821	9281	7892	0.1	0.3	-0.2	-2.2	
Aviation	28947	34014	45368	49744	57178	64500	69624	71980	75817	4.6	2.3	2.0	0.9	
Inland navigation	6905	6881	5503	5356	5573	5776	5957	6012	6023	-2.2	0.1	0.7	0.1	

Source: PRIMES

EU27: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	933011	937567	896393	787264	763769	764338	17042	39010	73647	2.2	5.4	10.7
Solids	365918	213693	196451	138558	121787	109647	-13807	-19978	-16161	-9.1	-14.1	-12.8
Oil	128809	171665	132993	76786	53069	40783	-380	-41	-37	-0.5	-0.1	-0.1
Natural gas	162447	207559	188021	125422	111934	82942	-3577	-3000	-1819	-2.8	-2.6	-2.1
Nuclear	202589	243761	257360	243052	217400	202700	-663	-4072	-3703	-0.3	-1.8	-1.8
Renewable energy sources	73248	100890	121568	203446	259579	328266	35469	66102	95367	21.1	34.2	40.9
Hydro	25101	30374	26394	29629	29848	30301	1295	919	118	4.6	3.2	0.4
Biomass & Waste	44737	64774	82903	131607	168816	209489	19126	39587	51448	17.0	30.6	32.6
Wind	67	1913	6060	22060	32185	51634	4688	8864	22197	27.0	38.0	75.4
Solar and others	153	418	816	13316	21723	29663	9149	15481	20992	219.5	248.0	242.1
Geothermal	3190	3412	5395	6834	7007	7179	1211	1251	612	21.5	21.7	9.3
Net Imports	748677	818875	975298	1084839	1114587	1133806	-128629	-186540	-241975	-10.6	-14.3	-17.6
Solids	79289	98575	126702	139674	132019	132932	-42110	-68068	-76902	-23.2	-34.0	-36.6
Oil	530805	525661	589611	632581	640858	634645	-37106	-65946	-94542	-5.5	-9.3	-13.0
- Crude oil and Feedstocks	503539	507317	574313	635321	652310	659230	-23829	-43964	-61729	-3.6	-6.3	-8.6
- Oil products	27265	18344	15298	-2740	-11452	-24585	-13277	-21982	-32814	-126.0	-208.8	-398.8
Natural gas	135121	192531	256828	301306	310781	321939	-56741	-79183	-109509	-15.8	-20.3	-25.4
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1816082	1820135	1836538	-11556	-147435	-168175	-5.8	-7.5	-8.4
Solids	450105	321390	320065	278232	253806	242579	-55917	-88046	-93063	-16.7	-25.8	-27.7
Oil	625464	650399	665514	653346	635706	613822	-37455	-65893	-94425	-5.4	-9.4	-13.3
Natural gas	294905	393417	444804	426728	422715	404881	-60318	-82183	-111329	-12.4	-16.3	-21.6
Nuclear	202589	243761	257360	243052	217400	202700	-663	-4072	-3703	-0.3	-1.8	-1.8
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	213258	289468	371633	42797	92759	134345	25.1	47.2	56.6
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	15.3	13.9	13.2	-2.0	-3.4	-3.5			
Oil	37.9	38.0	36.7	36.0	34.9	33.4	0.1	-0.7	-1.9			
Natural gas	17.9	23.0	24.6	23.5	23.2	22.0	-1.8	-2.4	-3.7			
Nuclear	12.3	14.2	14.2	13.4	11.9	11.0	0.7	0.7	0.7			
Renewable energy forms	4.5	5.9	6.8	11.7	15.9	20.2	2.9	5.9	8.4			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3488653	3685941	4433741	-350756	-392297	25708	-9.1	-9.6	0.6
Self consumption and grid losses	335093	383382	407678	389423	408234	523553	-48194	-58250	3141	-11.0	-12.5	0.6
Fuel Inputs to Thermal Power Generation	379588	382767	423183	355290	370654	420345	-84713	-95466	-53354	-19.3	-20.5	-11.3
Solids	259913	223114	229144	192302	171595	170429	-55937	-85880	-86276	-22.5	-33.4	-33.6
Oil (including refinery gas)	54361	39172	29499	7959	4301	3319	-6987	-9065	-7203	-46.7	-67.8	-68.5
Gas (including derived gases)	56680	102572	133257	110266	117123	123283	-34475	-36690	-25247	-23.8	-23.9	-17.0
Biomass & Waste	5861	14969	26638	39337	72081	117414	12144	35648	65373	44.7	97.8	125.6
Geothermal heat	2774	2939	4645	5426	5553	5900	542	521	0	11.1	10.4	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	849438	849516	838131	-19235	-36255	-62398	-2.2	-4.1	-6.9
Refineries	673810	727451	749312	746747	739648	732665	-24273	-44092	-61857	-3.1	-5.6	-7.8
Biofuels and hydrogen production	2	624	3206	26965	40603	46943	3089	8336	4515	12.9	25.8	10.6
District heating	33413	19302	16177	17847	15868	12534	-1371	-2582	-6368	-7.1	-14.0	-33.7
Derived gases, cokeries etc.	127920	71473	65511	57879	53397	45989	3321	2084	1311	6.1	4.1	2.9
Energy Branch Consumption	81962	87583	93941	85624	84789	86223	-4849	-6751	-7069	-5.4	-7.4	-7.6
Non-Energy Uses	96068	109135	111706	120778	125238	130902	-217	-282	-312	-0.2	-0.2	-0.2
Final Energy Demand	1070684	1112182	1166880	1244082	1262013	1278074	-57955	-85794	-127607	-4.5	-6.4	-9.1
by sector												
Industry	367505	324835	324493	351824	359194	373050	-3525	-8498	-13329	-1.0	-2.3	-3.4
- energy intensive industries	236724	212264	209326	224927	227127	230973	10	-3209	-5876	0.0	-1.4	-2.5
- other industrial sectors	130780	112571	115167	126897	132067	142078	-3535	-5288	-7453	-2.7	-3.9	-5.0
Residential	264548	287255	307013	313733	316107	310596	-15979	-19898	-32749	-4.8	-5.9	-9.5
Tertiary	159192	160963	173669	176427	176616	174823	-22245	-28853	-38054	-11.2	-14.0	-17.9
Transport	279440	339129	361705	402098	410097	419604	-16206	-28545	-43475	-3.9	-6.5	-9.4
by fuel												
Solids	130725	61781	53475	54742	53215	47044	-561	-2225	-4285	-1.0	-4.0	-8.3
Oil	442561	477166	492540	501968	488267	470013	-26794	-51512	-79746	-5.1	-9.5	-14.5
Gas	227872	267506	287197	286736	274990	250076	-22101	-39226	-76300	-7.2	-12.5	-23.4
Electricity	184059	217155	237501	259394	274737	329269	-25858	-28391	2463	-9.1	-9.4	0.8
Heat (from CHP and District Heating)	48744	40988	41333	39518	41579	42807	-3877	-4574	-5578	-8.9	-9.9	-11.5
Renewable energy forms	36724	47586	54833	101668	129110	138718	21232	40130	35867	26.4	45.1	34.9
Other	0	0	0	57	115	147	4	5	-27	7.2	4.9	-15.8
RES in Gross Final Energy Consumption ^(A)		91114	104237	194322	262677	335186	42578	86610	121939	28.1	49.2	57.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4833.0	4640.0	4301.4	-556.2	-856.4	-1078.2	-10.3	-15.6	-20.0
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3679.0	3510.3	3294.7	-477.7	-742.2	-969.0	-11.5	-17.5	-22.7
Power generation/District heating	1468.7	1319.6	1374.9	1099.9	1016.9	962.1	-331.0	-465.9	-500.5	-23.1	-31.4	-34.2
Energy Branch	154.2	173.1	184.3	158.9	150.8	132.0	-13.3	-20.8	-32.7	-7.7	-12.1	-19.8
Industry	801.7	632.4	599.4	633.3	606.1	568.2	2.9	-31.2	-65.1	0.5	-4.9	-10.3
Residential	507.7	466.1	483.1	438.7	413.0	335.0	-48.3	-72.0	-148.3	-9.9	-14.8	-30.7
Tertiary	304.7	242.0	254.6	233.9	220.3	189.9	-31.2	-43.1	-70.2	-11.8	-16.4	-27.0
Transport	810.0	987.6	1050.6	1114.3	1103.3	1107.5	-56.9	-109.2	-152.3	-4.9	-9.0	-12.1
CO₂ Emissions (non energy related)	332.1	307.3	320.4	346.8	355.7	367.8	3.2	-2.2	-7.1	0.9	-0.6	-1.9
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	807.2	773.9	638.9	-81.7	-112.0	-102.1	-9.2	-12.6	-13.8
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	86.6	83.2	77.1	-10.0	-15.4	-19.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							EU27: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	129.2	116.0	98.3	-7.9	-9.4	-9.0	-5.8	-7.5	-8.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	2.03	1.93	1.79	-0.13	-0.23	-0.33	-6.1	-10.8	-15.7
Import Dependency %	44.4	46.7	52.4	57.9	59.3	59.7	-3.2	-4.9	-6.8			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1410.1	1583.8	1818.2	41.0	68.0	108.7	3.0	4.5	6.4
as % of GDP		9.7	9.9	10.0	10.1	9.7	0.3	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				42.1	69.8	110.7						
as % of GDP				0.30	0.44	0.59						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	80.6	73.8	64.9	-0.8	-1.7	-2.3	-1.0	-2.3	-3.4
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	78.6	71.4	59.3	-4.0	-4.5	-6.3	-4.8	-5.9	-9.5
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	76.5	68.4	56.6	-9.6	-11.2	-12.3	-11.2	-14.0	-17.9
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.4	33.8	30.8	-0.6	-1.0	-1.8	-1.8	-2.9	-5.5
Freight transport (toe/Mtkm)	49.2	50.5	51.7	48.3	45.8	42.6	-1.9	-3.4	-4.4	-3.8	-7.0	-9.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.27	0.24	0.19	-0.05	-0.08	-0.10	-15.5	-24.1	-33.6
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.95	1.86	1.72	-0.02	-0.07	-0.15	-0.8	-3.7	-8.2
Industry	2.18	1.95	1.85	1.80	1.69	1.52	0.03	-0.05	-0.12	1.5	-2.6	-7.1
Residential	1.92	1.62	1.57	1.40	1.31	1.08	-0.08	-0.14	-0.33	-5.3	-9.5	-23.4
Tertiary	1.91	1.50	1.47	1.33	1.25	1.09	-0.01	-0.03	-0.14	-0.6	-2.7	-11.1
Transport	2.90	2.91	2.90	2.77	2.69	2.64	-0.03	-0.07	-0.08	-1.0	-2.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.2	20.2	25.3	3.9	7.5	10.6			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	6.7	10.1	11.6	1.0	2.7	2.2			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3488653	3685941	4433741	4433741	-350756	-392297	25708	-9.1	-9.6	0.6
Nuclear energy	944823	997519	945558	849117	861707	861707	-3151	-16459	-10555	-0.3	-1.9	-1.2
Solids	900381	918139	898532	825452	925421	925421	-238316	-415994	-448774	-21.0	-33.5	-32.7
Oil (including refinery gas)	176516	150480	45986	29678	28435	28435	-42161	-50374	-44251	-47.8	-62.9	-60.9
Gas (including derived gases)	535039	721024	772310	834222	938544	938544	-202081	-233046	-145129	-20.7	-21.8	-13.4
Biomass-waste	54964	101813	207205	393071	648333	648333	61975	196672	366479	42.7	100.1	130.0
Hydro (pumping excluded)	353182	306902	344524	347075	352335	352335	15060	10683	1376	4.6	3.2	0.4
Wind	22246	70469	256508	374239	600401	600401	54512	103069	258106	27.0	38.0	75.4
Solar	117	1489	6432	16473	58127	58127	212	7004	41582	3.4	74.0	251.3
Geothermal and other renewables	4762	7525	11598	16614	20439	20439	3194	6148	6873	38.0	58.7	50.7
Net Generation Capacity in MW_e												
	680864	739517	865021	910404	1116454	1116454	3397	9176	150336	0.4	1.0	15.6
<u>Nuclear energy</u>	135806	134187	123333	112323	105708	105708	-321	-365	3265	-0.3	-0.3	3.2
<u>Renewable energy</u>	120596	151902	234382	293821	426395	426395	22647	48976	147138	10.7	20.0	52.7
Hydro (pumping excluded)	107638	109284	113174	114455	115626	115626	135	153	106	0.1	0.1	0.1
Wind	12786	40822	113448	161898	261446	261446	21210	41524	115506	23.0	34.5	79.1
Solar	172	1797	6276	13474	43354	43354	134	4495	27960	2.2	50.1	181.6
Other renewables (tidal etc.)	0	0	1484	3993	5969	5969	1167	2805	3566	368.2	235.9	148.4
<u>Thermal power</u>	424462	453429	507306	504260	584351	584351	-18929	-39435	-67	-3.6	-7.3	0.0
of which cogeneration units	123462	133684	126795	147472	174471	174471	-11713	-10847	4422	-8.5	-6.9	2.6
Solids fired	191258	188695	178676	153142	138427	138427	-9767	-33132	-49918	-5.2	-17.8	-26.5
Gas fired	149738	181031	235025	233278	293308	293308	-26075	-48557	-20085	-10.0	-17.2	-6.4
Oil fired	71858	67498	45782	34097	16550	16550	-4408	-4227	-14167	-8.8	-11.0	-46.1
Biomass-waste fired	10810	15216	46778	82656	134808	134808	21276	46423	84108	83.4	128.1	165.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	798	988	1045	1088	1257	1257	44	58	-4	4.4	5.6	-0.3
Avg. Load factor of net power capacity (%)	47.4	47.8	44.0	44.2	43.2	43.2	-4.6	-5.1	-6.3			
Efficiency of gross thermal power generation (%)	37.6	38.6	46.8	48.5	52.2	52.2	0.8	0.7	0.9			
% of gross electricity from CHP	12.7	12.8	18.2	21.1	22.5	22.5	0.3	0.8	1.4			
Carbon free gross electricity generation (%)	46.1	45.4	50.8	54.2	57.3	57.3	8.1	12.7	14.7			
- nuclear	31.6	30.5	27.1	23.0	19.4	19.4	2.4	1.8	-0.4			
- renewable energy forms	14.5	14.9	23.7	31.1	37.9	37.9	5.7	10.9	15.1			
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7261.4	7743.2	8652.1	-88.6	-153.9	-208.6	-1.2	-1.9	-2.4
Public road transport	555.6	514.0	529.0	567.2	594.9	635.9	9.7	14.7	18.5	1.7	2.5	3.0
Private cars and motorcycles	3459.2	4375.8	4714.4	5406.1	5692.5	6227.9	-92.6	-156.8	-213.5	-1.7	-2.7	-3.3
Rail	464.8	438.5	446.8	518.5	569.4	689.5	9.3	13.2	21.8	1.8	2.4	3.3
Aviation	247.9	442.0	506.3	719.9	835.3	1045.4	-14.6	-24.8	-35.2	-2.0	-2.9	-3.3
Inland navigation	57.0	49.4	48.9	49.8	51.1	53.5	-0.4	-0.3	-0.3	-0.7	-0.6	-0.5
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	3009.4	3236.9	3602.8	-51.9	-84.6	-114.4	-1.7	-2.5	-3.1
Trucks	1096.9	1507.5	1790.0	2209.5	2375.7	2655.6	-69.5	-109.8	-147.4	-3.0	-4.4	-5.3
Rail	524.8	396.1	393.9	485.1	526.2	587.2	15.6	21.7	28.3	3.3	4.3	5.1
Inland navigation	257.2	271.3	280.1	314.9	334.9	360.0	2.0	3.6	4.8	0.6	1.1	1.3
Energy demand in transport (ktoe)												
	279440	339129	361705	402098	410097	419604	-16206	-28545	-43475	-3.9	-6.5	-9.4
Public road transport	5216	4464	4316	4251	4259	4036	-24	-76	-243	-0.6	-1.8	-5.7
Private cars and motorcycles	148125	174735	175721	183918	184076	182098	-5851	-9266	-11750	-3.1	-4.8	-6.1
Trucks	80641	99349	116963	133554	136359	143739	-8486	-15482	-21562	-6.0	-10.2	-13.0
Rail	9605	9710	9605	10100	9821	7892	95	134	206	0.9	1.4	2.7
Aviation	28947	45368	49744	64500	69624	75817	-1910	-3808	-10087	-2.9	-5.2	-11.7
Inland navigation	6905	5503	5356	5776	5957	6023	-30	-46	-39	-0.5	-0.8	-0.6

Source: PRIMES

Austria: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	8154	8638	9551	9780	10792	12281	13305	13784	14155	1.6	1.2	2.1	0.6
Solids	644	305	293	0	0	0	0	0	0	-7.6			
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8
Natural gas	1097	1261	1533	1403	1293	1204	400	430	417	3.4	-1.7	-11.1	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	5168	6001	6654	7422	8650	10457	12625	13124	13548	2.6	2.7	3.9	0.7
Hydro	2709	3187	3598	3085	3281	3190	3297	3297	3297	2.9	-0.9	0.0	0.0
Biomass & Waste	2440	2775	2973	4097	4847	6226	8141	8584	8938	2.0	5.0	5.3	0.9
Wind	0	0	6	114	267	398	427	461	490		46.8	4.8	1.4
Solar and others	15	36	64	92	246	628	741	762	805	15.7	14.4	11.7	0.8
Geothermal	4	3	14	35	8	14	17	19	17	14.2	-5.5	8.1	0.0
Net Imports	17086	17769	18853	24392	23300	22642	21474	21269	21326	1.0	2.1	-0.8	-0.1
Solids	3112	2543	3064	3958	3959	4194	3539	3386	4277	-0.2	2.6	-1.1	1.9
Oil	9521	10012	10703	13028	12851	12532	12070	11626	10999	1.2	1.8	-0.6	-0.9
- Crude oil and Feedstocks	7878	8068	7704	7964	8136	8184	8252	8129	7930	-0.2	0.5	0.1	-0.4
- Oil products	1643	1944	3000	5064	4714	4347	3818	3497	3068	6.2	4.6	-2.1	-2.2
Natural gas	4443	5404	5253	7288	6319	5888	5957	6405	6208	1.7	1.9	-0.6	0.4
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Gross Inland Consumption	24986	26722	28524	33980	34092	34923	34779	35053	35481	1.3	1.8	0.2	0.2
Solids	4042	3336	3637	4050	3959	4194	3539	3386	4277	-1.1	0.9	-1.1	1.9
Oil	10596	11196	11882	14125	13701	13152	12350	11856	11189	1.2	1.4	-1.0	-1.0
Natural gas	5184	6374	6519	8263	7612	7093	6357	6835	6624	2.3	1.6	-1.8	0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Renewable energy forms	5204	6027	6605	7312	8519	10289	12405	12892	13306	2.4	2.6	3.8	0.7
as % in Gross Inland Consumption													
Solids	16.2	12.5	12.7	11.9	11.6	12.0	10.2	9.7	12.1				
Oil	42.4	41.9	41.7	41.6	40.2	37.7	35.5	33.8	31.5				
Natural gas	20.7	23.9	22.9	24.3	22.3	20.3	18.3	19.5	18.7				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	20.8	22.6	23.2	21.5	25.0	29.5	35.7	36.8	37.5				
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62081	66422	72958	82607	91344	2.0	0.3	1.6	2.3
Self consumption and grid losses	4886	4995	5404	7536	6294	6486	7400	8840	10345	1.0	1.5	1.6	3.4
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3299	4099	4688	6125	7266	-0.2	-1.7	3.6	4.5
Solids	1510	1055	1236	1510	1327	1657	1116	1020	1968	-2.0	0.7	-1.7	5.8
Oil (including refinery gas)	488	489	287	270	116	44	0	0	0	-5.2	-8.6		
Gas (including derived gases)	1776	2276	1974	2901	1492	880	411	1314	1259	1.1	-2.8	-12.1	11.9
Biomass & Waste	237	455	428	786	361	1510	3153	3781	4028	6.1	-1.7	24.2	2.5
Geothermal heat	0	0	0	2	3	7	9	9	10			12.7	1.7
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11443	11404	11250	11743	12714	12189	11663	11236	11062	-0.2	1.2	-0.9	-0.5
Refineries	9123	9170	8765	9080	8988	8806	8532	8360	8120	-0.4	0.3	-0.5	-0.5
Biofuels and hydrogen production	2	5	9	42	337	559	893	984	1111	17.5	44.1	10.2	2.2
District heating	347	438	566	612	1270	796	317	37	0	5.0	8.4	-13.0	
Derived gases, cokeries etc.	1971	1790	1910	2009	2119	2029	1921	1856	1830	-0.3	1.0	-1.0	-0.5
Energy Branch Consumption	1639	1703	1750	2134	1894	1809	1712	1682	1649	0.7	0.8	-1.0	-0.4
Non-Energy Uses	1401	1145	1386	1381	1408	1463	1512	1552	1584	-0.1	0.2	0.7	0.5
Final Energy Demand	19057	20919	22913	27309	28683	29427	29595	29442	29257	1.9	2.3	0.3	-0.1
by sector													
Industry	6153	6474	7528	8825	9358	9558	9511	9562	9612	2.0	2.2	0.2	0.1
- energy intensive industries	4048	4038	4982	5533	5787	5842	5728	5694	5645	2.1	1.5	-0.1	-0.1
- other industrial sectors	2105	2436	2546	3293	3572	3715	3783	3868	3967	1.9	3.4	0.6	0.5
Residential	5755	6222	6042	6548	6742	7054	7184	7190	7132	0.5	1.1	0.6	-0.1
Tertiary	2544	3062	3304	3942	4129	4209	4257	4192	4080	2.6	2.3	0.3	-0.4
Transport	4603	5161	6038	7994	8453	8606	8644	8497	8433	2.7	3.4	0.2	-0.2
by fuel													
Solids	1718	1535	1415	1458	1453	1407	1329	1279	1108	-1.9	0.3	-0.9	-1.8
Oil	7896	8728	9402	11774	11586	11273	10674	10375	9978	1.8	2.1	-0.8	-0.7
Gas	2968	3607	4254	4936	5317	5634	5332	4967	4743	3.7	2.3	0.0	-1.2
Electricity	3669	3953	4474	4884	4986	5239	5658	6322	6947	2.0	1.1	1.3	2.1
Heat (from CHP and District Heating)	614	848	1052	1260	1347	1281	1330	1373	1252	5.5	2.5	-0.1	-0.6
Renewable energy forms	2192	2248	2316	2996	3993	4590	5271	5124	5226	0.6	5.6	2.8	-0.1
Other	0	0	0	0	1	1	2	3	3			14.3	1.9
RES in Gross Final Energy Consumption ^(A)			6285	6788	8205	9788	11771	12166	12520		2.7	3.7	0.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	94.3	90.7	83.5	81.5	81.6	0.5	1.1	-1.2	-0.2
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	70.3	68.2	61.4	60.4	61.2	1.0	1.4	-1.3	0.0
Power generation/District heating	12.8	12.1	11.6	15.0	11.5	10.1	6.6	7.8	11.3	-1.0	0.0	-5.4	5.5
Energy Branch	3.8	4.0	4.2	4.6	4.3	4.1	3.8	3.5	3.3	1.0	0.2	-1.4	-1.4
Industry	12.7	13.6	15.5	17.5	17.9	18.5	17.6	17.7	17.2	2.0	1.4	-0.2	-0.2
Residential	9.8	9.7	8.8	9.0	8.3	7.8	7.1	6.5	5.8	-1.1	-0.6	-1.5	-2.1
Tertiary	3.4	4.0	3.7	4.5	4.5	4.1	3.5	2.7	2.1	0.8	2.0	-2.6	-4.7
Transport	12.7	14.6	17.2	23.1	23.7	23.6	22.9	22.1	21.5	3.1	3.3	-0.4	-0.6
CO ₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.7	9.8	9.5	9.5	9.4	0.2	1.6	-0.2	-0.1
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.8	12.7	11.6	11.1	-1.1	-0.7	-1.2	-1.4
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	117.3	112.9	103.9	101.4	101.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Austria: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1	
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4	
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	122.9	114.1	103.7	96.5	91.8	-1.2	-0.2	-1.7	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.06	1.95	1.77	1.72	1.72	-0.3	-0.4	-1.5	-0.2	
Import Dependency %	68.4	66.5	66.1	71.8	68.3	64.8	61.7	60.7	60.1					
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	26.6	29.8	33.7	36.0	37.4		3.4	2.4	1.0	
as % of GDP			8.4	9.5	9.6	9.7	10.1	9.9	9.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	100.0	91.9	83.3	77.1	72.7	-0.6	0.0	-1.8	-1.3	
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.4	88.9	82.9	76.9	71.8	-1.6	-0.7	-1.2	-1.4	
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.5	94.3	86.9	78.8	72.0	0.1	0.2	-1.6	-1.9	
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	37.5	35.9	33.0	31.1	0.1	2.3	-0.8	-1.4	
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	55.1	52.1	49.9	48.3	-0.8	2.4	-1.0	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.15	0.12	0.07	0.08	0.11	-3.4	-0.8	-6.6	3.7	
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.90	1.83	1.72	1.67	1.59	-0.3	-0.4	-1.0	-0.8	
Industry	2.06	2.10	2.06	1.98	1.91	1.94	1.85	1.86	1.79	0.0	-0.7	-0.3	-0.3	
Residential	1.71	1.55	1.46	1.37	1.23	1.10	0.99	0.90	0.81	-1.6	-1.7	-2.1	-2.0	
Tertiary	1.34	1.32	1.12	1.15	1.09	0.97	0.82	0.65	0.53	-1.8	-0.2	-2.9	-4.3	
Transport	2.75	2.82	2.85	2.89	2.81	2.74	2.64	2.61	2.55	0.3	-0.1	-0.6	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	28.0	32.5	38.8	40.2	41.5					
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.1	9.8	11.2	13.0					
Gross Electricity generation by source (in GWh)														
			60150	62969	62081	66422	72958	82607	91344		0.3	1.6	2.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			4642	5863	6114	7640	5261	4935	11884		2.8	-1.5	8.5	
Oil (including refinery gas)			1220	1452	1218	1203	673	426	191		0.0	-5.8	-11.9	
Gas (including derived gases)			10541	14513	9889	6965	6277	13103	13209		-0.6	-4.4	7.7	
Biomass-waste			1845	3929	3556	8795	17269	20184	21665		6.8	17.1	2.3	
Hydro (pumping excluded)			41832	35868	38154	37094	38342	38342	38342		-0.9	0.0	0.0	
Wind			67	1328	3109	4632	4969	5363	5701		46.8	4.8	1.4	
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1	
Geothermal and other renewables			0	3	4	10	11	12	13			10.2	1.5	
Net Generation Capacity in MW_e			16771	17685	20066	21887	23593	24487	25765		1.8	1.6	0.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			10792	11287	12000	13452	14326	15004	16055		1.1	1.8	1.1	
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3	
Wind			77	817	1350	2144	2375	2726	3481		33.2	5.8	3.9	
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			5978	6397	8065	8436	9267	9483	9710		3.0	1.4	0.5	
of which cogeneration units			3067	3657	3474	4171	5545	5706	5619		1.3	4.8	0.1	
Solids fired			1600	1587	1460	1460	1460	591	1384		-0.9	0.0	-0.5	
Gas fired			2916	3267	4707	4509	4295	5102	4471		4.9	-0.9	0.4	
Oil fired			1167	1158	1137	890	312	161	51		-0.3	-12.1	-16.6	
Biomass-waste fired			295	384	761	1575	3197	3627	3802		9.9	15.4	1.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	1	1	2	3	3	3			7.7	1.3	
Avg. Load factor of net power capacity (%)			39.8	38.3	33.7	33.3	33.9	36.9	38.7					
Efficiency of gross thermal power generation (%)			40.0	40.5	54.2	51.6	54.1	54.3	55.6					
% of gross electricity from CHP			12.3	20.6	24.8	26.4	34.9	36.7	32.8					
Carbon free gross electricity generation (%)			72.7	65.3	72.3	76.2	83.3	77.6	72.3					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			72.7	65.3	72.3	76.2	83.3	77.6	72.3					
Transport sector														
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	137.6	144.1	150.7	155.8	1.9	1.3	1.0	0.8	
Public road transport	14.2	14.8	14.8	15.1	16.0	16.6	17.3	17.8	18.1	0.4	0.7	0.8	0.5	
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	95.8	98.6	101.5	103.2	2.2	1.2	0.7	0.5	
Rail	11.5	12.7	11.8	12.3	13.4	14.5	15.6	16.4	17.2	0.3	1.3	1.5	1.0	
Aviation	4.1	5.4	6.6	7.3	8.8	10.6	12.6	14.9	17.1	5.0	2.9	3.7	3.1	
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.6	0.7	
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	62.7	66.4	70.6	74.2	4.7	0.8	1.3	1.1	
Trucks	20.3	26.5	35.1	37.0	38.3	40.5	42.4	44.9	47.0	5.6	0.9	1.0	1.0	
Rail	12.2	13.2	16.6	17.1	18.5	20.3	22.0	23.5	25.0	3.2	1.1	1.7	1.3	
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.2	3.9	-3.1	1.5	0.8	
Energy demand in transport (ktoe)	4603	5161	6038	7994	8453	8606	8644	8497	8433	2.7	3.4	0.2	-0.2	
Public road transport	80	83	80	107	111	109	107	100	94	-0.1	3.4	-0.3	-1.3	
Private cars and motorcycles	2499	2643	2865	3890	4126	4092	4027	3722	3517	1.4	3.7	-0.2	-1.3	
Trucks	1350	1675	2167	3004	3087	3140	3153	3224	3308	4.8	3.6	0.2	0.5	
Rail	357	292	333	310	322	332	327	318	293	-0.7	-0.3	0.2	-1.1	
Aviation	310	461	586	675	798	924	1019	1122	1210	6.6	3.1	2.5	1.7	
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.1	0.5	

Source: PRIMES

Austria: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	12281	13305	14155	2008	3731	3880	19.5	39.0	37.8
Solids	644	293	0	0	0	0	-18	-18	-18	-100.0	-100.0	-100.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1204	400	417	-66	0	31	-5.2	0.0	8.1
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	5168	6654	7422	10457	12625	13548	2091	3749	3867	25.0	42.2	39.9
Hydro	2709	3598	3085	3190	3297	3297	192	0	0	6.4	0.0	0.0
Biomass & Waste	2440	2973	4097	6226	8141	8938	1409	3229	3277	29.2	65.7	57.9
Wind	0	6	114	398	427	490	74	39	96	22.8	10.0	24.3
Solar and others	15	64	92	628	741	805	411	476	494	189.3	179.8	158.3
Geothermal	4	14	35	14	17	17	5	5	1	53.3	37.4	3.5
Net Imports	17086	18853	24392	22642	21474	21326	-4039	-6828	-7058	-15.1	-24.1	-24.9
Solids	3112	3064	3958	4194	3539	4277	-103	-1241	-1315	-2.4	-26.0	-23.5
Oil	9521	10703	13028	12532	12070	10999	-1387	-1884	-2629	-10.0	-13.5	-19.3
- Crude oil and Feedstocks	7878	7704	7964	8184	8252	7930	-559	-733	-1008	-6.4	-8.2	-11.3
- Oil products	1643	3000	5064	4347	3818	3068	-828	-1151	-1621	-16.0	-23.2	-34.6
Natural gas	4443	5253	7288	5888	5957	6208	-2511	-3616	-3025	-29.9	-37.8	-32.8
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	34923	34779	35481	-2031	-3098	-3178	-5.5	-8.2	-8.2
Solids	4042	3637	4050	4194	3539	4277	-121	-1259	-1334	-2.8	-26.2	-23.8
Oil	10596	11882	14125	13152	12350	11189	-1387	-1884	-2629	-9.5	-13.2	-19.0
Natural gas	5184	6519	8263	7093	6357	6624	-2577	-3616	-2993	-26.6	-36.3	-31.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	10289	12405	13306	2053	3661	3778	24.9	41.9	39.7
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.0	10.2	12.1	0.3	-2.5	-2.5			
Oil	42.4	41.7	41.6	37.7	35.5	31.5	-1.7	-2.1	-4.2			
Natural gas	20.7	22.9	24.3	20.3	18.3	18.7	-5.9	-8.1	-6.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	29.5	35.7	37.5	7.2	12.6	12.9			
Gross Electricity Generation in GWh_e	49287	60150	62969	66422	72958	91344	-6069	-5386	5473	-8.4	-6.9	6.4
Self consumption and grid losses	4886	5404	7536	6486	7400	10345	-383	-80	1407	-5.6	-1.1	15.7
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4099	4688	7266	-1542	-1158	756	-27.3	-19.8	11.6
Solids	1510	1236	1510	1657	1116	1968	17	-1056	-966	1.0	-48.6	-32.9
Oil (including refinery gas)	488	287	270	44	0	0	-503	-315	-326	-92.0	-100.0	-100.0
Gas (including derived gases)	1776	1974	2901	880	411	1259	-2186	-2429	-1148	-71.3	-85.5	-47.7
Biomass & Waste	237	428	786	1510	3153	4028	1126	2640	3195	293.4	514.8	383.6
Geothermal heat	0	0	2	7	9	10	3	2	0	85.9	38.1	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	12189	11663	11062	-479	-918	-1332	-3.8	-7.3	-10.7
Refineries	9123	8765	9080	8806	8532	8120	-559	-733	-1008	-6.0	-7.9	-11.0
Biofuels and hydrogen production	2	9	42	559	893	1111	67	189	68	13.6	26.9	6.5
District heating	347	566	612	796	317	0	-29	-397	-432	-3.5	-55.6	-100.0
Derived gases, cokeries etc.	1971	1910	2009	2029	1921	1830	41	22	41	2.1	1.2	2.3
Energy Branch Consumption	1639	1750	2134	1809	1712	1649	-137	-200	-207	-7.0	-10.5	-11.2
Non-Energy Uses	1401	1386	1381	1463	1512	1584	-2	-4	-6	-0.1	-0.2	-0.4
Final Energy Demand	19057	22913	27309	29427	29595	29257	-1279	-2050	-3252	-4.2	-6.5	-10.0
by sector												
Industry	6153	7528	8825	9558	9511	9612	-96	-285	-342	-1.0	-2.9	-3.4
- energy intensive industries	4048	4982	5533	5842	5728	5645	-10	-132	-145	-0.2	-2.2	-2.5
- other industrial sectors	2105	2546	3293	3715	3783	3967	-86	-153	-197	-2.3	-3.9	-4.7
Residential	5755	6042	6548	7054	7184	7132	-208	-336	-629	-2.9	-4.5	-8.1
Tertiary	2544	3304	3942	4209	4257	4080	-558	-718	-1035	-11.7	-14.4	-20.2
Transport	4603	6038	7994	8606	8644	8433	-416	-712	-1246	-4.6	-7.6	-12.9
by fuel												
Solids	1718	1415	1458	1407	1329	1108	-31	-51	-150	-2.1	-3.7	-11.9
Oil	7896	9402	11774	11273	10674	9978	-949	-1549	-2131	-7.8	-12.7	-17.6
Gas	2968	4254	4936	5634	5332	4743	-243	-890	-1576	-4.1	-14.3	-24.9
Electricity	3669	4474	4884	5239	5658	6947	-484	-448	363	-8.5	-7.3	5.5
Heat (from CHP and District Heating)	614	1052	1260	1281	1330	1252	-212	-235	-289	-14.2	-15.0	-18.7
Renewable energy forms	2192	2316	2996	4590	5271	5226	640	1123	529	16.2	27.1	11.3
Other	0	0	0	1	2	3	0	0	0	6.9	5.6	-1.5
RES in Gross Final Energy Consumption ^(A)		6285	6788	9788	11771	12520	2035	3329	3347	26.3	39.4	36.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	90.7	83.5	81.6	-11.7	-20.8	-22.0	-11.5	-19.9	-21.2
CO₂ Emissions (energy related)	55.2	61.0	73.7	68.2	61.4	61.2	-10.7	-19.1	-20.2	-13.6	-23.8	-24.8
Power generation/District heating	12.8	11.6	15.0	10.1	6.6	11.3	-6.9	-11.6	-8.8	-40.6	-63.9	-43.9
Energy Branch	3.8	4.2	4.6	4.1	3.8	3.3	-0.3	-0.5	-0.7	-6.6	-12.2	-18.2
Industry	12.7	15.5	17.5	18.5	17.6	17.2	0.2	-0.8	-0.6	1.2	-4.5	-3.5
Residential	9.8	8.8	9.0	7.8	7.1	5.8	-1.2	-1.9	-3.3	-13.5	-21.1	-36.6
Tertiary	3.4	3.7	4.5	4.1	3.5	2.1	-1.1	-1.6	-2.6	-21.3	-30.9	-54.5
Transport	12.7	17.2	23.1	23.6	22.9	21.5	-1.4	-2.7	-4.1	-5.8	-10.5	-16.1
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.8	9.5	9.4	0.1	-0.1	-0.3	1.0	-1.3	-3.2
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.8	12.7	11.1	-1.1	-1.5	-1.5	-7.8	-10.7	-11.6
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	112.9	103.9	101.6	-14.6	-25.9	-27.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	114.1	103.7	91.8	-6.6	-9.2	-8.2	-5.5	-8.2	-8.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	1.95	1.77	1.72	-0.18	-0.36	-0.38	-8.6	-17.0	-18.1
Import Dependency %	68.4	66.1	71.8	64.8	61.7	60.1	-7.4	-13.0	-13.3			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	29.8	33.7	37.4	0.5	1.7	2.2	1.9	5.4	6.2
as % of GDP		8.4	9.5	9.7	10.1	9.7	0.2	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	1.8	2.2						
as % of GDP				0.18	0.53	0.57						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	91.9	83.3	72.7	-0.9	-2.5	-2.6	-1.0	-2.9	-3.4
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	88.9	82.9	71.8	-2.6	-3.9	-6.3	-2.9	-4.5	-8.1
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	94.3	86.9	72.0	-12.5	-14.7	-18.3	-11.7	-14.4	-20.2
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	37.5	35.9	31.1	-0.8	-1.1	-2.9	-2.0	-3.1	-8.6
Freight transport (toe/Mtkm)	49.4	45.7	59.0	55.1	52.1	48.3	-2.9	-5.0	-6.7	-5.0	-8.8	-12.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.12	0.07	0.11	-0.06	-0.11	-0.09	-34.3	-60.5	-45.0
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.83	1.72	1.59	-0.04	-0.11	-0.17	-2.1	-5.9	-9.6
Industry	2.06	2.06	1.98	1.94	1.85	1.79	0.04	-0.03	0.00	2.2	-1.7	-0.1
Residential	1.71	1.46	1.37	1.10	0.99	0.81	-0.14	-0.21	-0.36	-11.0	-17.4	-31.0
Tertiary	1.34	1.12	1.15	0.97	0.82	0.53	-0.12	-0.19	-0.40	-10.8	-19.3	-43.0
Transport	2.75	2.85	2.89	2.74	2.64	2.55	-0.03	-0.09	-0.10	-1.2	-3.1	-3.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		26.8	24.2	32.5	38.8	41.5	7.9	12.8	13.9			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.1	9.8	13.0	1.0	2.7	2.6			
Gross Electricity generation by source (in GWh_e)												
	60150	62969	66422	72958	91344	91344	-6069	-5386	5473	-8.4	-6.9	6.4
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7640	5261	11884	11884	0	-5014	-3867	0.0	-48.8	-24.6
Oil (including refinery gas)	1220	1452	1203	673	191	191	-2962	-2258	-2667	-71.1	-77.0	-93.3
Gas (including derived gases)	10541	14513	6965	6277	13209	13209	-11077	-10954	-3997	-61.4	-63.6	-23.2
Biomass-waste	1845	3929	8795	17269	21665	21665	4867	12385	14890	123.9	253.6	219.8
Hydro (pumping excluded)	41832	35868	37094	38342	38342	38342	2238	0	0	6.4	0.0	0.0
Wind	67	1328	4632	4969	5701	5701	860	452	1114	22.8	10.0	24.3
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	10	11	13	13	4	3	0	68.0	32.6	0.0
Net Generation Capacity in MW_e												
	16771	17685	21887	23593	25765	25765	-519	39	610	-2.3	0.2	2.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13452	14326	16055	16055	467	204	773	3.6	1.4	5.1
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2144	2375	3481	3481	467	204	773	27.8	9.4	28.5
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8436	9267	9710	9710	-986	-164	-163	-10.5	-1.7	-1.6
of which cogeneration units	3067	3657	4171	5545	5619	5619	-491	377	5	-10.5	7.3	0.1
Solids fired	1600	1587	1460	1460	1384	1384	0	-88	-490	0.0	-5.7	-26.1
Gas fired	2916	3267	4509	4295	4471	4471	-1581	-1687	-1695	-26.0	-28.2	-27.5
Oil fired	1167	1158	890	312	51	51	-538	-603	-534	-37.7	-65.9	-91.3
Biomass-waste fired	295	384	1575	3197	3802	3802	1133	2213	2556	255.9	224.8	205.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	3	3	3	1	1	0	49.9	26.1	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	33.3	33.9	38.7	38.7	-2.4	-2.8	1.2			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.6	54.1	55.6	55.6	0.1	2.1	-0.7			
% of gross electricity from CHP	12.3	20.6	26.4	34.9	32.8	32.8	-5.5	2.3	-3.4			
Carbon free gross electricity generation (%)	72.7	65.3	76.2	83.3	72.3	72.3	17.4	22.1	14.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	76.2	83.3	72.3	72.3	17.4	22.1	14.0			
Transport sector												
Passenger transport activity (Gpkm)												
	95.0	114.6	120.6	137.6	144.1	155.8	-1.7	-3.1	-4.3	-1.3	-2.1	-2.7
Public road transport	14.2	14.8	15.1	16.6	17.3	18.1	0.2	0.3	0.4	1.2	1.8	2.3
Private cars and motorcycles	65.2	81.3	85.8	95.8	98.6	103.2	-2.0	-3.3	-4.5	-2.0	-3.2	-4.2
Rail	11.5	11.8	12.3	14.5	15.6	17.2	0.3	0.3	0.4	1.8	2.1	2.2
Aviation	4.1	6.6	7.3	10.6	12.6	17.1	-0.2	-0.4	-0.6	-2.3	-3.1	-3.4
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	-0.4	-0.2
Freight transport activity (Gtkm)												
	34.1	54.2	55.9	62.7	66.4	74.2	-1.0	-1.8	-2.6	-1.6	-2.6	-3.4
Trucks	20.3	35.1	37.0	40.5	42.4	47.0	-1.6	-2.5	-3.5	-3.9	-5.7	-6.9
Rail	12.2	16.6	17.1	20.3	22.0	25.0	0.6	0.7	0.9	3.1	3.5	3.6
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.2	0.0	0.0	0.0	0.1	0.7	1.1
Energy demand in transport (ktoe)												
	4603	6038	7994	8606	8644	8433	-416	-712	-1246	-4.6	-7.6	-12.9
Public road transport	80	80	107	109	107	94	-2	-4	-6	-1.4	-3.3	-6.4
Private cars and motorcycles	2499	2865	3890	4092	4027	3517	-143	-224	-522	-3.4	-5.3	-12.9
Trucks	1350	2167	3004	3140	3153	3308	-244	-432	-628	-7.2	-12.0	-16.0
Rail	357	333	310	332	327	293	-1	-4	-13	-0.3	-1.3	-4.3
Aviation	310	586	675	924	1019	1210	-26	-48	-76	-2.8	-4.5	-5.9
Inland navigation	7	6	9	10	10	11	0	0	0	-0.6	-0.7	-1.2

Source: PRIMES

Belgium: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	12529	11336	13366	14064	14889	14973	13782	7833	5530	0.6	1.1	-0.8	-8.7	
Solids	1085	269	191	57	15	9	9	15	13	-16.0	-22.4	-5.0	3.6	
Oil	0	0	0	6	0	0	0	0	0					
Natural gas	10	0	2	0	0	0	0	0	0	-14.3				
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Renewable energy sources	728	726	751	1723	1950	3261	4705	5178	5518	0.3	10.0	9.2	1.6	
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.2	-0.2	
Biomass & Waste	702	694	706	1675	1680	2552	3454	3798	4044	0.0	9.1	7.5	1.6	
Wind	1	1	1	20	197	359	703	809	819	7.9	65.3	13.6	1.5	
Solar and others	1	1	1	3	40	316	513	536	620	2.1	44.1	29.2	1.9	
Geothermal	1	1	4	1	2	3	3	4	4	14.0	-6.8	6.2	0.6	
Net Imports	38857	43775	48651	48968	48541	48044	48833	52918	54684	2.3	0.0	0.1	1.1	
Solids	9492	9343	7566	5511	4962	4952	5150	9178	10764	-2.2	-4.1	0.4	7.6	
Oil	21468	23579	27331	28425	28769	27941	27275	26915	26721	2.4	0.5	-0.5	-0.2	
- Crude oil and Feedstocks	26116	25674	32658	30565	31880	31580	31307	31223	31149	2.3	-0.2	-0.2	-0.1	
- Oil products	-4648	-2096	-5328	-2141	-3111	-3639	-4032	-4308	-4429					
Natural gas	8217	10418	13278	14191	13899	14093	15280	15667	16040	4.9	0.5	1.0	0.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Gross Inland Consumption	47258	50459	57168	54952	55649	54942	54129	51850	50941	1.9	-0.3	-0.3	-0.6	
Solids	10244	8551	8200	5450	4977	4961	5159	9193	10777	-2.2	-4.9	0.4	7.6	
Oil	17730	19794	21949	20547	20989	19866	18789	18015	17447	2.2	-0.4	-1.1	-0.7	
Natural gas	8169	10611	13369	14113	13899	14093	15280	15667	16040	5.0	0.4	1.0	0.5	
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5		
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6	
Renewable energy forms	728	812	856	2022	2250	3717	5321	5856	6240	1.6	10.2	9.0	1.6	
as % in Gross Inland Consumption														
Solids	21.7	16.9	14.3	9.9	8.9	9.0	9.5	17.7	21.2					
Oil	37.5	39.2	38.4	37.4	37.7	36.2	34.7	34.7	34.2					
Natural gas	17.3	21.0	23.4	25.7	25.0	25.7	28.2	30.2	31.5					
Nuclear	22.7	20.5	21.7	22.3	23.2	21.3	16.8	5.1	0.0					
Renewable energy forms	1.5	1.6	1.5	3.7	4.0	6.8	9.8	11.3	12.2					
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	88206	94501	104435	120142	131282	1.6	0.7	1.7	2.3	
Self consumption and grid losses	7382	7778	7813	8244	7517	8027	8907	12132	13572	0.6	-0.4	1.7	4.3	
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6168	7172	9660	15488	18647	1.3	-1.9	4.6	6.8	
Solids	3875	3764	3025	1889	1817	1894	2313	6440	8132	-2.4	-5.0	2.4	13.4	
Oil (including refinery gas)	318	232	172	411	0	0	23	4	161	-6.0			21.7	
Gas (including derived gases)	1983	2721	3790	4612	3344	3653	5118	6494	7480	6.7	-1.2	4.3	3.9	
Biomass & Waste	368	465	466	1388	1006	1625	2207	2550	2874	2.4	8.0	8.2	2.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	35155	32956	40739	38991	38296	37829	37480	37104	36908	1.5	-0.6	-0.2	-0.2	
Refineries	29036	28632	37085	35792	34902	34227	33701	33318	33141	2.5	-0.6	-0.3	-0.2	
Biofuels and hydrogen production	0	0	0	0	236	575	1008	1101	1172			15.6	1.5	
District heating	10	5	41	27	69	51	40	39	33	15.2	5.4	-5.3	-2.0	
Derived gases, cokeries etc.	6109	4320	3612	3173	3089	2977	2731	2647	2563	-5.1	-1.6	-1.2	-0.6	
Energy Branch Consumption	2310	2273	2370	2127	1908	1856	1817	1919	1928	0.3	-2.1	-0.5	0.6	
Non-Energy Uses	2739	3289	5814	4583	4262	4051	4024	3988	3950	7.8	-3.1	-0.6	-0.2	
Final Energy Demand	31296	34489	36931	36403	37159	37322	37143	36553	36051	1.7	0.1	0.0	-0.3	
by sector														
Industry	11886	12110	13636	11605	11800	11772	11621	11483	11488	1.4	-1.4	-0.2	-0.1	
- energy intensive industries	9285	9192	10043	8751	8874	8869	8681	8546	8453	0.8	-1.2	-0.2	-0.3	
- other industrial sectors	2600	2918	3593	2854	2926	2903	2940	2937	3035	3.3	-2.0	0.0	0.3	
Residential	8337	9295	9465	9914	9786	9798	9687	9252	8864	1.3	0.3	-0.1	-0.9	
Tertiary	3370	4604	4158	5005	5082	5048	5043	5028	4961	2.1	2.0	-0.1	-0.2	
Transport	7704	8480	9672	9880	10491	10704	10791	10790	10739	2.3	0.8	0.3	0.0	
by fuel														
Solids	3787	3306	3378	2080	1847	1828	1709	1687	1600	-1.1	-5.9	-0.8	-0.7	
Oil	14734	16248	16047	16443	16331	15411	14418	13861	13233	0.9	0.2	-1.2	-0.9	
Gas	7249	8517	10010	10009	10449	10352	9966	8810	8155	3.3	0.4	-0.5	-2.0	
Electricity	4986	5885	6667	6894	7254	7748	8445	9504	10304	2.9	0.8	1.5	2.0	
Heat (from CHP and District Heating)	213	220	490	427	342	424	449	471	500	8.7	-3.5	2.7	1.1	
Renewable energy forms	326	312	338	549	935	1556	2152	2217	2254	0.3	10.7	8.7	0.5	
Other	0	0	0	0	1	1	3	4	4			14.9	2.2	
RES in Gross Final Energy Consumption ^(A)			495	909	1914	3420	4889	5368	5700	14.5	9.8	1.5		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	139.6	134.1	132.8	147.7	153.2	0.4	-0.6	-0.5	1.4	
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	102.5	100.1	100.6	115.3	120.8	0.8	-1.2	-0.2	1.8	
Power generation/District heating	21.8	23.1	22.5	20.6	16.1	17.0	22.1	41.5	51.0	0.3	-3.3	3.3	8.7	
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.7	3.6	3.4	3.3	0.3	-3.8	-0.4	-0.9	
Industry	30.2	28.7	30.5	22.8	22.6	21.7	20.5	20.2	19.8	0.1	-3.0	-1.0	-0.3	
Residential	18.7	20.1	20.0	20.3	19.2	17.6	15.4	11.8	9.0	0.7	-0.4	-2.2	-5.3	
Tertiary	7.5	10.4	8.2	10.5	10.3	9.7	9.4	9.1	9.0	0.8	2.3	-0.9	-0.5	
Transport	22.6	24.9	28.6	29.4	30.6	30.4	29.5	29.2	28.7	2.4	0.7	-0.4	-0.3	
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.3	10.3	10.2	10.0	0.9	-0.2	0.2	-0.3	
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	23.6	21.9	22.2	22.5	-1.4	1.6	-2.1	0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.2	94.3	93.4	103.8	107.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	165.7	147.1	132.3	116.6	106.6	-0.4	-2.1	-2.2	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.84	1.82	1.86	2.22	2.37	-1.1	-0.9	0.1	2.5
Import Dependency %	75.7	80.5	77.8	78.3	76.5	76.2	78.0	87.1	90.8				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	36.5	40.6	45.2	47.6	49.7		1.9	2.1	1.0
as % of GDP			10.9	10.6	10.9	10.9	11.0	10.7	10.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	71.4	65.5	60.3	56.3	-0.2	-2.4	-1.7	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.9	80.1	73.0	64.6	58.0	-0.9	-1.3	-1.8	-2.3
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.4	87.5	79.3	72.5	66.6	0.2	-0.2	-2.1	-1.7
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.7	41.8	39.0	36.5	0.1	-0.4	-0.8	-1.3
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.9	44.4	44.3	43.9	-0.7	0.0	-0.7	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.17	0.17	0.20	0.33	0.37	-1.7	-3.8	1.5	6.3
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.22	2.13	2.01	1.92	1.84	-0.7	-0.6	-1.0	-0.9
Industry	2.54	2.37	2.24	1.97	1.92	1.84	1.77	1.76	1.73	-1.3	-1.5	-0.8	-0.2
Residential	2.24	2.16	2.11	2.05	1.96	1.80	1.59	1.28	1.01	-0.6	-0.7	-2.1	-4.4
Tertiary	2.23	2.26	1.96	2.09	2.02	1.93	1.87	1.82	1.80	-1.3	0.3	-0.8	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.70	2.68	0.1	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.1	9.0	12.9	14.3	15.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.5	10.5	11.3				
Gross Electricity generation by source (in GWh)													
			82639	85694	88206	94501	104435	120142	131282		0.7	1.7	2.3
Nuclear energy			48148	47586	50094	45361	35148	10232	0	0.4	-3.5		
Solids			12953	8552	7992	8543	10750	38080	48223	-4.7	3.0	16.2	
Oil (including refinery gas)			865	1871	17	719	766	146	953	-32.6	46.5	2.2	
Gas (including derived gases)			18968	23608	22671	26854	37766	48727	57441	1.8	5.2	4.3	
Biomass-waste			1231	3561	4767	8446	11391	13080	14619	14.5	9.1	2.5	
Hydro (pumping excluded)			459	288	361	363	367	360	359	-2.4	0.2	-0.2	
Wind			15	227	2287	4175	8176	9409	9526	65.3	13.6	1.5	
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17892	18914	20949	24274	25629		2.2	1.6	2.0
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0	0.1	-3.5		
<u>Renewable energy</u>			319	467	1230	2005	3618	4366	4443	14.5	11.4	2.1	
Hydro (pumping excluded)			306	298	300	303	304	304	304	-0.2	0.1	0.0	
Wind			13	167	906	1651	3221	3920	3931	52.9	13.5	2.0	
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10788	11636	13236	18716	21186	2.6	2.1	4.8	
of which cogeneration units			1863	2324	2992	4214	4907	4710	4864	4.9	5.1	-0.1	
Solids fired			1680	1392	1258	1182	1342	4726	5645	-2.8	0.6	15.5	
Gas fired			5522	6360	7628	7894	8911	11228	12963	3.3	1.6	3.8	
Oil fired			615	641	588	546	523	169	291	-0.5	-1.2	-5.7	
Biomass-waste fired			515	551	1314	2014	2460	2593	2287	9.8	6.5	-0.7	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	54.3	55.1	55.2	54.1	56.0				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.4	53.4	54.0	55.5	55.9				
% of gross electricity from CHP			7.3	7.2	17.2	24.7	24.9	22.9	22.0				
Carbon free gross electricity generation (%)			60.3	60.3	65.2	61.8	52.8	27.6	18.8				
- nuclear			58.3	55.5	56.8	48.0	33.7	8.5	0.0				
- renewable energy forms			2.1	4.8	8.4	13.8	19.2	19.1	18.8				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	165.1	174.0	180.8	187.8	193.9	2.0	1.7	0.9	0.7
Public road transport	10.9	13.1	13.3	17.6	18.8	19.2	19.7	20.1	20.3	2.0	3.5	0.5	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	120.9	125.3	127.6	131.0	133.4	1.8	1.2	0.5	0.4
Rail	7.3	7.6	8.6	10.1	11.8	13.1	14.3	15.2	16.5	1.7	3.2	2.0	1.4
Aviation	4.6	6.4	9.3	10.8	13.3	16.2	18.7	21.2	23.4	7.2	3.6	3.5	2.3
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.4	0.3
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.3	67.7	73.0	78.4	83.5	3.2	-0.4	1.4	1.4
Trucks	34.2	45.6	51.0	43.8	45.4	49.0	53.5	58.5	63.2	4.1	-1.2	1.7	1.7
Rail	8.4	7.3	7.7	8.1	8.8	9.4	9.9	10.1	10.4	-0.9	1.4	1.1	0.5
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10491	10704	10791	10790	10739	2.3	0.8	0.3	0.0
Public road transport	165	164	170	173	182	176	172	163	153	0.3	0.7	-0.6	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5692	5608	5461	5170	4905	1.6	1.7	-0.4	-1.1
Trucks	2205	2420	2858	2581	2657	2757	2887	3134	3350	2.6	-0.7	0.8	1.5
Rail	177	202	183	185	196	197	194	181	156	0.4	0.7	-0.1	-2.1
Aviation	952	945	1530	1281	1536	1736	1844	1908	1940	4.9	0.0	1.8	0.5
Inland navigation	129	247	136	217	227	230	234	235	234	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	14973	13782	5530	582	1464	1527	4.0	11.9	38.1
Solids	1085	191	57	9	9	13	-11	-9	0	-56.0	-48.6	0.0
Oil	0	0	6	0	0	0	0	0	0	-194.3	154.7	-50.1
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3261	4705	5518	594	1472	1527	22.3	45.5	38.2
Hydro	23	39	25	31	32	31	1	0	1	1.9	0.2	3.9
Biomass & Waste	702	706	1675	2552	3454	4044	324	834	790	14.5	31.8	24.3
Wind	1	1	20	359	703	819	25	244	289	7.4	53.3	54.5
Solar and others	1	1	3	316	513	620	243	392	444	334.6	322.3	252.7
Geothermal	1	4	1	3	3	4	1	2	2	87.6	140.2	160.1
Net Imports	38857	48651	48968	48044	48833	54684	-2987	-4729	-4662	-5.9	-8.8	-7.9
Solids	9492	7566	5511	4952	5150	10764	-397	-1352	-57	-7.4	-20.8	-0.5
Oil	21468	27331	28425	27941	27275	26721	-1209	-1973	-2926	-4.1	-6.7	-9.9
- Crude oil and Feedstocks	26116	32658	30565	31580	31307	31149	-673	-1108	-1676	-2.1	-3.4	-5.1
- Oil products	-4648	-5328	-2141	-3639	-4032	-4429	-536	-865	-1250	17.3	27.3	39.3
Natural gas	8217	13278	14191	14093	15280	16040	-1439	-1553	-1820	-9.3	-9.2	-10.2
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	54942	54129	50941	-2401	-3253	-3113	-4.2	-5.7	-5.8
Solids	10244	8200	5450	4961	5159	10777	-408	-1360	-57	-7.6	-20.9	-0.5
Oil	17730	21949	20547	19866	18789	17447	-1205	-1961	-2903	-5.7	-9.4	-14.3
Natural gas	8169	13369	14113	14093	15280	16040	-1439	-1553	-1820	-9.3	-9.2	-10.2
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3717	5321	6240	652	1621	1668	21.3	43.8	36.5
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	9.0	9.5	21.2	-0.3	-1.8	1.1			
Oil	37.5	38.4	37.4	36.2	34.7	34.2	-0.6	-1.4	-3.4			
Natural gas	17.3	23.4	25.7	25.7	28.2	31.5	-1.4	-1.1	-1.6			
Nuclear	22.7	21.7	22.3	21.3	16.8	0.0	0.9	0.9	0.0			
Renewable energy forms	1.5	1.5	3.7	6.8	9.8	12.2	1.4	3.4	3.8			
Gross Electricity Generation in GWh_e	70202	82639	85694	94501	104435	131282	-6581	-4504	13534	-6.5	-4.1	11.5
Self consumption and grid losses	7382	7813	8244	8027	8907	13572	-607	-535	1895	-7.0	-5.7	16.2
Fuel Inputs to Thermal Power Generation	6544	7453	8299	7172	9660	18647	-1312	-1347	1511	-15.5	-12.2	8.8
Solids	3875	3025	1889	1894	2313	8132	-446	-1309	-32	-19.0	-36.2	-0.4
Oil (including refinery gas)	318	172	411	0	23	161	-89	-58	63	-99.8	-72.0	64.5
Gas (including derived gases)	1983	3790	4612	3653	5118	7480	-1082	-749	580	-22.8	-12.8	8.4
Biomass & Waste	368	466	1388	1625	2207	2874	305	769	899	23.1	53.5	45.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	37829	37480	36908	-504	-877	-1492	-1.3	-2.3	-3.9
Refineries	29036	37085	35792	34227	33701	33141	-675	-1111	-1682	-1.9	-3.2	-4.8
Biofuels and hydrogen production	0	0	0	575	1008	1172	72	221	117	14.4	28.0	11.1
District heating	10	41	27	51	40	33	3	-1	-10	5.7	-2.4	-23.3
Derived gases, cokeries etc.	6109	3612	3173	2977	2731	2563	96	15	82	3.3	0.5	3.3
Energy Branch Consumption	2310	2370	2127	1856	1817	1928	-59	-106	-83	-3.1	-5.5	-4.1
Non-Energy Uses	2739	5814	4583	4051	4024	3950	-3	-5	-9	-0.1	-0.1	-0.2
Final Energy Demand	31296	36931	36403	37522	37143	36051	-1616	-2471	-3820	-4.2	-6.2	-9.6
by sector												
Industry	11886	13636	11605	11772	11621	11488	-124	-287	-396	-1.0	-2.4	-3.3
- energy intensive industries	9285	10043	8751	8869	8681	8453	-32	-165	-219	-0.4	-1.9	-2.5
- other industrial sectors	2600	3593	2854	2903	2940	3035	-91	-122	-177	-3.1	-4.0	-5.5
Residential	8337	9465	9914	9798	9687	8864	-549	-776	-1459	-5.3	-7.4	-14.1
Tertiary	3370	4158	5005	5048	5043	4961	-531	-667	-784	-9.5	-11.7	-13.7
Transport	7704	9672	9880	10704	10791	10739	-412	-741	-1181	-3.7	-6.4	-9.9
by fuel												
Solids	3787	3378	2080	1828	1709	1600	2	-75	-80	0.1	-4.2	-4.8
Oil	14734	16047	16443	15411	14418	13233	-1009	-1803	-2802	-6.1	-11.1	-17.5
Gas	7249	10010	10009	10352	9966	8155	-398	-809	-2384	-3.7	-7.5	-22.6
Electricity	4986	6667	6894	7748	8445	10304	-507	-329	1022	-6.1	-3.8	11.0
Heat (from CHP and District Heating)	213	490	427	424	449	500	-13	-22	-33	-3.0	-4.7	-6.2
Renewable energy forms	326	338	549	1556	2152	2254	309	568	460	24.8	35.8	25.6
Other	0	0	0	1	3	4	0	0	-2	5.7	8.1	-29.9
RES in Gross Final Energy Consumption ^(A)		495	909	3420	4889	5700	947	1715	1676	38.3	54.0	41.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	134.1	132.8	153.2	-12.1	-19.7	-18.7	-8.3	-12.9	-10.9
CO₂ Emissions (energy related)	106.2	115.4	107.8	100.1	100.6	120.8	-8.7	-15.0	-13.3	-8.0	-13.0	-9.9
Power generation/District heating	21.8	22.5	20.6	17.0	22.1	51.0	-4.6	-7.1	1.4	-21.1	-24.3	2.9
Energy Branch	5.4	5.5	4.3	3.7	3.6	3.3	-0.2	-0.2	-0.4	-4.1	-5.7	-9.8
Industry	30.2	30.5	22.8	21.7	20.5	19.8	0.3	0.0	0.2	1.6	-0.1	1.0
Residential	18.7	20.0	20.3	17.6	15.4	9.0	-1.8	-3.6	-9.0	-9.5	-18.8	-50.1
Tertiary	7.5	8.2	10.5	9.7	9.4	9.0	-1.0	-1.2	-1.4	-9.3	-11.5	-13.4
Transport	22.6	28.6	29.4	30.4	29.5	28.7	-1.5	-2.9	-4.2	-4.6	-8.9	-12.6
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.3	10.3	10.0	0.0	-0.1	-0.2	0.4	-0.6	-1.5
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	23.6	21.9	22.5	-3.5	-4.7	-5.3	-12.9	-17.6	-19.0
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	94.3	93.4	107.8	-8.5	-13.9	-13.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	147.1	132.3	106.6	-6.4	-7.9	-6.5	-4.2	-5.7	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.82	1.86	2.37	-0.07	-0.16	-0.11	-4.0	-7.7	-4.4
Import Dependency %	75.7	77.8	78.3	76.2	78.0	90.8	-1.8	-3.3	-2.9			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	40.6	45.2	49.7	1.4	2.3	3.1	3.5	5.3	6.7
as % of GDP		10.9	10.6	10.9	11.0	10.4	0.4	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.4	2.3	3.2						
as % of GDP				0.38	0.57	0.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	71.4	65.5	56.3	-0.8	-1.6	-1.9	-1.0	-2.4	-3.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	80.1	73.0	58.0	-4.5	-5.8	-9.5	-5.3	-7.4	-14.1
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	87.5	79.3	66.6	-9.2	-10.5	-10.5	-9.5	-11.7	-13.7
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.7	41.8	36.5	-0.9	-1.4	-2.2	-1.9	-3.2	-5.8
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.9	44.4	43.9	-1.9	-3.6	-5.1	-4.1	-7.5	-10.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.17	0.20	0.37	-0.03	-0.05	-0.03	-15.8	-21.0	-6.9
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.13	2.01	1.84	-0.01	-0.07	-0.18	-0.6	-3.3	-9.1
Industry	2.54	2.24	1.97	1.84	1.77	1.73	0.05	0.04	0.07	2.7	2.4	4.4
Residential	2.24	2.11	2.05	1.80	1.59	1.01	-0.08	-0.22	-0.73	-4.4	-12.3	-41.9
Tertiary	2.23	1.96	2.09	1.93	1.87	1.80	0.01	0.00	0.00	0.3	0.2	0.2
Transport	2.94	2.96	2.97	2.84	2.73	2.68	-0.03	-0.07	-0.08	-0.9	-2.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.0	12.9	15.3	2.8	5.0	5.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.5	11.3	0.9	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	94501	104435	131282	131282	-6581	-4504	13534	-6.5	-4.1	11.5
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	0.0
Solids	12953	8552	8543	10750	48223	48223	-1851	-6750	995	-17.8	-38.6	2.1
Oil (including refinery gas)	865	1871	719	766	953	953	-418	-265	86	-36.7	-25.7	10.0
Gas (including derived gases)	18968	23608	26854	37766	57441	57441	-6268	-4025	5176	-18.9	-9.6	9.9
Biomass-waste	1231	3561	8446	11391	14619	14619	1661	3693	3902	24.5	48.0	36.4
Hydro (pumping excluded)	459	288	363	367	359	359	7	1	13	1.9	0.2	3.9
Wind	15	227	4175	8176	9526	9526	288	2842	3362	7.4	53.3	54.5
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	14452	15254	18914	20949	25629	25629	28	351	3521	0.1	1.7	15.9
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	319	467	2005	3618	4443	4443	79	993	1360	4.1	37.8	44.1
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1651	3221	3931	3931	79	993	1360	5.0	44.5	52.9
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	8332	8944	11636	13236	21186	21186	-51	-642	2161	-0.4	-4.6	11.4
of which cogeneration units	1863	2324	4214	4907	4864	4864	-321	-302	-488	-7.1	-5.8	-9.1
Solids fired	1680	1392	1182	1342	5645	5645	-292	-827	-11	-19.8	-38.1	-0.2
Gas fired	5522	6360	7894	8911	12963	12963	-482	-747	1295	-5.8	-7.7	11.1
Oil fired	615	641	546	523	291	291	-4	0	40	-0.7	0.0	15.7
Biomass-waste fired	515	551	2014	2460	2287	2287	727	932	838	56.5	61.0	57.8
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	62.3	61.4	55.1	55.2	56.0	56.0	-4.0	-3.2	-2.1			
Efficiency of gross thermal power generation (%)	39.3	39.0	53.4	54.0	55.9	55.9	1.3	0.9	0.2			
% of gross electricity from CHP	7.3	7.2	24.7	24.9	22.0	22.0	1.1	-0.1	-5.0			
Carbon free gross electricity generation (%)	60.3	60.3	61.8	52.8	18.8	18.8	6.0	8.2	4.0			
- nuclear	58.3	55.5	48.0	33.7	0.0	0.0	3.1	1.4	0.0			
- renewable energy forms	2.1	4.8	13.8	19.2	18.8	18.8	2.8	6.8	4.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	113.7	139.3	153.2	174.0	180.8	193.9	-1.9	-3.4	-4.8	-1.1	-1.9	-2.4
Private cars and motorcycles	10.9	13.3	17.6	19.2	19.7	20.3	0.3	0.5	0.6	1.6	2.4	2.9
Rail	90.1	107.7	114.4	125.3	127.6	133.4	-2.1	-3.7	-4.9	-1.7	-2.8	-3.5
Aviation	7.3	8.6	10.1	13.1	14.3	16.5	0.2	0.4	0.3	1.9	2.6	1.7
Inland navigation	4.6	9.3	10.8	16.2	18.7	23.4	-0.3	-0.5	-0.7	-2.0	-2.8	-2.9
Freight transport activity (Gtkm)	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.6	-0.3	-0.2
Freight transport activity (Gtkm)												
Trucks	48.0	65.9	60.5	67.7	73.0	83.5	-1.0	-1.8	-2.8	-1.4	-2.4	-3.3
Rail	34.2	51.0	43.8	49.0	53.5	63.2	-1.4	-2.5	-3.6	-2.8	-4.4	-5.4
Inland navigation	8.4	7.7	8.1	9.4	9.9	10.4	0.4	0.5	0.6	4.3	5.7	5.9
Energy demand in transport (ktoe)	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.1	0.2	1.0	1.6	2.0
Public road transport	7704	9672	9880	10704	10791	10739	-412	-741	-1181	-3.7	-6.4	-9.9
Private cars and motorcycles	165	170	173	176	172	153	-2	-5	-9	-1.0	-2.6	-5.7
Trucks	4075	4794	5442	5608	5461	4905	-179	-284	-360	-3.1	-4.9	-6.8
Rail	2205	2858	2581	2757	2887	3350	-181	-350	-567	-6.1	-10.8	-14.5
Aviation	177	183	185	197	194	156	1	1	-5	0.6	0.6	-2.9
Inland navigation	952	1530	1281	1736	1844	1940	-52	-103	-245	-2.9	-5.3	-11.2
Inland navigation	129	136	217	230	234	234	0	0	5	0.1	0.0	2.3

Source: PRIMES

Bulgaria: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	9136	10192	9845	10611	9624	9086	10703	12882	12757	0.8	-0.2	1.1	1.8		
Solids	5121	5287	4310	4178	4333	3355	2462	2291	1708	-1.7	0.1	-5.5	-3.6		
Oil	60	43	42	30	33	35	37	38	39	-3.5	-2.4	1.0	0.7		
Natural gas	11	40	12	384	237	200	169	143	122	1.3	34.4	-3.3	-3.2		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Renewable energy sources	161	370	792	1207	1501	1958	2562	3058	3537	17.2	6.6	5.5	3.3		
Hydro	161	151	230	373	309	321	325	333	341	3.6	3.0	0.5	0.5		
Biomass & Waste	0	219	562	801	1050	1376	1878	2347	2687		6.4	6.0	3.6		
Wind	0	0	0	0	38	88	159	182	256			15.4	4.9		
Solar and others	0	0	0	0	14	55	115	158	232			23.3	7.3		
Geothermal	0	0	0	33	91	119	86	39	19			-0.6	-13.8		
Net Imports	17823	13475	8681	9416	9661	9965	9984	9829	11118	-6.9	1.1	0.3	1.1		
Solids	3527	2424	2258	2550	2703	2770	2496	1726	2640	-4.4	1.8	-0.8	0.6		
Oil	8540	6511	4081	5086	5287	5648	5833	6139	6267	-7.1	2.6	1.0	0.7		
- Crude oil and Feedstocks	8247	8003	5346	6328	7081	7550	7797	8194	8367	-4.2	2.8	1.0	0.7		
- Oil products	292	-1492	-1265	-1242	-1793	-1902	-1964	-2056	-2099						
Natural gas	5430	4563	2742	2458	1912	1844	1762	1959	2160	-6.6	-3.5	-0.8	2.1		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Gross Inland Consumption	27964	23305	18610	19885	19151	18898	20520	22532	23690	-4.0	0.3	0.7	1.4		
Solids	8706	7673	6417	6892	7035	6124	4958	4017	4348	-3.0	0.9	-3.4	-1.3		
Oil	9593	6245	4181	4847	5186	5531	5701	5999	6122	-8.0	2.2	1.0	0.7		
Natural gas	5395	4584	2932	2804	2149	2044	1930	2103	2282	-5.9	-3.1	-1.1	1.7		
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0		
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768						
Renewable energy forms	161	363	788	1181	1467	1914	3109	3774	4356	17.2	6.4	7.8	3.4		
as % in Gross Inland Consumption															
Solids	31.1	32.9	34.5	34.7	36.7	32.4	24.2	17.8	18.4						
Oil	34.3	26.8	22.5	24.4	27.1	29.3	27.8	26.6	25.8						
Natural gas	19.3	19.7	15.8	14.1	11.2	10.8	9.4	9.3	9.6						
Nuclear	13.5	19.1	25.2	24.2	18.4	18.7	26.7	32.6	31.0						
Renewable energy forms	0.6	1.6	4.2	5.9	7.7	10.1	15.2	16.7	18.4						
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	37619	40768	50548	59351	67456	-0.4	-0.8	3.0	2.9		
Self consumption and grid losses	8456	8102	7245	7081	5798	5751	6222	7221	9001	-1.5	-2.2	0.7	3.8		
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	5560	4964	4813	4557	5500	-4.6	-1.2	-1.4	1.3		
Solids	6800	6734	5245	5675	5384	4694	3601	2717	3105	-2.6	0.3	-3.9	-1.5		
Oil (including refinery gas)	951	613	160	149	0	0	0	19	12	-16.3					
Gas (including derived gases)	2352	1835	884	697	177	139	95	67	129	-9.3	-14.9	-6.0	3.1		
Biomass & Waste	0	0	3	2	0	131	1117	1753	2254				7.3		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	13079	11635	7612	8839	8783	9085	9213	9555	9693	-5.3	1.4	0.5	0.5		
Refineries	8341	8023	5406	6586	7309	7777	8022	8406	8557	-4.2	3.1	0.9	0.6		
Biofuels and hydrogen production	0	0	0	0	34	74	116	203	323			13.1	10.8		
District heating	2779	1544	324	370	527	428	404	342	275	-19.3	5.0	-2.6	-3.8		
Derived gases, cokeries etc.	1960	2069	1882	1883	913	805	670	604	538	-0.4	-7.0	-3.1	-2.2		
Energy Branch Consumption	1359	1458	1146	1279	1411	1375	1378	1467	1600	-1.7	2.1	-0.2	1.5		
Non-Energy Uses	1427	1236	1261	1059	991	1052	1187	1291	1362	-1.2	-2.4	1.8	1.4		
Final Energy Demand	16138	11575	8861	9682	10312	11075	11955	12960	13773	-5.8	1.5	1.5	1.4		
by sector															
Industry	8966	6032	3637	3673	3627	3827	4196	4638	5112	-8.6	0.0	1.5	2.0		
- energy intensive industries	5579	4837	2814	2809	2804	2942	3173	3455	3729	-6.6	0.0	1.2	1.6		
- other industrial sectors	3387	1195	823	864	823	885	1023	1184	1383	-13.2	0.0	2.2	3.1		
Residential	2264	2378	2363	2268	2298	2387	2504	2619	2667	0.4	-0.3	0.9	0.6		
Tertiary	2389	1189	1044	1181	1304	1320	1343	1413	1446	-7.9	2.2	0.3	0.7		
Transport	2518	1976	1817	2560	3083	3541	3912	4290	4548	-3.2	5.4	2.4	1.5		
by fuel															
Solids	1477	1280	860	936	1091	1046	1011	976	944	-5.3	2.4	-0.8	-0.7		
Oil	4967	2893	2981	3599	4254	4618	4790	5082	5226	-5.0	3.6	1.2	0.9		
Gas	2066	1787	1231	1025	907	945	897	1073	1221	-5.0	-3.0	-0.1	3.1		
Electricity	3085	2639	2358	2383	2400	2628	3007	3597	4085	-2.7	0.2	2.3	3.1		
Heat (from CHP and District Heating)	4543	2798	877	939	632	706	1019	1020	1118	-15.2	-3.2	4.9	0.9		
Renewable energy forms	0	178	555	800	1028	1132	1230	1209	1178		6.4	1.8	-0.4		
Other	0	0	0	0	0	1	1	2	2			16.0	3.9		
RES in Gross Final Energy Consumption ^(A)			786	1182	1449	1848	2895	3455	3943		6.3	7.2	3.1		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	63.3	57.5	51.9	46.2	43.4	-5.4	0.0	-2.0	-1.8		
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	45.1	42.2	37.5	35.0	34.2	-5.3	0.7	-1.8	-0.9		
Power generation/District heating	44.8	38.2	24.9	26.2	23.9	20.7	16.0	12.3	10.9	-5.7	-0.4	-4.0	-3.7		
Energy Branch	1.6	1.4	1.3	1.6	1.8	1.1	0.9	0.9	0.9	-2.1	3.4	-6.9	-0.1		
Industry	11.2	9.3	8.3	7.6	8.2	8.1	7.6	8.1	8.6	-2.9	-0.2	-0.8	1.2		
Residential	3.0	2.2	1.2	1.2	1.1	0.9	0.8	0.6	0.5	-8.9	-0.9	-3.1	-5.1		
Tertiary	4.7	1.4	1.2	1.1	1.3	1.3	1.2	1.1	1.1	-13.0	0.7	-0.5	-1.2		
Transport	7.1	5.6	5.2	7.4	8.9	10.1	11.1	11.9	12.3	-3.0	5.5	2.2	1.1		
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.8	5.3	6.1	6.9	-4.2	0.1	2.1	2.6		
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	10.5	9.1	5.2	2.3	-5.8	-1.8	-4.1	-12.9		
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	57.9	52.6	47.4	42.3	39.6						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	685.9	513.8	416.4	345.7	279.0	-2.3	-4.6	-4.9	-3.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.36	2.23	1.83	1.55	1.44	-1.3	0.4	-2.5	-2.3
Import Dependency %	63.6	57.2	46.5	47.1	50.1	52.3	48.3	43.3	46.6				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	8.2	10.0	12.4	14.8	17.5		3.4	4.2	3.5
as % of GDP			34.7	28.7	29.3	27.1	25.1	22.7	20.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.4	43.9	34.6	28.0	23.1	-3.0	-5.4	-4.9	-4.0
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	57.4	45.8	36.3	29.0	22.9	1.5	-5.4	-4.5	-4.5
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	76.9	59.2	45.3	36.6	29.0	-4.0	-2.6	-5.2	-4.4
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.0	31.2	29.9	28.9	28.2	2.5	1.8	-0.7	-0.6
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	63.6	59.4	55.9	54.8	53.6	2.1	-1.6	-1.3	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.47	0.38	0.23	0.16	0.13	0.2	0.3	-6.8	-6.0
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.89	1.84	1.73	1.68	1.63	1.1	0.5	-0.9	-0.6
Industry	1.25	1.55	2.29	2.06	2.26	2.11	1.81	1.75	1.68	6.2	-0.1	-2.2	-0.8
Residential	1.33	0.92	0.50	0.53	0.47	0.39	0.32	0.24	0.18	-9.3	-0.6	-4.0	-5.7
Tertiary	1.98	1.16	1.13	0.91	0.97	1.00	0.90	0.80	0.74	-5.5	-1.5	-0.8	-1.9
Transport	2.81	2.84	2.87	2.91	2.88	2.86	2.83	2.78	2.71	0.2	0.1	-0.2	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	13.2	15.8	23.0	25.3	27.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.3	3.2	5.2	8.0				
Gross Electricity generation by source (in GWh)													
			40639	43965	37619	40768	50548	59351	67456		-0.8	3.0	2.9
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	18221	19469	15413	12706	17706		0.8	-1.7	1.4
Oil (including refinery gas)			590	825	0	0	0	89	57				
Gas (including derived gases)			2368	1963	1372	1304	1127	953	1517		-5.3	-1.9	3.0
Biomass-waste			10	70	345	1519	6133	8902	10428		42.9	33.3	5.5
Hydro (pumping excluded)			2673	4336	3589	3734	3778	3868	3968		3.0	0.5	0.5
Wind			0	2	441	1018	1846	2115	2980			15.4	4.9
Solar			0	0	2	5	9	19	101			17.5	26.9
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9962	11259	11900	13295	14512		-0.9	1.8	2.0
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2483	3011	3742	3995	5011		2.6	4.2	3.0
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	304	805	1517	1725	2511			17.5	5.2
Solar			0	0	2	4	8	15	97			17.5	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5595	6338	5288	5483	5685		0.2	-0.6	0.7
of which cogeneration units			2163	2183	826	1275	1874	2273	2873		-9.2	8.5	4.4
Solids fired			4536	4527	4398	5091	3622	3607	2924		-0.3	-1.9	-2.1
Gas fired			603	625	783	640	313	238	650		2.6	-8.8	7.6
Oil fired			355	355	359	334	262	58	28		0.1	-3.1	-20.1
Biomass-waste fired			11	11	55	273	1091	1580	2083		17.8	34.8	6.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	39.6	38.4	45.5	47.9	49.2				
Efficiency of gross thermal power generation (%)			27.0	27.7	30.8	38.6	40.5	42.7	46.5				
% of gross electricity from CHP			12.0	14.3	8.7	14.6	20.1	20.6	23.0				
Carbon free gross electricity generation (%)			51.3	52.4	47.9	49.0	67.3	76.8	71.4				
- nuclear			44.7	42.4	36.3	33.6	44.0	51.7	45.5				
- renewable energy forms			6.6	10.0	11.6	15.4	23.3	25.1	25.9				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	44.8	51.9	59.7	67.5	74.1	-1.7	2.9	2.9	2.2
Public road transport	26.0	11.6	13.9	11.5	10.6	10.0	9.9	9.9	10.1	-6.1	-2.6	-0.7	0.1
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.2	35.5	41.6	47.8	52.7	11.2	6.5	3.6	2.4
Rail	7.8	4.7	3.5	2.4	2.5	2.9	3.6	4.3	5.2	-7.8	-3.1	3.5	3.8
Aviation	0.8	0.9	0.9	1.6	2.5	3.5	4.5	5.5	6.2	0.6	10.6	6.2	3.2
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-23.0	-2.5	-0.7	0.4
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.0	32.4	38.0	42.6	45.8	-7.9	7.8	3.9	1.9
Trucks	12.0	9.7	6.4	14.3	19.3	24.2	28.5	31.8	34.1	-6.1	11.7	3.9	1.8
Rail	14.1	8.6	5.5	5.2	5.7	6.9	8.1	9.2	10.0	-8.9	0.2	3.7	2.0
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7	-15.1	12.1	3.9	1.5
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3083	3541	3912	4290	4548	-3.2	5.4	2.4	1.5
Public road transport	318	152	158	97	82	72	67	61	57	-6.8	-6.3	-2.1	-1.5
Private cars and motorcycles	231	175	639	928	1082	1210	1311	1417	1501	10.7	5.4	1.9	1.4
Trucks	1459	1223	842	1274	1591	1852	2050	2258	2388	-5.4	6.6	2.6	1.5
Rail	216	144	77	60	62	74	77	78	69	-9.8	-2.2	2.2	-1.2
Aviation	276	276	101	200	263	331	403	472	530	-9.6	10.1	4.3	2.8
Inland navigation	18	6	1	2	2	3	3	3	3	-25.5	8.5	3.3	1.2

Source: PRIMES

Bulgaria: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	9086	10703	12757	-993	-1268	-266	-9.8	-10.6	-2.0
Solids	5121	4310	4178	3355	2462	1708	-1624	-2405	-1859	-32.6	-49.4	-52.1
Oil	60	42	30	35	37	39	0	-3	-2	-0.4	-8.0	-5.0
Natural gas	11	12	384	200	169	122	1	0	0	0.7	0.0	0.0
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Renewable energy sources	161	792	1207	1958	2562	3537	630	1140	1595	47.5	80.2	82.1
Hydro	161	230	373	321	325	341	36	29	0	12.7	9.9	0.0
Biomass & Waste	0	562	801	1376	1878	2687	425	859	1244	44.7	84.3	86.2
Wind	0	0	0	88	159	256	51	116	178	141.2	274.9	227.2
Solar and others	0	0	0	55	115	232	41	89	183	302.0	344.4	369.5
Geothermal	0	0	33	119	86	19	76	47	-10	180.9	118.8	-33.8
Net Imports	17823	8681	9416	9965	9984	11118	-274	-1175	-1637	-2.7	-10.5	-12.8
Solids	3527	2258	2550	2770	2496	2640	56	-288	-202	2.1	-10.3	-7.1
Oil	8540	4081	5086	5648	5833	6267	-27	-518	-767	-0.5	-8.2	-10.9
- Crude oil and Feedstocks	8247	5346	6328	7550	7797	8367	-34	-653	-965	-0.5	-7.7	-10.3
- Oil products	292	-1265	-1242	-1902	-1964	-2099	8	135	197	-0.4	-6.4	-8.6
Natural gas	5430	2742	2458	1844	1762	2160	-290	-949	-1533	-13.6	-35.0	-41.5
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	18898	20520	23690	-1267	-2442	-1901	-6.3	-10.6	-7.4
Solids	8706	6417	6892	6124	4958	4348	-1568	-2693	-2061	-20.4	-35.2	-32.2
Oil	9593	4181	4847	5531	5701	6122	-27	-521	-768	-0.5	-8.4	-11.1
Natural gas	5395	2932	2804	2044	1930	2282	-289	-949	-1533	-12.4	-33.0	-40.2
Nuclear	3783	4689	4812	3539	5474	7351	0	0	0	0.0	0.0	0.0
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	1914	3109	4356	617	1720	2460	47.5	123.8	129.7
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	32.4	24.2	18.4	-5.7	-9.2	-6.7			
Oil	34.3	22.5	24.4	29.3	27.8	25.8	1.7	0.7	-1.1			
Natural gas	19.3	15.8	14.1	10.8	9.4	9.6	-0.8	-3.1	-5.3			
Nuclear	13.5	25.2	24.2	18.7	26.7	31.0	1.2	2.8	2.3			
Renewable energy forms	0.6	4.2	5.9	10.1	15.2	18.4	3.7	9.1	11.0			
Gross Electricity Generation in GWh_e	42133	40639	43965	40768	50548	67456	-5355	-6226	748	-11.6	-11.0	1.1
Self consumption and grid losses	8456	7245	7081	5751	6222	9001	-1170	-1361	745	-16.9	-17.9	9.0
Fuel Inputs to Thermal Power Generation	10103	6292	6523	4964	4813	5500	-1293	-1787	-568	-20.7	-27.1	-9.4
Solids	6800	5245	5675	4694	3601	3105	-1381	-2631	-1935	-22.7	-42.2	-38.4
Oil (including refinery gas)	951	160	149	0	0	12	0	0	1			5.6
Gas (including derived gases)	2352	884	697	139	95	129	-44	-268	-686	-24.0	-73.8	-84.1
Biomass & Waste	0	3	2	131	1117	2254	131	1112	2052		21318.7	1018.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	9085	9213	9693	-109	-782	-1203	-1.2	-7.8	-11.0
Refineries	8341	5406	6586	7777	8022	8557	-37	-658	-968	-0.5	-7.6	-10.2
Biofuels and hydrogen production	0	0	0	74	116	323	10	25	32	15.0	27.8	10.9
District heating	2779	324	370	428	404	275	-76	-120	-235	-15.1	-22.9	-46.1
Derived gases, cokeries etc.	1960	1882	1883	805	670	538	-5	-30	-32	-0.6	-4.2	-5.6
Energy Branch Consumption	1359	1146	1279	1375	1378	1600	-87	-204	-127	-6.0	-12.9	-7.3
Non-Energy Uses	1427	1261	1059	1052	1187	1362	-10	-8	-9	-1.0	-0.7	-0.7
Final Energy Demand	16138	8861	9682	11075	11955	13773	-457	-897	-1328	-4.0	-7.0	-8.8
by sector												
Industry	8966	3637	3673	3827	4196	5112	-42	-138	-170	-1.1	-3.2	-3.2
- energy intensive industries	5579	2814	2809	2942	3173	3729	-11	-81	-79	-0.4	-2.5	-2.1
- other industrial sectors	3387	823	864	885	1023	1383	-30	-58	-91	-3.3	-5.3	-6.2
Residential	2264	2363	2268	2387	2504	2667	-103	-223	-433	-4.1	-8.2	-14.0
Tertiary	2389	1044	1181	1320	1343	1446	-177	-266	-338	-11.8	-16.5	-18.9
Transport	2518	1817	2560	3541	3912	4548	-136	-269	-386	-3.7	-6.4	-7.8
by fuel												
Solids	1477	860	936	1046	1011	944	-58	-52	-114	-5.3	-4.9	-10.8
Oil	4967	2981	3599	4618	4790	5226	-5	-470	-705	-0.1	-8.9	-11.9
Gas	2066	1231	1025	945	897	1221	-86	-243	-275	-8.3	-21.3	-18.4
Electricity	3085	2358	2383	2628	3007	4085	-357	-413	10	-12.0	-12.1	0.2
Heat (from CHP and District Heating)	4543	877	939	706	1019	1118	-153	41	-243	-17.8	4.2	-17.9
Renewable energy forms	0	555	800	1132	1230	1178	202	240	0	21.7	24.2	0.0
Other	0	0	0	1	1	2	0	0	0	9.0	-0.8	0.6
RES in Gross Final Energy Consumption ^(A)		786	1182	1848	2895	3943	568	1529	2133	44.4	112.0	117.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	57.5	51.9	43.4	-8.5	-16.5	-17.7	-12.9	-24.2	-29.0
CO₂ Emissions (energy related)	72.4	42.1	45.1	42.2	37.5	34.2	-7.2	-14.8	-17.0	-14.5	-28.3	-33.2
Power generation/District heating	44.8	24.9	26.2	20.7	16.0	10.9	-6.1	-11.8	-13.0	-22.7	-42.6	-54.3
Energy Branch	1.6	1.3	1.6	1.1	0.9	0.9	-0.7	-0.8	-0.8	-38.8	-46.6	-49.3
Industry	11.2	8.3	7.6	8.1	7.6	8.6	0.3	-0.8	-0.8	3.6	-9.5	-8.7
Residential	3.0	1.2	1.2	0.9	0.8	0.5	-0.2	-0.2	-0.6	-14.9	-22.9	-55.9
Tertiary	4.7	1.2	1.1	1.3	1.2	1.1	-0.1	-0.2	-0.4	-6.1	-15.7	-29.5
Transport	7.1	5.2	7.4	10.1	11.1	12.3	-0.4	-0.9	-1.4	-4.2	-7.7	-10.0
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.8	5.3	6.9	0.0	0.0	-0.1	0.4	-0.9	-1.0
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	10.5	9.1	2.3	-1.3	-1.7	-0.6	-11.4	-15.9	-21.6
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	52.6	47.4	39.6	-7.8	-15.1	-16.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	513.8	416.4	279.0	-34.4	-49.6	-22.4	-6.3	-10.6	-7.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.23	1.83	1.44	-0.22	-0.45	-0.56	-8.8	-19.7	-27.9
Import Dependency %	63.6	46.5	47.1	52.3	48.3	46.6	1.9	0.0	-2.9			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	10.0	12.4	17.5	0.3	0.8	1.5	3.0	7.0	9.6
as % of GDP		34.7	28.7	27.1	25.1	20.6	0.8	1.6	1.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.8	1.6						
as % of GDP				0.85	1.70	1.83						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	43.9	34.6	23.1	-0.5	-1.1	-0.8	-1.1	-3.2	-3.2
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	45.8	36.3	22.9	-2.0	-3.2	-3.7	-4.1	-8.2	-14.0
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	59.2	45.3	29.0	-7.9	-9.0	-6.8	-11.8	-16.5	-18.9
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.2	29.9	28.2	-0.5	-0.7	0.2	-1.6	-2.4	0.7
Freight transport (toe/Mtkm)	60.4	74.4	65.7	59.4	55.9	53.6	-2.3	-4.2	-6.4	-3.7	-7.0	-10.6
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.38	0.23	0.13	-0.05	-0.14	-0.14	-12.0	-37.2	-52.8
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.84	1.73	1.63	0.04	-0.05	-0.07	2.1	-2.7	-4.2
Industry	1.25	2.29	2.06	2.11	1.81	1.68	0.10	-0.13	-0.10	4.7	-6.5	-5.7
Residential	1.33	0.50	0.53	0.39	0.32	0.18	-0.05	-0.06	-0.17	-11.2	-16.0	-48.7
Tertiary	1.98	1.13	0.91	1.00	0.90	0.74	0.06	0.01	-0.11	6.4	1.0	-13.1
Transport	2.81	2.87	2.91	2.86	2.83	2.71	-0.02	-0.04	-0.07	-0.5	-1.4	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	15.8	23.0	27.0	5.4	13.0	15.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.3	3.2	8.0	0.4	0.9	1.6			
Gross Electricity generation by source (in GWh_e)												
	40639	43965	40768	50548	67456	67456	-5355	-6226	748	-11.6	-11.0	1.1
Nuclear energy	18175	18650	13718	22242	30700	30700	0	0	0	0.0	0.0	0.0
Solids	16824	18120	19469	15413	17706	17706	-6916	-10914	-6263	-26.2	-41.5	-26.1
Oil (including refinery gas)	590	825	0	0	57	57	0	0	28			96.4
Gas (including derived gases)	2368	1963	1304	1127	1517	1517	-790	-2896	-4734	-37.7	-72.0	-75.7
Biomass-waste	10	70	1519	6133	10428	10428	1334	5888	9580	720.6	2401.6	1130.2
Hydro (pumping excluded)	2673	4336	3734	3778	3968	3968	420	342	0	12.7	9.9	0.0
Wind	0	2	1018	1846	2980	2980	596	1354	2069	141.2	274.9	227.2
Solar	0	0	5	9	101	101	0	0	68	0.0	0.0	205.8
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	10900	10201	11259	11900	14512	14512	184	1394	1953	1.7	13.3	15.5
<u>Nuclear energy</u>	3473	2678	1910	2870	3817	3817	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	1921	2005	3011	3742	5011	5011	496	1159	1925	19.7	44.9	62.4
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	805	1517	2511	2511	496	1159	1855	161.1	323.6	282.4
Solar	0	0	4	8	97	97	0	0	70	0.0	0.0	265.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6338	5288	5685	5685	-312	235	28	-4.7	4.7	0.5
of which cogeneration units	2163	2183	1275	1874	2873	2873	-289	238	343	-18.5	14.5	13.6
Solids fired	4536	4527	5091	3622	2924	2924	-451	-451	-941	-8.1	-11.1	-24.4
Gas fired	603	625	640	313	650	650	-104	-365	-764	-14.0	-53.9	-54.0
Oil fired	355	355	334	262	28	28	0	0	-164	0.0	0.0	-85.6
Biomass-waste fired	11	11	273	1091	2083	2083	242	1051	1897	791.6	2607.9	1022.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	38.4	45.5	49.2	49.2	-5.4	-11.9	-7.6			
Efficiency of gross thermal power generation (%)	27.0	27.7	38.6	40.5	46.5	46.5	-0.8	0.6	2.4			
% of gross electricity from CHP	12.0	14.3	14.6	20.1	23.0	23.0	-3.7	1.8	0.8			
Carbon free gross electricity generation (%)	51.3	52.4	49.0	67.3	71.4	71.4	10.8	20.7	16.8			
- nuclear	44.7	42.4	33.6	44.0	45.5	45.5	3.9	4.8	-0.5			
- renewable energy forms	6.6	10.0	15.4	23.3	25.9	25.9	6.9	15.9	17.3			
Transport sector												
Passenger transport activity (Gpkm)												
	40.3	33.8	38.7	51.9	59.7	74.1	-0.4	-0.7	-1.4	-0.7	-1.2	-1.8
Public road transport	26.0	13.9	11.5	10.0	9.9	10.1	0.2	0.2	0.3	1.8	2.4	2.9
Private cars and motorcycles	5.4	15.5	23.1	35.5	41.6	52.7	-0.5	-0.9	-1.6	-1.5	-2.2	-2.9
Rail	7.8	3.5	2.4	2.9	3.6	5.2	0.1	0.1	0.2	1.8	2.5	3.2
Aviation	0.8	0.9	1.6	3.5	4.5	6.2	-0.1	-0.1	-0.2	-2.1	-3.1	-3.3
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-0.6	-0.5
Freight transport activity (Gtkm)												
	27.8	12.3	20.3	32.4	38.0	45.8	-0.4	-0.7	-1.2	-1.2	-1.8	-2.5
Trucks	12.0	6.4	14.3	24.2	28.5	34.1	-0.7	-1.1	-1.8	-2.7	-3.8	-5.0
Rail	14.1	5.5	5.2	6.9	8.1	10.0	0.3	0.4	0.6	4.1	5.3	6.4
Inland navigation	1.6	0.3	0.8	1.2	1.4	1.7	0.0	0.0	0.0	1.2	1.6	2.2
Energy demand in transport (ktoe)												
	2518	1817	2560	3541	3912	4548	-136	-269	-386	-3.7	-6.4	-7.8
Public road transport	318	158	97	72	67	57	0	-1	-5	-0.1	-0.9	-7.5
Private cars and motorcycles	231	639	928	1210	1311	1501	-31	-52	4	-2.5	-3.8	0.2
Trucks	1459	842	1274	1852	2050	2388	-100	-199	-361	-5.1	-8.9	-13.1
Rail	216	77	60	74	77	69	2	-3	-1	3.3	-3.5	-0.8
Aviation	276	101	200	331	403	530	-7	-14	-23	-2.1	-3.4	-4.2
Inland navigation	18	1	2	3	3	3	0	0	0	0.4	0.3	-0.2

Source: PRIMES

Cyprus: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	6	42	44	51	108	160	206	228	270	23.0	9.3	6.7	2.7
Solids	0	0	0	0	1	0	0	0	0			-3.2	0.0
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	6	42	44	51	108	159	206	228	270	23.0	9.3	6.7	2.7
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6
Wind	0	0	0	0	9	11	45	61	88			17.3	7.0
Solar and others	0	31	35	41	84	130	138	138	146		9.0	5.1	0.5
Geothermal	0	0	0	0	0	0	0	0	0			6.7	-0.4
Net Imports	1554	2017	2537	2808	2943	2737	2768	2783	2749	5.0	1.5	-0.6	-0.1
Solids	68	17	36	44	34	34	33	33	34	-6.3	-0.6	-0.1	0.2
Oil	1486	2000	2502	2764	2765	2212	2211	2113	2074	5.3	1.0	-2.2	-0.6
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.1	-0.3
- Oil products	761	1207	1353	2764	2763	2210	2209	2111	2072	5.9	7.4	-2.2	-0.6
Natural gas	0	0	0	0	142	480	501	572	559			13.4	1.1
Electricity	0	0	0	0	0	0	0	0	0				
Gross Inland Consumption	1500	1970	2381	2461	2717	2559	2634	2669	2674	4.7	1.3	-0.3	0.2
Solids	60	13	35	36	34	34	34	34	34	-5.3	-0.2	-0.1	0.2
Oil	1434	1914	2302	2374	2431	1874	1870	1770	1729	4.8	0.5	-2.6	-0.8
Natural gas	0	0	0	0	142	480	501	572	559			13.4	1.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	0	0	0	0				
Renewable energy forms	6	42	44	51	109	170	229	293	352	23.0	9.4	7.7	4.4
as % in Gross Inland Consumption													
Solids	4.0	0.7	1.5	1.5	1.3	1.3	1.3	1.3	1.3				
Oil	95.6	97.2	96.7	96.5	89.5	73.2	71.0	66.3	64.6				
Natural gas	0.0	0.0	0.0	0.0	5.2	18.8	19.0	21.4	20.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.4	2.2	1.9	2.1	4.0	6.6	8.7	11.0	13.2				
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4321	4554	5218	5925	6393	5.5	2.5	1.9	2.1
Self consumption and grid losses	207	236	353	410	424	328	367	404	428	5.5	1.9	-1.4	1.6
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1020	785	829	881	874	5.7	1.4	-2.1	0.5
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	509	641	884	1077	878	303	322	263	253	5.7	-0.1	-9.5	-2.4
Gas (including derived gases)	0	0	0	0	142	480	501	571	559			13.4	1.1
Biomass & Waste	0	0	0	0	0	2	6	46	62				27.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	725	824	1167	0	7	15	27	34	43	4.9	-40.4	15.2	4.7
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.1	-0.3
Biofuels and hydrogen production	0	0	0	0	4	13	25	32	41			19.7	5.1
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	35	43	54	22	23	13	14	14	14	4.3	-8.1	-5.0	0.0
Non-Energy Uses	111	155	188	185	186	189	200	208	214	5.4	-0.1	0.7	0.6
Final Energy Demand	1013	1306	1527	1691	1834	1933	1968	1983	1993	4.2	1.8	0.7	0.1
by sector													
Industry	281	201	229	201	201	204	216	224	231	-2.0	-1.3	0.7	0.7
- energy intensive industries	246	125	117	78	74	73	71	69	69	-7.2	-4.5	-0.4	-0.2
- other industrial sectors	35	76	113	122	127	130	145	155	163	12.3	1.2	1.4	1.1
Residential	102	172	215	234	260	272	272	256	254	7.8	1.9	0.5	-0.7
Tertiary	151	186	233	289	312	353	370	389	396	4.4	2.9	1.7	0.7
Transport	479	747	850	967	1062	1105	1111	1114	1111	5.9	2.3	0.4	0.0
by fuel													
Solids	76	13	35	36	34	34	34	34	34	-7.5	-0.2	-0.1	0.2
Oil	781	1068	1190	1263	1367	1382	1347	1299	1262	4.3	1.4	-0.1	-0.7
Gas	0	0	0	0	0	0	0	0	0			7.4	6.5
Electricity	151	191	258	340	334	363	417	474	512	5.5	2.6	2.2	2.1
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0				
Renewable energy forms	6	33	44	51	99	154	170	176	184	23.0	8.3	5.6	0.8
Other	0	0	0	0	0	0	0	0	0			15.3	1.4
RES in Gross Final Energy Consumption ^(A)			44	51	108	166	221	260	307		9.3	7.4	3.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.5	7.3	7.3	7.1	6.8	3.1	0.8	-1.4	-0.7
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.4	6.3	6.4	6.2	6.0	4.3	1.0	-1.4	-0.5
Power generation/District heating	1.6	2.1	2.8	3.5	3.1	2.1	2.2	2.2	2.1	5.7	1.1	-3.5	-0.4
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8			
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.2	0.3	0.3
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	3.9	-1.7	-5.2	-13.4
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	4.3	1.9	-2.2	-5.2
Transport	1.4	2.2	2.5	2.9	3.1	3.2	3.2	3.2	3.2	6.0	2.2	0.3	-0.2
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-1.1	-2.1
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	147.1	127.6	127.7	122.7	118.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	166.1	130.8	112.7	99.5	89.2	0.2	-2.0	-3.8	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.71	2.48	2.41	2.32	2.25	-0.4	-0.3	-1.1	-0.7
Import Dependency %	100.1	99.1	98.8	100.7	96.5	94.5	93.1	92.4	91.1				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	1.8	2.0	2.3	2.6	2.7		5.4	2.2	1.6
as % of GDP			9.3	11.4	11.3	10.3	9.9	9.5	9.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	67.4	59.9	54.3	50.5	-3.1	-2.8	-2.2	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.8	73.2	60.9	50.1	45.1	1.6	-1.8	-3.1	-3.0
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	94.3	88.3	77.2	70.5	63.9	-1.4	-0.6	-2.0	-1.9
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	42.9	40.8	39.1	37.5	2.1	0.2	-0.8	-0.9
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.4	256.0	244.7	238.4	236.0	3.5	-0.7	-0.6	-0.4
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.73	0.46	0.42	0.37	0.33	0.2	-1.4	-5.3	-2.4
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.29	2.20	2.11	2.02	1.96	-0.8	-0.5	-0.8	-0.7
Industry	3.07	2.67	2.72	2.48	2.47	2.43	2.37	2.31	2.28	-1.2	-0.9	-0.4	-0.4
Residential	1.51	1.15	1.05	0.82	0.73	0.57	0.41	0.22	0.10	-3.6	-3.5	-5.7	-12.8
Tertiary	1.37	1.55	1.35	1.18	1.22	1.02	0.82	0.58	0.45	-0.1	-1.0	-3.9	-5.9
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.90	2.88	2.85	0.0	-0.1	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	5.8	8.5	11.0	12.9	15.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.5	1.4	2.7	3.6	4.6				
Gross Electricity generation by source (in GWh)													
			3369	4377	4321	4554	5218	5925	6393		2.5	1.9	2.1
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3659	1422	1497	1267	1224	0.8	-8.5	-2.0	
Gas (including derived gases)			0	0	554	2992	3134	3679	3725			18.9	1.7
Biomass-waste			0	0	0	9	30	223	302				26.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	130	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	0	0	48				65.4
Net Generation Capacity in MW_e			930	1155	1402	1391	1529	1711	1937	4.2	0.9	2.4	
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	60	226	299	451	52.3	14.8	7.2	
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	59	203	267	384			13.7	6.6
Solar			1	1	1	1	23	32	43	0.0	39.3	6.3	
Other renewables (tidal etc.)			0	0	0	0	0	0	25				65.4
<u>Thermal power</u>			929	1154	1346	1331	1303	1412	1486	3.8	-0.3	1.3	
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	451	620	798				5.9
Oil fired			929	1154	1346	899	846	732	618	3.8	-4.5	-3.1	
Biomass-waste fired			0	0	0	3	6	60	70				27.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	33.0	36.2	37.8	38.5	36.8				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.5	48.4	48.3	50.5	51.7				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.5	3.1	11.3	16.5	22.6				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.5	3.1	11.3	16.5	22.6				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.7	17.9	18.7	19.3	3.5	3.4	1.5	0.8
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	3.1	2.0	1.6	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	4.9	5.0	2.5	3.9	0.9	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.7	11.5	12.1	12.5	4.0	3.3	1.7	0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.0	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1062	1105	1111	1114	1111	5.9	2.3	0.4	0.0
Public road transport	8	14	16	16	18	18	19	18	18	6.4	1.2	0.8	-0.8
Private cars and motorcycles	117	145	177	288	322	331	327	322	311	4.2	6.2	0.2	-0.5
Trucks	201	321	368	364	378	388	382	382	387	6.2	0.3	0.1	0.1
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	368	382	392	395	6.6	1.7	1.1	0.3
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	160	206	270	52	53	70	47.9	35.0	35.0
Solids	0	0	0	0	0	0	0	-1	-4	-58.8	-72.8	-89.8
Oil	0	0	0	0	0	0	0	0	0	-229.4	-336.8	
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	6	44	51	159	206	270	52	55	74	48.4	36.1	37.7
Hydro	0	0	0	0	0	0	0	0	0	0	0	0
Biomass & Waste	6	9	10	18	23	35	0	0	0	0.0	0.0	0.0
Wind	0	0	0	11	45	88	2	4	24	22.3	10.4	38.2
Solar and others	0	35	41	130	138	146	50	50	49	62.2	57.2	51.0
Geothermal	0	0	0	0	0	0	0	0	0	75.7	147.2	188.2
Net Imports	1554	2537	2808	2737	2768	2749	-331	-385	-465	-10.8	-12.2	-14.5
Solids	68	36	44	34	33	34	0	-1	-1	-1.0	-2.5	-2.4
Oil	1486	2502	2764	2212	2211	2074	-294	-282	-198	-11.7	-11.3	-8.7
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.7	-3.4	-2.0
- Oil products	761	1353	2764	2210	2209	2072	-294	-282	-198	-11.7	-11.3	-8.7
Natural gas	0	0	0	480	501	559	-37	-101	-246	-7.2	-16.7	-30.6
Electricity	0	0	0	0	0	0	0	0	0	-200.0		-100.0
Gross Inland Consumption	1500	2381	2461	2559	2634	2674	-279	-332	-394	-9.8	-11.2	-12.8
Solids	60	35	36	34	34	34	-1	-2	-5	-1.8	-5.5	-11.7
Oil	1434	2302	2374	1874	1870	1729	-294	-282	-197	-13.6	-13.1	-10.2
Natural gas	0	0	0	480	501	559	-37	-101	-246	-7.2	-16.7	-30.6
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	0	0	0	0	0	0	0	0	0	-200.0		-100.0
Renewable energy forms	6	44	51	170	229	352	53	52	53	44.8	29.7	17.9
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.3	1.3	1.3	0.1	0.1	0.0			
Oil	95.6	96.7	96.5	73.2	71.0	64.6	-3.1	-1.6	1.9			
Natural gas	0.0	0.0	0.0	18.8	19.0	20.9	0.5	-1.3	-5.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	6.6	8.7	13.2	2.5	2.7	3.4			
Gross Electricity Generation in GWh_e	1974	3369	4377	4554	5218	6393	-1163	-1294	-1330	-20.3	-19.9	-17.2
Self consumption and grid losses	207	353	410	328	367	428	-108	-102	-99	-24.8	-21.8	-18.7
Fuel Inputs to Thermal Power Generation	509	884	1077	785	829	874	-281	-268	-251	-26.4	-24.4	-22.3
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	303	322	253	-241	-159	19	-44.3	-33.0	8.1
Gas (including derived gases)	0	0	0	480	501	559	-37	-101	-246	-7.2	-16.7	-30.6
Biomass & Waste	0	0	0	2	6	62	-2	-9	-24	-56.5	-61.1	-28.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	15	27	43	2	5	4	11.6	24.7	10.0
Refineries	725	1167	0	2	2	2	0	0	0	-3.7	-3.4	-2.0
Biofuels and hydrogen production	0	0	0	13	25	41	2	5	4	14.7	28.0	10.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	14	14	-5	-4	-3	-28.0	-22.1	-18.0
Non-Energy Uses	111	188	185	189	200	214	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1933	1968	1993	-91	-175	-283	-4.5	-8.1	-12.5
by sector												
Industry	281	229	201	204	216	231	-4	-8	-12	-2.1	-3.7	-5.1
- energy intensive industries	246	117	78	73	71	69	0	-1	0	-0.6	-1.3	-0.7
- other industrial sectors	35	113	122	130	145	163	-4	-7	-12	-2.9	-4.9	-6.8
Residential	102	215	234	272	272	254	-2	-13	-40	-0.7	-4.5	-13.6
Tertiary	151	233	289	353	370	396	-50	-89	-135	-12.4	-19.4	-25.4
Transport	479	850	967	1105	1111	1111	-35	-64	-97	-3.1	-5.5	-8.0
by fuel												
Solids	76	35	36	34	34	34	-1	-2	-5	-1.8	-5.5	-11.7
Oil	781	1190	1263	1382	1347	1262	-53	-123	-216	-3.7	-8.4	-14.6
Gas	0	0	0	0	0	0	0	0	0	11.9	8.2	40.7
Electricity	151	258	340	363	417	512	-91	-102	-106	-20.0	-19.7	-17.1
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	-37.3	163.0	5493.5
Renewable energy forms	6	44	51	154	170	184	53	53	43	51.8	45.1	30.6
Other	0	0	0	0	0	0	0	0	0	6.4	8.1	-5.7
RES in Gross Final Energy Consumption ^(A)	44	51	51	166	221	307	54	56	66	47.6	34.4	27.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.3	7.3	6.8	-1.1	-1.2	-1.3	-13.1	-14.4	-15.8
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.3	6.4	6.0	-1.0	-1.1	-1.2	-13.9	-15.0	-16.4
Power generation/District heating	1.6	2.8	3.5	2.1	2.2	2.1	-0.9	-0.7	-0.5	-29.1	-25.2	-19.5
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-3.1	-7.4	-13.4
Residential	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	-0.1	-1.6	-17.8	-69.8
Tertiary	0.2	0.3	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-7.9	-24.6	-53.0
Transport	1.4	2.5	2.9	3.2	3.2	3.2	-0.1	-0.2	-0.3	-3.4	-6.3	-9.3
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-7.5	-10.5	-11.3
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	127.6	127.7	118.6	-19.2	-21.5	-22.3			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Cyprus: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	130.8	112.7	89.2	-14.3	-14.2	-13.2	-9.8	-11.2	-12.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.48	2.41	2.25	-0.12	-0.11	-0.10	-4.5	-4.3	-4.1
Import Dependency %	100.1	98.8	100.7	94.5	93.1	91.1	-2.1	-2.3	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.0	2.3	2.7	0.0	0.0	0.0	0.3	0.0	-0.3
as % of GDP		9.3	11.4	10.3	9.9	9.0	0.0	0.0	0.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.04	0.00	-0.03						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	67.4	59.9	50.5	-1.4	-2.3	-2.7	-2.1	-3.7	-5.1
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	73.2	60.9	45.1	-0.5	-2.9	-7.1	-0.7	-4.5	-13.6
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	88.3	77.2	63.9	-12.5	-18.6	-21.7	-12.4	-19.4	-25.4
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	42.9	40.8	37.5	-0.4	-0.8	-1.4	-1.0	-1.9	-3.7
Freight transport (toe/Mtkm)	199.1	280.6	261.2	256.0	244.7	236.0	-8.5	-16.8	-24.1	-3.2	-6.4	-9.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.42	0.33	-0.06	-0.03	-0.01	-11.1	-6.7	-2.8
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.20	2.11	1.96	0.02	-0.01	-0.05	0.9	-0.2	-2.5
Industry	3.07	2.72	2.48	2.43	2.37	2.28	-0.03	-0.09	-0.22	-1.1	-3.8	-8.8
Residential	1.51	1.05	0.82	0.57	0.41	0.10	-0.01	-0.07	-0.19	-0.9	-13.9	-65.1
Tertiary	1.37	1.35	1.18	1.02	0.82	0.45	0.05	-0.06	-0.26	5.1	-6.5	-37.0
Transport	2.97	2.98	2.97	2.94	2.90	2.85	-0.01	-0.02	-0.04	-0.3	-0.8	-1.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	8.5	11.0	15.1	3.0	3.5	4.7			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	1.4	2.7	4.6	0.2	0.8	0.9			
Gross Electricity generation by source (in GWh_e)												
	3369	4377	4554	5218	6393	6393	-1163	-1294	-1330	-20.3	-19.9	-17.2
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3369	4376	1422	1497	1224	1224	-939	-617	92	-39.8	-29.2	8.1
Gas (including derived gases)	0	0	2992	3134	3725	3725	-233	-714	-1681	-7.2	-18.6	-31.1
Biomass-waste	0	0	9	30	302	302	-14	-46	-137	-59.5	-61.0	-31.2
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	130	522	1029	1029	24	49	284	22.3	10.4	38.2
Solar	0	1	1	35	65	65	0	34	64	0.0	3301.2	6192.9
Geothermal and other renewables	0	0	0	0	48	48	0	0	48			21223.4
Net Generation Capacity in MW_e												
	930	1155	1391	1529	1937	1937	10	-151	-128	0.7	-9.0	-6.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1	1	60	226	451	451	10	13	137	20.0	6.2	43.6
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	59	203	384	384	10	-9	70	20.4	-4.4	22.5
Solar	1	1	1	23	43	43	0	22	42	0.0	2641.3	4955.0
Other renewables (tidal etc.)	0	0	0	0	25	25	0	0	25			21223.4
<u>Thermal power</u>	929	1154	1331	1303	1486	1486	0	-164	-265	0.0	-11.2	-15.1
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	429	451	798	798	0	-154	-264	0.0	-25.5	-24.9
Oil fired	929	1154	899	846	618	618	0	0	0	0.0	0.0	0.0
Biomass-waste fired	0	0	3	6	70	70	0	-10	-1	5.8	-60.7	-1.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	39.3	40.8	36.2	37.8	36.8	36.8	-9.4	-5.1	-4.9			
Efficiency of gross thermal power generation (%)	32.8	35.0	48.4	48.3	51.7	51.7	3.2	1.0	-1.6			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.1	11.3	22.6	22.6	0.8	2.8	7.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.1	11.3	22.6	22.6	0.8	2.8	7.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	7.9	11.1	13.5	16.7	17.9	19.3	-0.2	-0.3	-0.4	-1.0	-1.6	-1.9
Private cars and motorcycles	0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	2.6	3.5	4.1
Rail	2.3	3.0	3.9	4.6	4.8	5.0	0.0	-0.1	-0.1	-0.9	-1.6	-2.3
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	4.7	7.0	8.4	10.7	11.5	12.5	-0.2	-0.3	-0.3	-1.5	-2.2	-2.6
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Trucks	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-2.0	-2.8	-3.3
Rail	1.0	1.3	1.4	1.5	1.6	1.6	0.0	0.0	-0.1	-2.0	-2.8	-3.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	479	850	967	1105	1111	1111	-35	-64	-97	-3.1	-5.5	-8.0
Private cars and motorcycles	8	16	16	18	19	18	0	0	-1	0.1	-1.3	-5.8
Trucks	117	177	288	331	327	311	-8	-13	-22	-2.3	-3.9	-6.7
Rail	201	368	364	388	382	387	-21	-38	-54	-5.2	-9.0	-12.3
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	152	290	299	368	382	395	-6	-13	-19	-1.7	-3.2	-4.6
	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Czech Republic: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	38484	31733	29788	32779	28240	26308	25631	26989	24492	-2.5	-0.5	-1.0	-0.5
Solids	34715	27481	25002	23520	17097	14066	12023	11001	10001	-3.2	-3.7	-3.5	-1.8
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0
Natural gas	201	198	169	154	160	162	155	146	133	-1.7	-0.5	-0.3	-1.5
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2
Renewable energy sources	100	627	727	2142	3304	4288	5414	6656	7221	22.0	16.3	5.1	2.9
Hydro	100	172	151	205	223	224	226	227	230	4.2	4.0	0.1	0.2
Biomass & Waste	0	455	576	1933	2900	3625	4531	5664	6086		17.5	4.6	3.0
Wind	0	0	0	2	80	129	182	213	250			8.5	3.2
Solar and others	0	0	0	2	100	310	474	552	655			16.9	3.3
Geothermal	0	0	0	0	0	0	0	0	0			11.5	3.3
Net Imports	7630	8417	9297	12271	17497	18204	20070	21039	24306	2.0	6.5	1.4	1.9
Solids	-5685	-5784	-4751	-3489	355	-297	433	857	4448			2.0	26.2
Oil	8589	7742	7428	9499	10606	11383	11821	12211	12561	-1.4	3.6	1.1	0.6
- Crude oil and Feedstocks	7382	6798	5492	7539	8486	9073	9402	9697	9959	-2.9	4.4	1.0	0.6
- Oil products	1207	944	1936	1960	2120	2310	2419	2514	2602	4.8	0.9	1.3	0.7
Natural gas	4786	6424	7482	7535	7859	7916	7608	7155	6532	4.6	0.5	-0.3	-1.5
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Gross Inland Consumption	47380	40801	40307	44798	45737	44513	45702	48028	48798	-1.6	1.3	0.0	0.7
Solids	29882	22556	21645	20099	17451	13769	12456	11857	14448	-3.2	-2.1	-3.3	1.5
Oil	8964	7876	7790	9748	10806	11583	12021	12411	12761	-1.4	3.3	1.1	0.6
Natural gas	5248	6552	7500	7703	8019	8078	7763	7301	6665	3.6	0.7	-0.3	-1.5
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	6937	0.8	7.9	0.5	-1.2
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Renewable energy forms	100	627	727	1955	3396	4761	6728	8953	9688	22.0	16.7	7.1	3.7
as % in Gross Inland Consumption													
Solids	63.1	55.3	53.7	44.9	38.2	30.9	27.3	24.7	29.6				
Oil	18.9	19.3	19.3	21.8	23.6	26.0	26.3	25.8	26.2				
Natural gas	11.1	16.1	18.6	17.2	17.5	18.1	17.0	15.2	13.7				
Nuclear	6.9	7.7	8.7	14.2	16.4	17.1	17.2	18.7	14.2				
Renewable energy forms	0.2	1.5	1.8	4.4	7.4	10.7	14.7	18.6	19.9				
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	83659	87193	91978	108394	124816	1.6	1.4	1.0	3.1
Self consumption and grid losses	8541	8837	10601	11632	10678	10515	11378	13519	19707	2.2	0.1	0.6	5.6
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13440	10774	11023	12512	15448	3.7	-1.6	-2.0	3.4
Solids	9947	13571	14031	13955	12180	8467	7562	7317	9995	3.5	-1.4	-4.7	2.8
Oil (including refinery gas)	741	311	203	126	132	28	4	2	3	-12.2	-4.2	-29.5	-4.2
Gas (including derived gases)	300	573	1270	1286	917	1174	1003	771	811	15.5	-3.2	0.9	-2.1
Biomass & Waste	0	119	369	224	212	1106	2454	4421	4640		-5.4	27.7	6.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	18634	14422	11312	13108	13569	13937	13960	13876	13994	-4.9	1.8	0.3	0.0
Refineries	7946	7026	6047	7957	8742	9354	9701	10004	10278	-2.7	3.8	1.0	0.6
Biofuels and hydrogen production	0	11	0	3	396	616	966	1047	1134			9.3	1.6
District heating	2138	1404	999	909	1147	926	437	140	107	-7.3	1.4	-9.2	-13.1
Derived gases, cokeries etc.	8549	5982	4266	4239	3285	3041	2855	2685	2475	-6.7	-2.6	-1.4	-1.4
Energy Branch Consumption	2124	1866	1919	1915	2199	2170	2212	2307	2752	-1.0	1.4	0.1	2.2
Non-Energy Uses	1680	2132	1962	2419	2804	3174	3559	3866	4086	1.6	3.6	2.4	1.4
Final Energy Demand	36267	25697	23905	25801	27611	28936	29861	30743	31583	-4.1	1.5	0.8	0.5
by sector													
Industry	19215	12191	10031	9439	10030	10320	10650	10948	11210	-6.3	0.0	0.6	0.5
- energy intensive industries	8050	6719	6276	6588	6975	7151	7261	7365	7478	-2.5	1.1	0.4	0.3
- other industrial sectors	11165	5472	3755	2851	3055	3169	3389	3583	3732	-10.3	-2.0	1.0	1.0
Residential	8625	5796	5260	6063	6463	6764	6813	6952	6993	-4.8	2.1	0.5	0.3
Tertiary	5622	4871	3893	3730	3699	3830	3989	4150	4202	-3.6	-0.5	0.8	0.5
Transport	2804	2840	4721	6569	7420	8022	8409	8692	8978	5.3	4.6	1.3	0.7
by fuel													
Solids	17789	6457	5164	3619	3720	3656	3488	3387	3400	-11.6	-3.2	-0.6	-0.3
Oil	6229	5018	5291	6913	7430	7953	8021	8097	8221	-1.6	3.5	0.8	0.2
Gas	5146	6119	6419	6581	6773	6864	6989	6849	6134	2.2	0.5	0.3	-1.3
Electricity	4142	4129	4243	4750	4659	5125	5634	6488	7153	0.2	0.9	1.9	2.4
Heat (from CHP and District Heating)	2959	3664	2624	2478	2370	2266	2153	2137	2195	-1.2	-1.0	-1.0	0.2
Renewable energy forms	0	309	165	1460	2659	3069	3574	3780	4274		32.1	3.0	1.8
Other	0	0	0	0	1	1	3	5	5			15.3	6.8
RES in Gross Final Energy Consumption ^(A)			610	1832	3261	4481	6213	8171	8875		18.3	6.7	3.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	140.2	125.0	117.8	111.7	106.4	-3.1	-0.6	-1.7	-1.0
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	110.2	97.0	91.3	88.1	85.0	-2.8	-0.6	-1.9	-0.7
Power generation/District heating	48.8	60.4	62.1	61.0	53.5	39.0	33.5	31.0	29.3	2.4	-1.5	-4.6	-1.4
Energy Branch	2.3	1.5	2.2	2.3	2.7	2.7	2.7	2.6	2.6	-0.5	2.1	0.0	-0.5
Industry	58.1	29.0	25.2	20.9	21.9	22.7	22.9	22.2	21.1	-8.0	-1.4	0.4	-0.8
Residential	24.0	10.6	7.9	7.1	7.2	7.0	6.6	6.4	6.1	-10.5	-1.0	-0.8	-0.7
Tertiary	14.1	9.2	5.9	4.5	4.2	3.7	3.3	3.0	2.6	-8.4	-3.4	-2.2	-2.6
Transport	7.5	7.7	13.4	19.1	20.7	22.0	22.2	22.8	23.3	6.0	4.4	0.7	0.5
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.4	11.7	12.0	12.1	12.2	-3.8	-0.8	0.5	0.2
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	16.2	14.5	11.5	9.2	-4.4	-0.6	-2.5	-4.4
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	68.7	61.3	57.7	54.7	52.1				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Czech Republic: Cost Efficiency with JI/CDM Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5	
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	367.2	299.8	256.5	235.7	214.9	-1.9	-2.7	-3.5	-1.8	
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.41	2.18	2.00	1.83	1.74	-1.2	-1.8	-1.9	-1.4	
Import Dependency %	16.1	20.6	23.1	27.4	38.3	40.9	43.9	43.8	49.8					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	20.6	24.4	28.8	32.6	35.5		3.0	3.4	2.1	
as % of GDP			18.3	16.9	16.5	16.5	16.2	16.0	15.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.5	51.9	45.5	41.2	38.1	-7.3	-5.1	-2.6	-1.8	
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	83.8	73.4	61.5	55.0	49.9	-5.8	-1.8	-3.0	-2.1	
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	65.4	56.4	48.5	44.0	39.9	-7.4	-4.2	-2.9	-1.9	
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.6	32.0	30.5	28.7	26.8	4.0	2.4	-0.6	-1.3	
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	56.9	56.3	53.2	50.6	49.9	7.5	4.0	-0.7	-0.6	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.44	0.31	0.26	0.22	0.18	1.8	-2.4	-4.9	-3.6	
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.95	1.91	1.84	1.77	1.69	-2.6	-1.1	-0.6	-0.8	
Industry	3.03	2.38	2.51	2.21	2.18	2.20	2.15	2.03	1.88	-1.8	-1.4	-0.2	-1.3	
Residential	2.78	1.84	1.50	1.16	1.11	1.03	0.97	0.92	0.88	-6.0	-3.0	-1.4	-1.0	
Tertiary	2.51	1.89	1.51	1.21	1.13	0.95	0.84	0.72	0.61	-5.0	-2.9	-3.0	-3.1	
Transport	2.68	2.71	2.85	2.90	2.79	2.74	2.64	2.62	2.60	0.6	-0.2	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	11.3	14.9	20.0	25.5	26.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.9	7.1	10.7	11.3	11.9					
Gross Electricity generation by source (in GWh)														
			72898	81916	83659	87193	91978	108394	124816		1.4	1.0	3.1	
Nuclear energy			13588	24724	28995	29433	30388	35583	28810		7.9	0.5	-0.5	
Solids			50038	47938	42839	39996	37767	40630	61403		-1.5	-1.3	5.0	
Oil (including refinery gas)			528	447	161	40	18	15	12		-11.2	-19.6	-4.1	
Gas (including derived gases)			6087	5565	6732	8177	7503	6828	7605		1.0	1.1	0.1	
Biomass-waste			899	841	1398	5443	11548	20203	21385		4.5	23.5	6.4	
Hydro (pumping excluded)			1758	2380	2598	2601	2625	2636	2677		4.0	0.1	0.2	
Wind			0	22	933	1499	2119	2482	2903			8.5	3.2	
Solar			0	0	1	4	8	16	20			19.5	9.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			12048	13981	15141	17136	18138	19003	19824		2.3	1.8	0.9	
<u>Nuclear energy</u>			1661	3504	3519	3534	3541	4141	3344		7.8	0.1	-0.6	
<u>Renewable energy</u>			1148	1227	1981	2383	3059	3409	3820		5.6	4.4	2.2	
Hydro (pumping excluded)			1142	1196	1257	1259	1263	1264	1269		1.0	0.0	0.0	
Wind			7	30	722	1118	1784	2123	2522		59.4	9.5	3.5	
Solar			0	1	2	6	12	22	29			19.5	9.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			9239	9250	9641	11219	11538	11453	12660		0.4	1.8	0.9	
of which cogeneration units			3030	3110	2869	3617	4627	5919	6393		-0.5	4.9	3.3	
Solids fired			7747	7661	7808	8791	8097	6561	7200		0.1	0.4	-1.2	
Gas fired			1208	1302	1398	1369	1451	1480	1910		1.5	0.4	2.8	
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4	
Biomass-waste fired			165	165	310	941	1932	3382	3539		6.5	20.1	6.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			63.9	61.7	58.8	54.8	54.7	61.3	65.1					
Efficiency of gross thermal power generation (%)			31.2	30.2	32.7	42.8	44.3	46.5	50.3					
% of gross electricity from CHP			21.1	16.7	16.5	24.1	28.6	29.8	31.6					
Carbon free gross electricity generation (%)			22.3	34.1	40.6	44.7	50.8	56.2	44.7					
- nuclear			18.6	30.2	34.7	33.8	33.0	32.8	23.1					
- renewable energy forms			3.6	4.0	5.9	10.9	17.7	23.4	21.6					
Transport sector														
Passenger transport activity (Gpkm)	92.9	95.4	101.3	105.1	115.7	128.8	144.3	158.8	170.8	0.9	1.3	2.2	1.7	
Public road transport	23.6	18.6	16.2	14.7	15.1	15.6	16.4	17.4	18.2	-3.7	-0.7	0.8	1.0	
Private cars and motorcycles	46.8	59.0	67.3	71.3	79.6	89.7	101.2	111.9	120.8	3.7	1.7	2.4	1.8	
Rail	20.6	15.7	15.4	15.6	16.1	17.0	18.1	19.1	19.9	-2.9	0.5	1.1	1.0	
Aviation	1.9	2.1	2.5	3.5	4.9	6.6	8.5	10.3	12.0	2.8	6.9	5.7	3.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	64.2	53.9	55.6	59.3	64.1	69.4	75.3	81.7	88.0	-1.4	1.4	1.6	1.6	
Trucks	26.3	31.3	37.3	43.4	50.5	56.7	62.3	68.0	73.6	3.6	3.1	2.1	1.7	
Rail	38.0	22.6	17.5	14.8	13.4	12.4	12.9	13.6	14.3	-7.5	-2.7	-0.4	1.0	
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.6	-8.0	-5.0	
Energy demand in transport (ktoe)	2804	2840	4721	6569	7420	8022	8409	8692	8978	5.3	4.6	1.3	0.7	
Public road transport	132	110	98	111	112	111	109	103	98	-2.9	1.4	-0.3	-1.0	
Private cars and motorcycles	1271	1373	2257	2850	3144	3383	3570	3659	3645	5.9	3.4	1.3	0.2	
Trucks	956	971	1868	2987	3450	3723	3832	3974	4242	6.9	6.3	1.1	1.0	
Rail	272	200	295	271	241	220	204	194	180	0.8	-2.0	-1.6	-1.2	
Aviation	174	185	197	346	471	584	693	763	812	1.3	9.1	3.9	1.6	
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.3	-5.3		

Source: PRIMES

Czech Republic: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	26308	25631	24492	689	1070	2991	2.7	4.4	13.9
Solids	34715	25002	23520	14066	12023	10001	4	-17	-86	0.0	-0.1	-0.9
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	162	155	133	-6	-13	-46	-3.4	-8.0	-25.7
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Renewable energy sources	100	727	2142	4288	5414	7221	690	1100	1785	19.2	25.5	32.8
Hydro	100	151	205	224	226	230	12	8	0	5.5	3.7	0.0
Biomass & Waste	0	576	1933	3625	4531	6086	396	636	1160	12.3	16.3	23.6
Wind	0	0	2	129	182	250	38	79	113	42.5	77.0	82.2
Solar and others	0	0	2	310	474	655	244	377	512	370.9	387.6	357.4
Geothermal	0	0	0	0	0	0	0	0	0	132.5	294.9	385.0
Net Imports	7630	9297	12271	18204	20070	24306	-2855	-4584	-5991	-13.6	-18.6	-19.8
Solids	-5685	-4751	-3489	-297	433	4448	-2789	-4540	-5133	-111.9	-91.3	-53.6
Oil	8589	7428	9499	11383	11821	12561	-470	-952	-1395	-4.0	-7.5	-10.0
- Crude oil and Feedstocks	7382	5492	7539	9073	9402	9959	-358	-722	-1055	-3.8	-7.1	-9.6
- Oil products	1207	1936	1960	2310	2419	2602	-112	-229	-340	-4.6	-8.7	-11.6
Natural gas	4786	7482	7535	7916	7608	6532	-281	-661	-2254	-3.4	-8.0	-25.7
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	44513	45702	48798	-2166	-3514	-3000	-4.6	-7.1	-5.8
Solids	29882	21645	20099	13769	12456	14448	-2785	-4557	-5219	-16.8	-26.8	-26.5
Oil	8964	7790	9748	11583	12021	12761	-470	-952	-1395	-3.9	-7.3	-9.9
Natural gas	5248	7500	7703	8078	7763	6665	-286	-675	-2300	-3.4	-8.0	-25.7
Nuclear	3246	3506	6379	7592	7839	6937	0	0	1338	0.0	0.0	23.9
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	4761	6728	9688	1375	2670	4575	40.6	65.8	89.5
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	30.9	27.3	29.6	-4.5	-7.3	-8.4			
Oil	18.9	19.3	21.8	26.0	26.3	26.2	0.2	-0.1	-1.2			
Natural gas	11.1	18.6	17.2	18.1	17.0	13.7	0.2	-0.2	-3.6			
Nuclear	6.9	8.7	14.2	17.1	17.2	14.2	0.8	1.2	3.4			
Renewable energy forms	0.2	1.8	4.4	10.7	14.7	19.9	3.4	6.5	10.0			
Gross Electricity Generation in GWh_e	62260	72898	81916	87193	91978	124816	-11892	-12408	-1655	-12.0	-11.9	-1.3
Self consumption and grid losses	8541	10601	11632	10515	11378	19707	-1993	-2018	3077	-15.9	-15.1	18.5
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10774	11023	15448	-2249	-2785	-2175	-17.3	-20.2	-12.3
Solids	9947	14031	13955	8467	7562	9995	-3215	-4741	-5723	-27.5	-38.5	-36.4
Oil (including refinery gas)	741	203	126	28	4	3	0	-24	3	0.0	-85.6	
Gas (including derived gases)	300	1270	1286	1174	1003	811	-62	-84	-46	-5.0	-7.7	-5.4
Biomass & Waste	0	369	224	1106	2454	4640	1028	2064	3591	1320.0	529.9	342.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	13937	13960	13994	85	-660	-1321	0.6	-4.5	-8.6
Refineries	7946	6047	7957	9354	9701	10278	-359	-723	-1055	-3.7	-6.9	-9.3
Biofuels and hydrogen production	0	0	3	616	966	1134	77	210	133	14.3	27.7	13.3
District heating	2138	999	909	926	437	107	88	-338	-430	10.5	-43.6	-80.0
Derived gases, cokeries etc.	8549	4266	4239	3041	2855	2475	278	192	31	10.1	7.2	1.3
Energy Branch Consumption	2124	1919	1915	2170	2212	2752	-95	-131	201	-4.2	-5.6	7.9
Non-Energy Uses	1680	1962	2419	3174	3559	4086	-31	-32	-23	-1.0	-0.9	-0.6
Final Energy Demand	36267	23905	25801	28936	29861	31383	-1062	-1783	-2510	-3.5	-5.6	-7.4
by sector												
Industry	19215	10031	9439	10320	10650	11210	-16	-155	-210	-0.2	-1.4	-1.8
- energy intensive industries	8050	6276	6588	7151	7261	7478	81	-23	-37	1.1	-0.3	-0.5
- other industrial sectors	11165	3755	2851	3169	3389	3732	-97	-133	-173	-3.0	-3.8	-4.4
Residential	8625	5260	6063	6764	6813	6993	-275	-383	-478	-3.9	-5.3	-6.4
Tertiary	5622	3893	3730	3830	3989	4202	-404	-569	-970	-9.5	-12.5	-18.7
Transport	2804	4721	6569	8022	8409	8978	-368	-675	-851	-4.4	-7.4	-8.7
by fuel												
Solids	17789	5164	3619	3656	3488	3400	205	67	495	6.0	2.0	17.1
Oil	6229	5291	6913	7953	8021	8221	-404	-855	-1339	-4.8	-9.6	-14.0
Gas	5146	6419	6581	6864	6989	6134	-184	-207	-1734	-2.6	-2.9	-22.0
Electricity	4142	4243	4750	5125	5634	7153	-851	-890	-402	-14.2	-13.6	-5.3
Heat (from CHP and District Heating)	2959	2624	2478	2266	2153	2195	-146	-413	-344	-6.1	-16.1	-13.6
Renewable energy forms	0	165	1460	3069	3574	4274	318	515	814	11.6	16.8	23.5
Other	0	0	0	1	3	5	0	0	0	7.9	5.0	-2.7
RES in Gross Final Energy Consumption ^(A)		610	1832	4481	6213	8875	1234	2378	4102	38.0	62.0	85.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	125.0	117.8	106.4	-14.7	-25.1	-45.0	-10.5	-17.5	-29.7
CO₂ Emissions (energy related)	154.8	116.7	114.8	97.0	91.3	85.0	-13.0	-22.4	-42.5	-11.8	-19.7	-33.3
Power generation/District heating	48.8	62.1	61.0	39.0	33.5	29.3	-12.3	-19.6	-36.1	-24.0	-36.9	-55.2
Energy Branch	2.3	2.2	2.3	2.7	2.7	2.6	0.0	0.0	-0.2	1.1	-1.0	-6.2
Industry	58.1	25.2	20.9	22.7	22.9	21.1	1.6	1.5	-0.1	7.4	6.9	-0.4
Residential	24.0	7.9	7.1	7.0	6.6	6.1	-0.8	-1.1	-1.7	-9.9	-13.9	-21.3
Tertiary	14.1	5.9	4.5	3.7	3.3	2.6	-0.2	-0.5	-1.4	-5.0	-13.7	-34.7
Transport	7.5	13.4	19.1	22.0	22.2	23.3	-1.3	-2.6	-3.1	-5.6	-10.6	-11.8
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.7	12.0	12.2	0.4	0.1	-0.2	3.7	0.8	-1.7
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	16.2	14.5	9.2	-2.1	-2.8	-2.3	-11.5	-16.1	-20.2
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	61.3	57.7	52.1	-7.2	-12.3	-22.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Czech Republic: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	299.8	256.5	214.9	-14.6	-19.7	-13.2	-4.6	-7.1	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.18	2.00	1.74	-0.18	-0.31	-0.72	-7.5	-13.5	-29.2
Import Dependency %	16.1	23.1	27.4	40.9	43.9	49.8	-4.2	-6.2	-8.7			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	24.4	28.8	35.5	0.9	1.6	2.8	3.8	5.9	8.6
as % of GDP		18.3	16.9	16.5	16.2	15.6	0.6	0.9	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.9	1.7	2.9						
as % of GDP				0.61	0.93	1.26						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	51.9	45.5	38.1	-0.1	-0.7	-0.7	-0.2	-1.4	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	73.4	61.5	49.9	-3.0	-3.5	-3.4	-3.9	-5.3	-6.4
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	56.4	48.5	39.9	-5.9	-6.9	-9.2	-9.5	-12.5	-18.7
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	32.0	30.5	26.8	-0.7	-1.1	-1.4	-2.2	-3.4	-4.8
Freight transport (toe/Mtkm)	18.5	38.3	54.3	56.3	53.2	49.9	-2.5	-4.4	-4.1	-4.2	-7.6	-7.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.31	0.26	0.18	-0.06	-0.10	-0.21	-15.2	-27.6	-53.4
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.91	1.84	1.69	0.04	0.02	-0.06	2.3	0.9	-3.3
Industry	3.03	2.51	2.21	2.20	2.15	1.88	0.15	0.17	0.03	7.5	8.4	1.5
Residential	2.78	1.50	1.16	1.03	0.97	0.88	-0.07	-0.10	-0.17	-6.3	-9.1	-16.0
Tertiary	2.51	1.51	1.21	0.95	0.84	0.61	0.05	-0.01	-0.15	5.0	-1.3	-19.7
Transport	2.68	2.85	2.90	2.74	2.64	2.60	-0.04	-0.09	-0.09	-1.3	-3.4	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	14.9	20.0	26.7	4.5	8.4	13.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.1	10.7	11.9	1.2	3.0	2.4			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	87193	91978	124816	124816	-11892	-12408	-1655	-12.0	-11.9	-1.3
Nuclear energy	13588	24724	29433	30388	28810		0	0	6090	0.0	0.0	26.8
Solids	50038	47938	39996	37767	61403		-16284	-22065	-26284	-28.9	-36.9	-30.0
Oil (including refinery gas)	528	447	40	18	12		-27	-19	7	-40.0	-50.8	155.4
Gas (including derived gases)	6087	5565	8177	7503	7605		-681	-464	677	-7.7	-5.8	9.8
Biomass-waste	899	841	5443	11548	21385		4517	9125	16545	487.8	376.4	341.8
Hydro (pumping excluded)	1758	2380	2601	2625	2677		135	93	0	5.5	3.7	0.0
Wind	0	22	1499	2119	2903		447	922	1310	42.5	77.0	82.2
Solar	0	0	4	8	20		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	12048	13981	17136	18138	19824	19824	-409	507	376	-2.3	2.9	1.9
<u>Nuclear energy</u>	1661	3504	3534	3541	3344		0	0	703	0.0	0.0	26.6
<u>Renewable energy</u>	1148	1227	2383	3059	3820		415	977	1426	21.1	46.9	59.5
Hydro (pumping excluded)	1142	1196	1259	1263	1269		13	12	7	1.1	1.0	0.6
Wind	7	30	1118	1784	2522		402	965	1419	56.1	117.7	128.6
Solar	0	1	6	12	29		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	9239	9250	11219	11538	12660		-825	-470	-1753	-6.8	-3.9	-12.2
of which cogeneration units	3030	3110	3617	4627	6393		-399	57	800	-9.9	1.2	14.3
Solids fired	7747	7661	8791	8097	7200		-1486	-1910	-4298	-14.5	-19.1	-37.4
Gas fired	1208	1302	1369	1451	1910		-78	-31	0	-5.4	-2.1	0.0
Oil fired	118	122	118	57	11		0	0	-102	0.0	0.0	-90.5
Biomass-waste fired	165	165	941	1932	3539		739	1471	2647	364.7	319.4	296.8
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	63.9	61.7	54.8	54.7	65.1		-5.8	-8.8	-4.4			
Efficiency of gross thermal power generation (%)	31.2	30.2	42.8	44.3	50.3		-0.8	0.6	1.8			
% of gross electricity from CHP	21.1	16.7	24.1	28.6	31.6		-2.5	0.6	5.2			
Carbon free gross electricity generation (%)	22.3	34.1	44.7	50.8	44.7		10.5	15.7	19.5			
- nuclear	18.6	30.2	33.8	33.0	23.1		4.1	3.9	5.1			
- renewable energy forms	3.6	4.0	10.9	17.7	21.6		6.5	11.8	14.4			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	92.9	101.3	105.1	128.8	144.3	170.8	-1.3	-2.6	-4.0	-1.0	-1.8	-2.3
Private cars and motorcycles	23.6	16.2	14.7	15.6	16.4	18.2	0.2	0.4	0.5	1.6	2.4	2.8
Rail	46.8	67.3	71.3	89.7	101.2	120.8	-1.8	-3.3	-4.9	-1.9	-3.2	-3.9
Aviation	20.6	15.4	15.6	17.0	18.1	19.9	0.4	0.6	0.9	2.4	3.2	4.7
Inland navigation	1.9	2.5	3.5	6.6	8.5	12.0	-0.1	-0.3	-0.5	-2.2	-3.2	-3.7
Freight transport activity (Gtkm)												
Trucks	64.2	55.6	59.3	69.4	75.3	88.0	-1.1	-1.9	-2.7	-1.5	-2.5	-3.0
Rail	26.3	37.3	43.4	56.7	62.3	73.6	-1.6	-2.6	-3.7	-2.8	-4.1	-4.7
Inland navigation	38.0	17.5	14.8	12.4	12.9	14.3	0.6	0.7	1.0	4.6	6.0	7.2
Energy demand in transport (ktoe)												
Public road transport	2804	4721	6569	8022	8409	8978	-368	-675	-851	-4.4	-7.4	-8.7
Private cars and motorcycles	132	98	111	111	109	98	-1	-2	-6	-0.7	-1.8	-6.0
Trucks	1271	2257	2850	3383	3570	3645	-114	-197	-259	-3.3	-5.2	-6.6
Rail	956	1868	2987	3723	3832	4242	-242	-435	-509	-6.1	-10.2	-10.7
Aviation	272	295	271	220	204	180	6	-3	0	3.0	-1.4	0.2
Inland navigation	174	197	346	584	693	812	-18	-38	-78	-3.1	-5.2	-8.7
Inland navigation	0	5	5	1	1	0	0	0	0	0.5	0.5	-0.2

Source: PRIMES

Denmark: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	27853	22326	19691	19512	19192	10.6	0.1	-3.4	-0.3
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	7925	3978	3207	3259	3368	10.3	0.7	-8.6	0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3428	4348	5484	6254	6823	5.6	5.2	4.8	2.2
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.5	0.2	0.2
Biomass & Waste	1140	1423	1687	2313	2670	3339	4313	4892	5186	4.0	4.7	4.9	1.9
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	73	294	397	427	515	12.5	25.9	18.5	2.6
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.0	12.9	0.2
Net Imports	8605	7534	-7076	-10498	-7950	-3205	-618	-387	-238				
Solids	6216	7664	3784	3505	3705	3783	3195	2658	2098	-4.8	-0.2	-1.5	-4.1
Oil	2711	1429	-8094	-9381	-7657	-5453	-2855	-2095	-1321				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8740	-6382	-3574	-2694	-1809				
- Oil products	679	627	1512	1804	1083	929	719	599	488	8.3	-3.3	-4.0	-3.8
Natural gas	-928	-1496	-2882	-5010	-4209	-2113	-1704	-1731	-1789				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19053	18244	18170	18196	17996	1.0	-0.3	-0.5	-0.1
Solids	6088	6498	3987	3715	3705	3783	3195	2658	2098	-4.1	-0.7	-1.5	-4.1
Oil	8144	9105	9043	8133	7994	7670	7242	6976	6722	1.1	-1.2	-1.0	-0.7
Natural gas	1818	3170	4449	4399	3716	1865	1504	1528	1579	9.4	-1.8	-8.6	0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3741	4740	5989	6827	7431	5.9	5.8	4.8	2.2
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.4	20.7	17.6	14.6	11.7				
Oil	45.6	45.0	46.0	41.6	42.0	42.0	39.9	38.3	37.4				
Natural gas	10.2	15.7	22.6	22.5	19.5	10.2	8.3	8.4	8.8				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	19.6	26.0	33.0	37.5	41.3				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	36810	31055	31626	36194	39906	3.4	0.2	-1.5	2.4
Self consumption and grid losses	3290	4659	4046	3775	3641	3293	3454	4068	4424	2.1	-1.0	-0.5	2.5
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6209	5027	5007	5267	5261	2.7	-2.3	-2.1	0.5
Solids	5541	6061	3667	3444	3478	3396	2594	2022	1451	-4.0	-0.5	-2.9	-5.6
Oil (including refinery gas)	237	1008	1344	344	273	20	10	9	12	19.0	-14.7	-28.3	2.2
Gas (including derived gases)	174	975	2112	2003	1306	0	0	23	254	28.4	-4.7		
Biomass & Waste	65	378	699	1338	1153	1611	2403	3213	3544	26.9	5.1	7.6	4.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8698	8737	8740	8482	8279	-0.1	-0.3	0.0	-0.5
Refineries	8027	9958	8452	7821	7760	7618	7426	7306	7191	0.5	-0.9	-0.4	-0.3
Biofuels and hydrogen production	0	0	0	0	193	350	591	620	663			11.8	1.2
District heating	1005	761	515	509	745	769	724	556	425	-6.5	3.8	-0.3	-5.2
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1122	819	740	750	737	4.7	-0.3	-4.1	0.0
Non-Energy Uses	293	291	292	276	275	279	280	282	286	-0.1	-0.6	0.2	0.2
Final Energy Demand	13492	14720	14610	15324	15274	15270	15416	15374	15259	0.8	0.4	0.1	-0.1
by sector													
Industry	2711	3026	2935	2831	2906	2940	2927	2920	2973	0.8	-0.1	0.1	0.2
- energy intensive industries	1076	1121	1243	1152	1174	1189	1164	1145	1149	1.5	-0.6	-0.1	-0.1
- other industrial sectors	1636	1905	1692	1679	1733	1751	1764	1775	1824	0.3	0.2	0.2	0.3
Residential	3946	4468	4154	4398	4319	4158	4289	4327	4318	0.5	0.4	-0.1	0.1
Tertiary	2822	2779	2801	2840	2605	2609	2601	2571	2505	-0.1	-0.7	0.0	-0.4
Transport	4012	4447	4720	5254	5444	5563	5598	5557	5464	1.6	1.4	0.3	-0.2
by fuel													
Solids	396	405	290	236	227	386	601	636	647	-3.1	-2.4	10.2	0.7
Oil	7097	7132	6950	7204	7021	6951	6683	6533	6320	-0.2	0.1	-0.5	-0.6
Gas	1159	1691	1667	1701	1749	1575	1268	1317	1139	3.7	0.5	-3.2	-1.1
Electricity	2517	2655	2791	2882	2719	2541	2631	2939	3186	1.0	-0.3	-0.3	1.9
Heat (from CHP and District Heating)	1758	2242	2255	2408	2372	2251	2381	2174	2009	2.5	0.5	0.0	-1.7
Renewable energy forms	566	595	657	892	1186	1565	1851	1773	1956	1.5	6.1	4.5	0.6
Other	0	0	0	0	0	1	2	2	2			13.7	4.2
RES in Gross Final Energy Consumption ^(A)			1919	2512	3379	4299	5313	5987	6613		5.8	4.6	2.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.7	56.9	52.2	48.5	45.1	0.1	-1.2	-1.8	-1.5
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.2	41.2	36.8	34.0	31.2	0.1	-1.2	-2.2	-1.6
Power generation/District heating	24.5	30.2	24.0	19.7	17.8	13.5	10.3	8.0	6.4	-0.2	-2.9	-5.3	-4.7
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.5	1.0	0.6	0.5	4.9	-0.7	-7.6	-6.1
Industry	5.4	6.0	5.4	5.0	4.9	5.2	5.3	5.4	5.2	-0.1	-0.8	0.8	-0.3
Residential	4.9	4.9	3.9	3.5	3.1	3.0	2.7	2.7	2.6	-2.3	-2.2	-1.4	-0.6
Tertiary	3.6	3.1	2.9	2.7	2.5	2.4	2.4	2.3	2.2	-2.1	-1.4	-0.7	-0.9
Transport	11.9	13.1	13.9	15.5	15.7	15.6	15.1	14.9	14.5	1.6	1.2	-0.3	-0.5
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.9	2.8	2.8	2.8	5.4	-0.2	-0.3	-0.3
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.8	12.6	11.7	11.1	-0.7	-1.2	-0.7	-1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	89.8	81.5	74.9	69.5	64.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1	
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3	
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.1	70.4	64.6	60.3	56.0	-1.6	-2.2	-2.3	-1.4	
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.43	2.26	2.03	1.87	1.73	-0.8	-0.9	-1.8	-1.5	
Import Dependency %	45.7	34.5	-33.7	-51.6	-39.9	-16.8	-3.2	-2.0	-1.3					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	17.9	19.5	22.0	23.9	25.3		1.6	2.1	1.4	
as % of GDP			7.8	8.0	7.6	7.5	7.8	7.9	7.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	85.3	78.9	73.9	70.8	-1.1	-0.8	-1.5	-1.1	
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.8	74.0	71.0	67.2	63.2	-1.4	-1.8	-1.6	-1.1	
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.8	68.7	63.0	58.0	52.9	-2.7	-2.7	-1.8	-1.7	
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	37.2	35.9	33.5	31.1	0.0	0.6	-0.7	-1.4	
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	70.4	67.6	65.5	63.1	0.1	0.5	-0.8	-0.7	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.21	0.16	0.12	0.10	-3.1	-3.3	-4.3	-5.1	
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.72	1.66	1.65	1.59	-0.7	-0.4	-0.4	-0.4	
Industry	2.00	1.98	1.83	1.76	1.70	1.77	1.81	1.86	1.73	-0.9	-0.7	0.7	-0.5	
Residential	1.24	1.09	0.93	0.80	0.72	0.72	0.63	0.63	0.59	-2.8	-2.5	-1.3	-0.6	
Tertiary	1.27	1.12	1.04	0.94	0.97	0.92	0.91	0.88	0.86	-2.0	-0.7	-0.6	-0.5	
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.71	2.69	2.65	0.0	-0.2	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	20.9	26.8	33.0	37.4	41.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.5	11.0	11.8	12.9					
Gross Electricity generation by source (in GWh)														
			36043	36269	36810	31055	31626	36194	39906		0.2	-1.5	2.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids	14345	13553	15221	15122	12389	11037	8768			0.6	-2.0	-3.4		
Oil (including refinery gas)	5222	1525	1553	209	164	155	181			-11.4	-20.2	1.0		
Gas (including derived gases)	9658	9549	7989	1501	853	1505	2314			-1.9	-20.0	10.5		
Biomass-waste	2548	5006	4081	5899	9206	12607	15126			4.8	8.5	5.1		
Hydro (pumping excluded)	30	23	31	32	32	32	32			0.5	0.2	0.2		
Wind	4240	6613	7928	8279	8957	10822	13019			6.5	1.2	3.8		
Solar	0	0	6	13	24	34	465					15.8	34.4	
Geothermal and other renewables	0	0	0	0	0	0	0							
Net Generation Capacity in MW_e			11888	12794	12773	12629	12239	12744	13418		0.7	-0.4	0.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>	2311	3014	3660	3780	4023	4630	5669			4.7	1.0	3.5		
Hydro (pumping excluded)	10	11	11	11	11	14	14			1.5	0.0	2.4		
Wind	2300	3000	3633	3732	3944	4520	5096			4.7	0.8	2.6		
Solar	2	3	16	37	68	97	559			24.9	15.8	23.4		
Other renewables (tidal etc.)	0	0	0	0	0	0	0							
<u>Thermal power</u>	9577	9781	9113	8849	8216	8114	7749			-0.5	-1.0	-0.6		
of which cogeneration units	7504	8538	5794	4534	4628	3955	4104			-2.6	-2.2	-1.2		
Solids fired	5528	5566	4819	4425	3541	3032	2213			-1.4	-3.0	-4.6		
Gas fired	2328	2485	2395	2411	2132	1992	2158			0.3	-1.2	0.1		
Oil fired	1271	1236	1182	988	911	894	783			-0.7	-2.6	-1.5		
Biomass-waste fired	450	494	717	1025	1631	2196	2595			4.8	8.6	4.8		
Fuel Cells	0	0	0	0	0	0	0							
Geothermal heat	0	0	0	0	0	0	0							
Avg. Load factor of net power capacity (%)			32.7	30.4	31.0	26.4	27.8	30.6	32.2					
Efficiency of gross thermal power generation (%)			34.9	35.8	40.0	38.9	38.8	41.3	43.1					
% of gross electricity from CHP			63.9	68.3	62.3	62.9	63.1	58.0	52.3					
Carbon free gross electricity generation (%)			18.9	32.1	32.7	45.8	57.6	64.9	71.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			18.9	32.1	32.7	45.8	57.6	64.9	71.8					
Transport sector														
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	86.4	90.5	93.6	97.1	100.1	1.1	1.0	0.8	0.7	
Public road transport	6.4	7.3	7.4	7.4	7.5	7.6	7.8	8.0	8.2	1.4	0.1	0.4	0.5	
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.0	58.5	59.4	60.7	61.7	0.8	0.9	0.4	0.4	
Rail	5.1	4.9	5.5	6.2	6.7	7.3	7.7	8.1	8.5	0.9	2.0	1.4	1.0	
Aviation	5.5	7.0	9.0	9.8	11.4	13.3	14.8	16.2	17.4	5.0	2.4	2.6	1.6	
Inland navigation	5.2	4.7	3.9	3.7	3.7	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8	
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.1	31.2	33.1	35.1	37.2	2.4	0.5	1.3	1.2	
Trucks	18.1	22.4	24.0	23.3	25.0	26.7	28.2	30.0	31.7	2.9	0.4	1.2	1.2	
Rail	1.7	2.0	2.0	2.0	2.2	2.4	2.6	2.7	2.9	1.6	0.8	1.6	1.3	
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	-2.4	2.5	1.7	1.4	
Energy demand in transport (ktoe)	4012	4447	4720	5254	5444	5563	5598	5557	5464	1.6	1.4	0.3	-0.2	
Public road transport	57	76	78	83	81	78	77	73	69	3.1	0.4	-0.5	-1.2	
Private cars and motorcycles	1628	1709	1788	2034	2046	1996	1922	1767	1644	0.9	1.4	-0.6	-1.6	
Trucks	1374	1690	1816	1952	2021	2091	2131	2204	2295	2.8	1.1	0.5	0.7	
Rail	113	117	103	106	109	110	107	98	54	-1.0	0.6	-0.2	-6.7	
Aviation	690	675	820	944	1049	1147	1215	1264	1250	1.7	2.5	1.5	0.3	
Inland navigation	150	181	115	136	138	141	145	150	153	-2.6	1.8	0.6	0.5	

Source: PRIMES

Denmark: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22326	19691	19192	-1681	-523	627	-7.0	-2.6	3.4
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	3978	3207	3368	-2568	-2169	-1632	-39.2	-40.3	-32.6
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	4348	5484	6823	887	1646	2259	25.6	42.9	49.5
Hydro	2	3	2	3	3	3	0	0	0	4.7	2.8	0.0
Biomass & Waste	1140	1687	2313	3339	4313	5186	657	1374	1768	24.5	46.8	51.7
Wind	52	365	569	712	770	1120	25	0	151	3.7	0.0	15.6
Solar and others	2	7	10	294	397	515	205	271	339	229.0	214.8	193.3
Geothermal	2	3	3	0	0	0	0	0	0	67.0	278.9	278.7
Net Imports	8605	-7076	-10498	-3205	-618	-238	-212	-1591	-2675	7.1	-163.6	-109.8
Solids	6216	3784	3505	3783	3195	2098	-602	-1558	-1856	-13.7	-32.8	-46.9
Oil	2711	-8094	-9381	-5453	-2855	-1321	-700	-1058	-1408	14.7	58.8	-1616.5
- Crude oil and Feedstocks	2032	-9607	-11186	-6382	-3574	-1809	-436	-598	-803	7.3	20.1	79.8
- Oil products	679	1512	1804	929	719	488	-264	-459	-605	-22.1	-39.0	-55.4
Natural gas	-928	-2882	-5010	-2113	-1704	-1789	1013	864	382	-32.4	-33.6	-17.6
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	18244	18170	17996	-1892	-2111	-2044	-9.4	-10.4	-10.2
Solids	6088	3987	3715	3783	3195	2098	-602	-1558	-1856	-13.7	-32.8	-46.9
Oil	8144	9043	8133	7670	7242	6722	-699	-1055	-1404	-8.4	-12.7	-17.3
Natural gas	1818	4449	4399	1865	1504	1579	-1555	-1305	-1250	-45.5	-46.5	-44.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4740	5989	7431	964	1807	2466	25.5	43.2	49.7
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	20.7	17.6	11.7	-1.0	-5.9	-8.1			
Oil	45.6	46.0	41.6	42.0	39.9	37.4	0.5	-1.1	-3.2			
Natural gas	10.2	22.6	22.5	10.2	8.3	8.8	-6.8	-5.6	-5.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	26.0	33.0	41.3	7.2	12.3	16.5			
Gross Electricity Generation in GWh_e	25733	36043	36269	31055	31626	39906	-7818	-8108	-2663	-20.1	-20.4	-6.3
Self consumption and grid losses	3290	4046	3775	3293	3454	4424	-761	-886	-405	-18.8	-20.4	-8.4
Fuel Inputs to Thermal Power Generation	6016	7822	7129	5027	5007	5261	-1579	-1562	-1084	-23.9	-23.8	-17.1
Solids	5541	3667	3444	3396	2594	1451	-744	-1913	-1991	-18.0	-42.4	-57.8
Oil (including refinery gas)	237	1344	344	20	10	12	-258	-243	-180	-92.9	-96.1	-93.7
Gas (including derived gases)	174	2112	2003	0	0	254	-1018	-405	-393	-100.0	-100.0	-60.8
Biomass & Waste	65	699	1338	1611	2403	3544	441	999	1480	37.7	71.2	71.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8737	8740	8279	-285	-336	-589	-3.2	-3.7	-6.6
Refineries	8027	8452	7821	7618	7426	7191	-436	-598	-803	-5.4	-7.5	-10.0
Biofuels and hydrogen production	0	0	0	350	591	663	40	120	53	12.9	25.4	8.7
District heating	1005	515	509	769	724	425	112	143	161	17.0	24.5	61.0
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	819	740	737	-255	-234	-205	-23.7	-24.0	-21.7
Non-Energy Uses	293	292	276	279	280	286	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	15270	15416	15299	-1097	-1249	-1534	-6.7	-7.5	-9.1
by sector												
Industry	2711	2935	2831	2940	2927	2973	-64	-113	-126	-2.1	-3.7	-4.1
- energy intensive industries	1076	1243	1152	1189	1164	1149	-13	-40	-42	-1.1	-3.3	-3.5
- other industrial sectors	1636	1692	1679	1751	1764	1824	-51	-73	-83	-2.8	-4.0	-4.4
Residential	3946	4154	4398	4158	4289	4318	-432	-326	-299	-9.4	-7.1	-6.5
Tertiary	2822	2801	2840	2609	2601	2505	-384	-429	-530	-12.8	-14.1	-17.5
Transport	4012	4720	5254	5563	5598	5464	-217	-381	-580	-3.8	-6.4	-9.6
by fuel												
Solids	396	290	236	386	601	647	141	355	135	57.6	144.1	26.3
Oil	7097	6950	7204	6951	6683	6320	-361	-682	-1002	-4.9	-9.3	-13.7
Gas	1159	1667	1701	1575	1268	1139	-300	-619	-517	-16.0	-32.8	-31.2
Electricity	2517	2791	2882	2541	2631	3186	-606	-619	-191	-19.3	-19.1	-5.7
Heat (from CHP and District Heating)	1758	2255	2408	2251	2381	2009	-266	-118	-277	-10.6	-4.7	-12.1
Renewable energy forms	566	657	892	1565	1851	1956	295	436	320	23.2	30.8	19.5
Other	0	0	0	1	2	2	0	0	-1	6.6	7.2	-26.2
RES in Gross Final Energy Consumption ^(A)		1919	2512	4299	5313	6613	924	1662	2391	27.4	45.5	56.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	56.9	52.2	45.1	-8.8	-13.3	-15.3	-13.4	-20.3	-25.4
CO₂ Emissions (energy related)	51.7	52.4	48.9	41.2	36.8	31.2	-8.2	-12.4	-14.5	-16.5	-25.2	-31.7
Power generation/District heating	24.5	24.0	19.7	13.5	10.3	6.4	-6.3	-9.5	-9.6	-31.6	-47.9	-60.2
Energy Branch	1.5	2.4	2.5	1.5	1.0	0.5	-0.6	-0.8	-1.2	-30.9	-44.9	-68.8
Industry	5.4	5.4	5.0	5.2	5.3	5.2	0.2	0.3	-0.1	3.5	7.0	-1.4
Residential	4.9	3.9	3.5	3.0	2.7	2.6	-0.4	-0.6	-1.0	-10.7	-18.7	-27.4
Tertiary	3.6	2.9	2.7	2.4	2.4	2.2	-0.3	-0.4	-0.7	-11.0	-13.9	-24.0
Transport	11.9	13.9	15.5	15.6	15.1	14.5	-0.8	-1.5	-2.0	-4.6	-8.8	-12.2
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.9	2.8	2.8	0.0	0.0	0.0	0.2	1.2	1.2
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.8	12.6	11.1	-0.6	-0.9	-0.9	-4.8	-6.7	-7.1
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	81.5	74.9	64.6	-12.6	-19.0	-21.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	70.4	64.6	56.0	-7.3	-7.5	-6.4	-9.4	-10.4	-10.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.26	2.03	1.73	-0.19	-0.40	-0.55	-7.8	-16.5	-24.0
Import Dependency %	45.7	-33.7	-51.6	-16.8	-3.2	-1.3	-2.5	-7.8	-12.9			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	19.5	22.0	25.3	-0.2	0.6	1.5	-0.8	2.6	6.4
as % of GDP		7.8	8.0	7.5	7.8	7.9	-0.1	0.2	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				-0.2	0.6	1.5						
as % of GDP				-0.06	0.20	0.48						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	85.3	78.9	70.8	-1.9	-3.0	-3.0	-2.1	-3.7	-4.1
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	74.0	71.0	63.2	-7.7	-5.4	-4.4	-9.4	-7.1	-6.5
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	68.7	63.0	52.9	-10.1	-10.4	-11.2	-12.8	-14.1	-17.5
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	37.2	35.9	31.1	-0.7	-1.0	-1.6	-1.7	-2.6	-4.9
Freight transport (toe/Mtkm)	68.3	69.2	75.8	70.4	67.6	63.1	-2.5	-4.6	-6.6	-3.4	-6.4	-9.5
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.21	0.16	0.10	-0.05	-0.11	-0.13	-19.1	-39.9	-56.9
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.72	1.66	1.59	0.04	0.00	-0.08	2.4	-0.2	-4.6
Industry	2.00	1.83	1.76	1.77	1.81	1.73	0.10	0.18	0.05	5.7	11.2	2.7
Residential	1.24	0.93	0.80	0.72	0.63	0.59	-0.01	-0.09	-0.17	-1.4	-12.5	-22.3
Tertiary	1.27	1.04	0.94	0.92	0.91	0.86	0.02	0.00	-0.07	2.1	0.3	-7.9
Transport	2.96	2.95	2.96	2.81	2.71	2.65	-0.03	-0.07	-0.08	-0.9	-2.6	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		12.4	15.5	26.8	33.0	41.7	7.3	12.1	17.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.5	11.0	12.9	1.0	2.9	2.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	0	0	0	0			
Solids	14345	13553	15122	12389	8768		-2322	-6519	-6997	-13.3	-34.5	-44.4
Oil (including refinery gas)	5222	1525	209	164	181		-1356	-1342	-1181	-86.6	-89.1	-86.7
Gas (including derived gases)	9658	9549	1501	853	2314		-6160	-4056	-2658	-80.4	-82.6	-53.5
Biomass-waste	2548	5006	5899	9206	15126		1723	3808	5989	41.3	70.5	65.5
Hydro (pumping excluded)	30	23	32	32	32		1	1	0	4.7	2.8	0.0
Wind	4240	6613	8279	8957	13019		296	0	1761	3.7	0.0	15.6
Solar	0	0	13	24	465		0	0	423	0.0	0.0	998.9
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	11888	12794	12629	12239	13418		-83	264	455	-0.7	2.2	3.5
<u>Nuclear energy</u>		0	0	0	0		0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4023	5669		93	0	1012	2.5	0.0	21.7
Hydro (pumping excluded)	10	11	11	11	14		0	0	3	0.0	0.0	26.9
Wind	2300	3000	3732	3944	5096		93	0	570	2.6	0.0	12.6
Solar	2	3	37	68	559		0	0	439	0.0	0.0	365.9
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	9577	9781	8849	8216	7749		-177	264	-557	-2.0	3.3	-6.7
of which cogeneration units	7504	8538	4534	4628	4104		-1607	-95	-27	-26.2	-2.0	-0.6
Solids fired	5528	5566	4425	3541	2213		0	0	-212	0.0	0.0	-8.7
Gas fired	2328	2485	2411	2132	2158		-508	-508	-1207	-17.4	-19.2	-35.9
Oil fired	1271	1236	988	911	783		0	0	-116	0.0	0.0	-12.9
Biomass-waste fired	450	494	1025	1631	2595		331	771	978	47.6	89.6	60.5
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	26.4	27.8	32.2		-6.6	-8.0	-3.3			
Efficiency of gross thermal power generation (%)	34.9	35.8	38.9	38.8	43.1		-1.3	-1.4	0.8			
% of gross electricity from CHP	63.9	68.3	62.9	63.1	52.3		0.7	4.3	3.2			
Carbon free gross electricity generation (%)	18.9	32.1	45.8	57.6	71.8		14.4	21.3	23.7			
- nuclear	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	45.8	57.6	71.8		14.4	21.3	23.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	70.1	77.8	81.6	90.5	93.6	100.1	-1.1	-1.9	-2.5	-1.2	-2.0	-2.4
Private cars and motorcycles	6.4	7.4	7.4	7.6	7.8	8.2	0.1	0.2	0.2	1.7	2.6	3.0
Rail	47.8	51.9	54.4	58.5	59.4	61.7	-1.0	-1.8	-2.4	-1.8	-2.9	-3.7
Aviation	5.1	5.5	6.2	7.3	7.7	8.5	0.2	0.1	0.2	2.1	1.2	2.9
Inland navigation	5.5	9.0	9.8	13.3	14.8	17.4	-0.3	-0.4	-0.6	-2.0	-2.8	-3.2
Freight transport activity (Gtkm)	5.2	3.9	3.7	3.8	4.0	4.3	0.0	0.0	0.0	-0.6	-0.2	-0.1
Trucks	21.7	27.5	27.0	31.2	33.1	37.2	-0.6	-0.9	-1.3	-1.8	-2.8	-3.3
Rail	18.1	24.0	23.3	26.7	28.2	31.7	-0.7	-1.1	-1.5	-2.5	-3.8	-4.6
Inland navigation	1.7	2.0	2.0	2.4	2.6	2.9	0.1	0.1	0.2	4.4	5.6	6.5
Energy demand in transport (ktoe)	1.9	1.5	1.7	2.1	2.3	2.6	0.0	0.1	0.1	1.6	2.4	2.9
Public road transport	4012	4720	5254	5563	5598	5464	-217	-381	-580	-3.8	-6.4	-9.6
Private cars and motorcycles	57	78	83	78	77	69	0	-1	-4	-0.5	-1.3	-5.1
Trucks	1628	1788	2034	1996	1922	1644	-67	-103	-126	-3.2	-5.1	-7.1
Rail	1374	1816	1952	2091	2131	2295	-120	-224	-344	-5.4	-9.5	-13.0
Aviation	113	103	106	110	107	54	1	2	6	1.1	2.2	12.5
Inland navigation	690	820	944	1147	1215	1250	-31	-54	-109	-2.6	-4.2	-8.0
	150	115	136	141	145	153	-1	-1	-3	-0.7	-0.8	-1.7

Source: PRIMES

Estonia: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	6249	3618	3332	4304	3443	3433	3147	3179	3385	-6.1	0.3	-0.9	0.7
Solids	5798	3129	2830	3261	2514	2271	1409	1015	987	-6.9	-1.2	-5.6	-3.5
Oil	0	0	2	331	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	450	489	500	712	929	1162	1737	2164	2398	1.1	6.4	6.5	3.3
Hydro	0	0	0	2	2	2	3	3	3		18.4	0.7	0.1
Biomass & Waste	450	488	500	706	833	1050	1544	1892	2047	1.0	5.2	6.4	2.9
Wind	0	0	0	5	91	100	174	244	314		100.6	6.7	6.1
Solar and others	0	0	0	0	3	10	17	25	34			18.0	7.5
Geothermal	0	0	0	0	0	0	0	0	0			11.9	3.2
Net Imports	4456	1987	1447	1463	1955	2189	2148	1989	1880	-10.6	3.1	0.9	-1.3
Solids	697	292	244	27	118	125	132	140	120	-10.0	-7.0	1.2	-1.0
Oil	3139	1178	626	867	1536	1641	1658	1605	1580	-14.9	9.4	0.8	-0.5
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			0.7	-0.2
- Oil products	3139	1178	626	867	1534	1640	1657	1604	1578	-14.9	9.4	0.8	-0.5
Natural gas	1222	583	662	800	561	661	678	613	596	-5.9	-1.6	1.9	-1.3
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Gross Inland Consumption	10642	5630	4712	5627	5247	5449	5108	4972	5064	-7.8	1.1	-0.3	-0.1
Solids	6703	3598	3119	3255	2632	2396	1542	1155	1107	-7.4	-1.7	-5.2	-3.3
Oil	2858	1032	510	1090	1384	1468	1471	1409	1378	-15.8	10.5	0.6	-0.6
Natural gas	1222	583	662	800	561	661	678	613	596	-5.9	-1.6	1.9	-1.3
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Renewable energy forms	460	483	501	621	821	1026	1537	1919	2133	0.9	5.1	6.5	3.3
as % in Gross Inland Consumption													
Solids	63.0	63.9	66.2	57.8	50.2	44.0	30.2	23.2	21.9				
Oil	26.9	18.3	10.8	19.4	26.4	26.9	28.8	28.3	27.2				
Natural gas	11.5	10.3	14.1	14.2	10.7	12.1	13.3	12.3	11.8				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	8.6	10.6	11.0	15.6	18.8	30.1	38.6	42.1				
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	10959	11505	12779	13500	15098	-6.8	2.6	1.5	1.7
Self consumption and grid losses	2615	1409	1247	1422	1374	1483	1443	1474	1632	-7.1	1.0	0.5	1.2
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2589	2603	2260	2119	2236	-8.0	0.5	-1.4	-0.1
Solids	5085	2499	2213	2297	2473	2227	1371	979	950	-8.0	1.1	-5.7	-3.6
Oil (including refinery gas)	210	80	12	10	21	7	39	32	16	-25.2	6.3	6.2	-8.6
Gas (including derived gases)	357	100	226	227	52	161	218	186	181	-4.5	-13.7	15.5	-1.9
Biomass & Waste	2	2	2	5	43	208	632	922	1090	-0.3	35.5	30.7	5.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2285	1007	783	769	426	447	360	280	235	-10.2	-5.9	-1.7	-4.2
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.2	0.7	-0.2
Biofuels and hydrogen production	0	0	0	0	44	72	105	112	123			9.0	1.6
District heating	1755	527	485	511	368	366	249	163	108	-12.1	-2.7	-3.8	-8.0
Derived gases, cokeries etc.	529	479	297	257	13	8	5	4	3	-5.6	-27.0	-8.4	-4.3
Energy Branch Consumption	295	148	179	209	200	204	188	181	181	-4.9	1.1	-0.6	-0.4
Non-Energy Uses	69	225	219	230	224	217	218	218	217	12.2	0.2	-0.3	0.0
Final Energy Demand	6392	2627	2445	2854	3190	3413	3585	3660	3747	-9.2	2.7	1.2	0.4
by sector													
Industry	2742	794	531	654	770	826	873	925	963	-15.1	3.8	1.3	1.0
- energy intensive industries	738	430	203	215	227	244	260	275	283	-12.1	1.1	1.4	0.8
- other industrial sectors	2004	364	328	440	543	581	612	650	680	-16.6	5.2	1.2	1.1
Residential	1482	1054	984	977	963	972	1021	1001	1007	-4.0	-0.2	0.6	-0.1
Tertiary	1330	289	353	498	587	649	700	731	744	-12.4	5.2	1.8	0.6
Transport	839	490	577	725	870	966	992	1003	1033	-3.7	4.2	1.3	0.4
by fuel													
Solids	1059	201	122	102	102	103	112	121	123	-19.5	-1.8	1.0	0.9
Oil	1803	855	748	960	1143	1221	1196	1194	1219	-8.4	4.3	0.5	0.2
Gas	439	202	134	207	245	277	268	261	249	-11.2	6.2	0.9	-0.7
Electricity	608	510	506	584	640	725	820	875	974	-1.8	2.4	2.5	1.7
Heat (from CHP and District Heating)	2086	593	511	547	502	502	515	505	503	-13.1	-0.2	0.3	-0.2
Renewable energy forms	397	265	424	453	559	584	674	704	679	0.7	2.8	1.9	0.1
Other	0	0	0	0	0	0	0	0	1			16.4	3.0
RES in Gross Final Energy Consumption ^(A)			538	564	784	963	1433	1780	1973		3.8	6.2	3.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	19.5	18.9	15.5	13.1	12.4	-9.1	1.2	-2.2	-2.2
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	15.8	15.3	11.8	9.9	9.6	-9.7	1.1	-2.8	-2.1
Power generation/District heating	27.9	12.3	10.9	11.2	11.2	10.4	7.0	5.1	4.7	-9.0	0.3	-4.6	-3.9
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-9.8	2.9	-1.9	-2.2
Industry	4.6	1.7	0.8	0.8	1.0	1.1	1.1	1.0	1.1	-16.0	2.7	0.2	0.2
Residential	2.0	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-17.7	1.2	0.0	-0.1
Tertiary	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.7	0.6	-17.6	8.0	0.5	0.2
Transport	2.4	1.4	1.7	2.1	2.5	2.7	2.7	2.7	2.7	-3.6	3.8	0.8	0.2
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.3	1.4	1.5	-5.3	9.7	3.5	1.4
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.4	2.4	1.8	1.4	-5.7	-0.3	-1.4	-5.3
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	43.2	42.0	34.5	29.0	27.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: Cost Efficiency with JI/CDM Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	323.7	273.9	216.8	183.1	169.1	-7.1	-6.5	-3.9	-2.5	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.01	2.82	2.32	1.99	1.89	-2.1	0.1	-2.6	-2.0	
Import Dependency %	41.2	34.8	30.0	25.5	36.2	38.9	40.6	38.5	35.7					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.4	3.0	3.6	4.0	4.4		4.0	3.8	2.1	
as % of GDP			22.2	16.8	15.1	14.9	15.1	14.9	14.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.6	49.5	44.2	40.5	38.1	-12.1	-5.5	-2.4	-1.5	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	46.1	38.4	34.3	29.4	27.0	-3.6	-7.4	-2.9	-2.4	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	79.1	71.5	65.1	59.0	54.2	-12.4	-2.3	-1.9	-1.8	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.2	28.7	27.3	26.1	26.4	0.2	-0.8	-0.7	-0.3	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	19.8	20.8	20.5	20.1	20.1	-7.9	1.0	0.4	-0.2	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.62	0.56	0.36	0.25	0.22	0.5	-1.0	-5.4	-4.8	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.38	1.39	1.30	1.28	1.26	-3.1	1.0	-0.6	-0.3	
Industry	1.67	2.20	1.51	1.28	1.36	1.36	1.22	1.11	1.12	-1.0	-1.1	-1.1	-0.8	
Residential	1.33	0.44	0.29	0.36	0.33	0.33	0.31	0.33	0.31	-14.2	1.4	-0.6	0.0	
Tertiary	1.42	0.87	0.77	0.94	1.01	0.94	0.89	0.90	0.85	-5.9	2.7	-1.3	-0.4	
Transport	2.89	2.90	2.92	2.94	2.82	2.77	2.69	2.66	2.62	0.1	-0.4	-0.5	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	23.1	26.6	38.0	46.4	50.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.5	6.5	9.3	9.9	10.8					
Gross Electricity generation by source (in GWh)														
			8511	10203	10959	11505	12779	13500	15098		2.6	1.5	1.7	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9323	8704	6071	4783	4776		2.1	-4.2	-2.4	
Oil (including refinery gas)			51	42	86	30	163	141	77		5.4	6.6	-7.2	
Gas (including derived gases)			787	1000	238	631	1489	1263	1239		-11.3	20.1	-1.8	
Biomass-waste			57	158	227	949	2999	4442	5326		14.8	29.5	5.9	
Hydro (pumping excluded)			5	22	27	28	29	29	30		18.4	0.7	0.1	
Wind			1	54	1057	1162	2027	2840	3649		100.6	6.7	6.1	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2877	2877	2884	3467	4123		-0.4	0.0	3.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	404	439	791	1238	1641		70.3	7.0	7.6	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	397	432	784	1231	1633		84.4	7.0	7.6	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2473	2438	2093	2228	2482		-1.9	-1.7	1.7	
of which cogeneration units			477	513	443	459	631	903	1052		-0.7	3.6	5.2	
Solids fired			2738	2672	2159	2041	978	621	529		-2.3	-7.6	-6.0	
Gas fired			175	200	207	214	586	784	915		1.7	11.0	4.6	
Oil fired			65	65	66	13	78	72	72		0.2	1.6	-0.7	
Biomass-waste fired			19	21	40	170	451	751	966		7.8	27.5	7.9	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	39.5	41.5	46.9	41.4	39.1					
Efficiency of gross thermal power generation (%)			29.8	34.3	32.8	34.1	40.8	43.1	43.9					
% of gross electricity from CHP			17.6	33.1	17.8	21.6	31.2	36.6	37.6					
Carbon free gross electricity generation (%)			0.7	2.3	12.0	18.6	39.6	54.2	59.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	12.0	18.6	39.6	54.2	59.6					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.8	16.8	17.5	18.2	18.6	-0.3	3.3	1.0	0.6	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.5	2.4	-5.1	0.0	-0.5	-0.3	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.0	12.9	13.5	13.9	14.1	4.2	4.5	1.1	0.5	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.1	2.6	2.1	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.2	5.7	4.7	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	-2.1	-0.3	0.8	0.6	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.7	23.3	25.1	26.3	27.0	0.5	5.6	2.0	0.8	
Trucks	4.5	1.5	3.9	5.8	8.3	10.3	11.8	12.8	13.5	-1.4	7.8	3.5	1.4	
Rail	7.0	3.8	8.1	10.6	12.3	13.0	13.3	13.5	13.5	1.5	4.3	0.8	0.2	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	870	966	992	1003	1033	-3.7	4.2	1.3	0.4	
Public road transport	44	21	25	23	21	20	18	16	15	-5.5	-1.6	-1.5	-2.0	
Private cars and motorcycles	273	263	307	338	380	391	381	372	379	1.2	2.1	0.0	-0.1	
Trucks	414	139	167	263	356	429	464	484	519	-8.7	7.8	2.7	1.1	
Rail	65	44	51	48	54	56	51	45	25	-2.4	0.6	-0.6	-6.9	
Aviation	36	18	20	42	49	58	66	75	85	-5.9	9.6	3.1	2.5	
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.4	0.7	0.2	

Source: PRIMES

Estonia: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3433	3147	3385	-36	-300	-246	-1.0	-8.7	-6.8
Solids	5798	2830	3261	2271	1409	987	-436	-1197	-1487	-16.1	-45.9	-60.1
Oil	0	2	331	0	0	0	0	0	0	-237.4	-99.0	-270.2
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	450	500	712	1162	1737	2398	400	897	1241	52.4	106.8	107.2
Hydro	0	0	2	2	3	3	0	0	0	9.6	2.4	0.0
Biomass & Waste	450	500	706	1050	1544	2047	337	756	974	47.3	96.0	90.8
Wind	0	0	5	100	174	314	54	128	238	118.8	275.8	315.3
Solar and others	0	0	0	10	17	34	8	13	28	363.2	357.7	472.1
Geothermal	0	0	0	0	0	0	0	0	0	94.5	281.8	396.2
Net Imports	4456	1447	1463	2189	2148	1880	-414	-412	-784	-15.9	-16.1	-29.4
Solids	697	244	27	125	132	120	-3	-7	-14	-2.4	-5.3	-10.2
Oil	3139	626	867	1641	1658	1580	-132	-187	-373	-7.5	-10.1	-19.1
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-7.1	-9.7	-16.4
- Oil products	3139	626	867	1640	1657	1578	-132	-187	-373	-7.5	-10.1	-19.1
Natural gas	1222	662	800	661	678	596	-235	-120	-271	-26.2	-15.0	-31.2
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5449	5108	5064	-450	-712	-1029	-7.6	-12.2	-16.9
Solids	6703	3119	3255	2396	1542	1107	-439	-1205	-1501	-15.5	-43.9	-57.5
Oil	2858	510	1090	1468	1471	1378	-132	-186	-372	-8.3	-11.3	-21.3
Natural gas	1222	662	800	661	678	596	-235	-120	-271	-26.2	-15.0	-31.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	1026	1537	2133	356	799	1115	53.1	108.3	109.5
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	44.0	30.2	21.9	-4.1	-17.0	-20.9			
Oil	26.9	10.8	19.4	26.9	28.8	27.2	-0.2	0.3	-1.5			
Natural gas	11.5	14.1	14.2	12.1	13.3	11.8	-3.1	-0.4	-2.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	18.8	30.1	42.1	7.5	17.4	25.4			
Gross Electricity Generation in GWh_e	17178	8511	10203	11505	12779	15098	-1437	-1843	-1990	-11.1	-12.6	-11.6
Self consumption and grid losses	2615	1247	1422	1483	1443	1632	-137	-511	-800	-8.5	-26.1	-32.9
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2603	2260	2236	-470	-691	-834	-15.3	-23.4	-27.2
Solids	5085	2213	2297	2227	1371	950	-422	-1180	-1472	-15.9	-46.2	-60.8
Oil (including refinery gas)	210	12	10	7	39	16	-34	-4	-33	-82.4	-8.8	-67.5
Gas (including derived gases)	357	226	227	161	218	181	-166	-19	-47	-50.7	-7.9	-20.7
Biomass & Waste	2	2	5	208	632	1090	152	511	718	269.9	424.9	193.3
Geothermal heat	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Input to other conversion processes	2285	783	769	447	360	235	-9	-43	-178	-2.0	-10.7	-43.1
Refineries	1	1	1	1	1	1	0	0	0	-7.1	-9.7	-16.4
Biofuels and hydrogen production	0	0	0	72	105	123	8	21	12	13.5	25.7	10.9
District heating	1755	485	511	366	249	108	-16	-63	-189	-4.2	-20.3	-63.7
Derived gases, cokeries etc.	529	297	257	8	5	3	-1	-1	-1	-13.6	-17.6	-19.8
Energy Branch Consumption	295	179	209	204	188	181	-16	-53	-85	-7.1	-22.0	-31.9
Non-Energy Uses	69	219	230	217	218	217	0	0	0	-0.2	-0.1	-0.1
Final Energy Demand	6392	2445	2854	3413	3585	3747	-195	-266	-408	-5.4	-6.9	-9.8
by sector												
Industry	2742	531	654	826	873	963	-33	-60	-91	-3.9	-6.4	-8.7
- energy intensive industries	738	203	215	244	260	283	-7	-13	-16	-2.8	-4.7	-5.3
- other industrial sectors	2004	328	440	581	612	680	-26	-47	-75	-4.3	-7.2	-10.0
Residential	1482	984	977	972	1021	1007	-47	-41	-102	-4.6	-3.9	-9.2
Tertiary	1330	353	498	649	700	744	-65	-73	-103	-9.1	-9.4	-12.1
Transport	839	577	725	966	992	1033	-50	-92	-111	-5.0	-8.4	-9.7
by fuel												
Solids	1059	122	102	103	112	123	-4	-4	4	-4.0	-3.3	3.2
Oil	1803	748	960	1221	1196	1219	-94	-177	-268	-7.1	-12.9	-18.0
Gas	439	134	207	277	268	249	-15	-52	-129	-5.2	-16.2	-34.2
Electricity	608	506	584	725	820	974	-111	-114	-102	-13.3	-12.2	-9.4
Heat (from CHP and District Heating)	2086	511	547	502	515	503	-74	-77	-81	-12.9	-12.9	-13.9
Renewable energy forms	397	424	453	584	674	679	104	158	169	21.6	30.6	33.1
Other	0	0	0	0	0	1	0	0	0	6.4	0.8	3.0
RES in Gross Final Energy Consumption ^(A)		538	564	963	1433	1973	330	737	1035	52.2	106.1	110.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	18.9	15.5	12.4	-3.1	-6.3	-8.3	-14.0	-28.8	-40.1
CO₂ Emissions (energy related)	39.2	14.1	15.2	15.3	11.8	9.6	-2.8	-5.9	-8.0	-15.3	-33.1	-45.6
Power generation/District heating	27.9	10.9	11.2	10.4	7.0	4.7	-2.4	-5.1	-6.8	-18.8	-42.2	-59.3
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.1	0.0	-0.1	-0.1	-12.9	-23.2	-35.4
Industry	4.6	0.8	0.8	1.1	1.1	1.1	-0.1	-0.3	-0.6	-10.7	-21.2	-34.9
Residential	2.0	0.3	0.4	0.3	0.3	0.3	0.0	0.0	-0.1	-9.9	-12.3	-16.7
Tertiary	1.9	0.3	0.5	0.6	0.6	0.6	0.0	0.0	-0.1	0.0	-2.8	-12.5
Transport	2.4	1.7	2.1	2.7	2.7	2.7	-0.2	-0.3	-0.4	-6.1	-11.1	-12.5
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.3	1.5	0.0	0.0	0.0	-1.3	-1.5	-1.1
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.4	2.4	1.4	-0.3	-0.4	-0.3	-10.4	-14.2	-16.0
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	42.0	34.5	27.6	-6.8	-13.9	-18.5			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Estonia: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	273.9	216.8	169.1	-22.6	-30.2	-34.3	-7.6	-12.2	-16.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.82	2.32	1.89	-0.26	-0.72	-1.00	-8.3	-23.7	-34.6
Import Dependency %	41.2	30.0	25.5	38.9	40.6	35.7	-3.9	-2.0	-6.6			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	3.0	3.6	4.4	0.1	0.3	0.5	4.9	9.2	12.7
as % of GDP		22.2	16.8	14.9	15.1	14.7	0.7	1.3	1.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.3	0.5						
as % of GDP				0.72	1.29	1.67						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	49.5	44.2	38.1	-2.0	-3.0	-3.6	-3.9	-6.4	-8.7
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	38.4	34.3	27.0	-1.8	-1.4	-2.7	-4.6	-3.9	-9.2
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	71.5	65.1	54.2	-7.1	-6.8	-7.5	-9.1	-9.4	-12.1
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	28.7	27.3	26.4	-0.5	-0.9	0.2	-1.8	-3.3	0.9
Freight transport (toe/Mtkm)	41.2	18.0	18.8	20.8	20.5	20.1	-1.1	-2.0	-3.0	-5.1	-8.7	-12.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.56	0.36	0.22	-0.05	-0.18	-0.25	-8.0	-33.8	-53.5
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.39	1.30	1.26	-0.02	-0.09	-0.15	-1.4	-6.3	-10.3
Industry	1.67	1.51	1.28	1.36	1.22	1.12	-0.10	-0.23	-0.45	-7.1	-15.8	-28.7
Residential	1.33	0.29	0.36	0.33	0.31	0.31	-0.02	-0.03	-0.03	-5.5	-8.7	-8.3
Tertiary	1.42	0.77	0.94	0.94	0.89	0.85	0.09	0.06	0.00	10.0	7.4	-0.4
Transport	2.89	2.92	2.94	2.77	2.69	2.62	-0.03	-0.08	-0.08	-1.2	-2.9	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	26.6	38.0	50.3	10.1	21.0	29.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.5	9.3	10.8	1.1	2.6	2.1			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11505	12779	15098	15098	-1437	-1843	-1900	-11.1	-12.6	-11.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	8704	6071	4776		-1267	-5705	-8326	-12.7	-48.4	-63.5
Oil (including refinery gas)	51	42	30	163	77		-142	-10	-111	-82.4	-5.5	-58.9
Gas (including derived gases)	787	1000	631	1489	1239		-1319	-14	-143	-67.6	-0.9	-10.3
Biomass-waste	57	158	949	2999	5326		658	2397	3819	226.3	398.4	253.5
Hydro (pumping excluded)	5	22	28	29	30		2	1	0	9.6	2.4	0.0
Wind	1	54	1162	2027	3649		631	1488	2770	118.8	275.8	315.3
Solar	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2877	2884	4123	4123	-53	271	1036	-1.8	10.4	33.6
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	439	791	1641	1641	230	578	1333	109.5	271.7	433.4
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	432	784	1633	1633	230	578	1333	113.3	281.6	444.4
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2438	2093	2482	2482	-282	-308	-297	-10.4	-12.8	-10.7
of which cogeneration units	477	513	459	631	1052	1052	-74	-65	176	-13.9	-9.4	20.0
Solids fired	2738	2672	2041	978	529	529	-116	-662	-976	-5.4	-40.4	-64.8
Gas fired	175	200	214	586	915	915	-266	6	94	-55.4	1.0	11.4
Oil fired	65	65	13	78	72	72	-29	0	-37	-68.6	0.1	-33.6
Biomass-waste fired	19	21	170	451	966	966	128	349	621	301.4	340.9	180.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	41.5	46.9	39.1	39.1	-4.6	-11.0	-17.9			
Efficiency of gross thermal power generation (%)	29.8	34.3	34.1	40.8	43.9	43.9	-0.6	-0.2	-1.4			
% of gross electricity from CHP	17.6	33.1	21.6	31.2	37.6	37.6	-5.1	3.9	12.8			
Carbon free gross electricity generation (%)	0.7	2.3	18.6	39.6	59.6	59.6	12.0	31.6	45.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	18.6	39.6	59.6	59.6	12.0	31.6	45.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.8	17.5	18.6	-0.2	-0.4	-0.5	-1.4	-2.3	-2.8
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.4	0.0	0.1	0.1	1.5	2.4	2.8
Rail	5.1	7.7	10.1	12.9	13.5	14.1	-0.3	-0.5	-0.6	-2.0	-3.3	-4.0
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	1.6	2.7	3.5
Inland navigation	0.2	0.3	0.3	0.5	0.6	1.0	0.0	0.0	0.0	-2.2	-3.0	-3.4
Freight transport activity (Gtkm)	0.6	0.4	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-0.7	-0.4	-0.3
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.3	25.1	27.0	-0.4	-0.7	-0.9	-1.7	-2.6	-3.3
Rail	4.5	3.9	5.8	10.3	11.8	13.5	-0.5	-0.9	-1.2	-5.0	-6.9	-8.0
Inland navigation	7.0	8.1	10.6	13.0	13.3	13.5	0.1	0.2	0.3	1.1	1.6	1.9
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	839	577	725	966	992	1033	-50	-92	-111	-5.0	-8.4	-9.7
Private cars and motorcycles	44	25	23	20	18	15	0	0	-1	-0.5	-1.5	-5.8
Trucks	273	307	338	391	381	379	-13	-22	2	-3.3	-5.4	0.6
Rail	414	167	263	429	464	519	-35	-64	-101	-7.5	-12.1	-16.2
Aviation	65	51	48	56	51	25	0	0	-1	0.6	0.5	-5.1
Inland navigation	36	20	42	58	66	85	-2	-5	-11	-3.8	-7.5	-11.1
	7	7	11	11	12	12	0	0	0	-1.1	-1.3	-2.3

Source: PRIMES

Finland: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)								
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16939	20806	23443	25040	24686	2.4	1.2	3.3	0.5	
Solids	1581	2061	1207	2129	1643	1674	1619	1348	1029	-2.7	3.1	-0.1	-4.4	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7364	1.5	0.4	4.0	-2.0	
Renewable energy sources	5273	6133	7959	8124	9242	10138	12830	14699	16293	4.2	1.5	3.3	2.4	
Hydro	934	1111	1261	1185	1210	1220	1223	1229	1234	3.0	-0.4	0.1	0.1	
Biomass & Waste	4338	5021	6691	6924	7936	8790	11372	13110	14401	4.4	1.7	3.7	2.4	
Wind	0	1	7	15	84	94	143	246	514		28.7	5.5	13.7	
Solar and others	0	0	1	1	12	35	92	113	144	3.8	36.1	22.5	4.6	
Geothermal	0	0	0	0	0	0	0	0	0			8.6	3.3	
Net Imports	18031	15542	18512	19163	18438	16449	13117	11460	10898	0.3	0.0	-3.3	-1.8	
Solids	4378	3774	3533	3338	3795	3344	2116	1491	1153	-2.1	0.7	-5.7	-5.9	
Oil	10477	8205	10535	10844	9555	9177	8452	8025	7864	0.1	-1.0	-1.2	-0.7	
- Crude oil and Feedstocks	8890	8548	12115	11017	11469	11238	10785	10509	10404	3.1	-0.5	-0.6	-0.4	
- Oil products	1587	-343	-1580	-173	-1915	-2062	-2333	-2484	-2541					
Natural gas	2261	2839	3422	3598	3798	2857	2057	1547	1418	4.2	1.0	-5.9	-3.7	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	34876	36753	36057	35996	35078	1.2	0.7	0.3	-0.3	
Solids	5327	5950	5087	4925	5438	5018	3735	2839	2181	-0.5	0.7	-3.7	-5.2	
Oil	9939	8344	9195	10482	9054	8675	7950	7521	7358	-0.8	-0.2	-1.3	-0.8	
Natural gas	2261	2839	3422	3598	3798	2857	2057	1547	1418	4.2	1.0	-5.9	-3.7	
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7364	1.5	0.4	4.0	-2.0	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	9152	10039	12701	14551	16131	3.8	1.4	3.3	2.4	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.6	13.7	10.4	7.9	6.2					
Oil	34.3	28.8	28.3	30.4	26.0	23.6	22.0	20.9	21.0					
Natural gas	7.8	9.8	10.5	10.4	10.9	7.8	5.7	4.3	4.0					
Nuclear	17.3	17.1	17.9	17.4	17.4	24.5	24.9	25.0	21.0					
Renewable energy forms	19.0	21.2	24.5	23.3	26.2	27.3	35.2	40.4	46.0					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	76336	84468	92637	100382	108687	2.6	0.9	2.0	1.6	
Self consumption and grid losses	5547	6510	5449	5710	6404	7271	8054	9290	10768	-0.2	1.6	2.3	2.9	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6838	6399	7029	7649	8787	2.4	-0.1	0.3	2.3	
Solids	3216	3882	3168	2974	3537	3132	1962	1108	588	-0.1	1.1	-5.7	-11.4	
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8			
Gas (including derived gases)	1015	1581	2106	2384	2132	1320	765	447	501	7.6	0.1	-9.7	-4.1	
Biomass & Waste	926	996	1518	2073	1169	1946	4301	6094	7698	5.1	-2.6	13.9	6.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15317	15193	14698	14224	13703	2.4	0.0	-0.4	-0.7	
Refineries	10689	12029	13200	13194	11904	11679	11231	10959	10852	2.1	-1.0	-0.6	-0.3	
Biofuels and hydrogen production	0	0	0	0	101	251	387	434	498			14.3	2.6	
District heating	573	548	803	954	2049	2029	1976	1853	1413	3.4	9.8	-0.4	-3.3	
Derived gases, cokeries etc.	793	1451	1306	1325	1263	1234	1104	978	939	5.1	-0.3	-1.3	-1.6	
Energy Branch Consumption	781	965	1285	1228	1205	1199	1215	1268	1311	5.1	-0.6	0.1	0.8	
Non-Energy Uses	1441	1152	896	1095	1173	1212	1234	1246	1258	-4.6	2.7	0.5	0.2	
Final Energy Demand	21727	22041	24159	25121	26076	26197	25699	25561	25543	1.1	0.8	-0.1	-0.1	
by sector														
Industry	9618	9988	12053	11988	12604	12714	12683	12833	12865	2.3	0.4	0.1	0.1	
- energy intensive industries	7351	7628	9456	9067	9420	9440	9367	9464	9470	2.6	0.0	-0.1	0.1	
- other industrial sectors	2267	2359	2596	2921	3185	3274	3316	3370	3395	1.4	2.1	0.4	0.2	
Residential	5321	5418	4536	4846	4962	4935	4583	4407	4371	-1.6	0.9	-0.8	-0.5	
Tertiary	2479	2484	3127	3471	3489	3528	3457	3372	3324	2.3	1.1	-0.1	-0.4	
Transport	4309	4151	4443	4816	5021	5020	4977	4949	4984	0.3	1.2	-0.1	0.0	
by fuel														
Solids	1621	1277	1099	966	1032	1019	985	988	908	-3.8	-0.6	-0.5	-0.8	
Oil	8100	7563	7507	7890	7200	6785	6311	6050	5913	-0.8	-0.4	-1.3	-0.6	
Gas	1501	1523	1328	1156	1491	1422	937	713	697	-1.2	1.2	-4.5	-2.9	
Electricity	5068	5608	6487	6959	7316	7732	7819	8305	8975	2.5	1.2	0.7	1.4	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3794	3930	4104	4056	3718	3.8	3.2	0.8	-1.0	
Renewable energy forms	3522	3944	4957	4552	5243	5308	5542	5448	5331	3.5	0.6	0.6	-0.4	
Other	0	0	0	0	0	1	1	2	2			13.3	1.9	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8639	9339	11747	13220	14579		1.2	3.1	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.3	61.7	51.7	44.5	40.1	-0.3	-0.3	-2.7	-2.5	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	53.6	48.5	39.4	33.4	29.9	-0.1	0.0	-3.0	-2.7	
Power generation/District heating	17.8	21.8	20.2	20.5	21.4	18.0	11.9	7.8	5.3	1.3	0.6	-5.7	-7.8	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	2.0	1.5	1.3	7.0	-1.7	-1.4	-3.7	
Industry	14.1	12.4	12.5	11.8	10.8	10.3	8.4	7.4	6.9	-1.2	-1.4	-2.4	-2.0	
Residential	6.4	5.9	2.3	2.1	1.8	1.4	1.0	0.9	0.7	-9.6	-2.7	-5.2	-3.6	
Tertiary	2.1	1.7	3.0	3.0	2.8	2.5	2.3	2.4	2.3	3.8	-0.8	-1.7	-0.1	
Transport	12.7	12.2	13.1	14.2	14.5	14.2	13.7	13.5	13.4	0.3	1.1	-0.6	-0.2	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.9	3.9	3.7	3.6	3.5	0.1	-0.1	-0.6	-0.6	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.4	8.7	7.5	6.7	-1.2	-1.6	-2.2	-2.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	94.1	85.1	71.4	61.3	55.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	190.4	181.4	163.0	150.1	137.6	-0.8	-2.0	-1.5	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.54	1.32	1.09	0.93	0.85	-1.3	-0.7	-3.3	-2.4
Import Dependency %	61.1	53.1	55.8	54.7	52.1	44.2	35.9	31.4	30.6				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	19.1	21.3	24.5	27.9	30.9		3.2	2.5	2.3
as % of GDP			10.1	10.5	10.4	10.5	11.1	11.6	12.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.2	66.3	60.8	57.1	54.4	-2.9	-3.1	-1.8	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	81.9	74.8	64.4	57.7	54.1	-2.7	-2.0	-2.4	-1.7
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	88.1	80.5	71.8	64.2	59.0	1.0	-1.3	-2.0	-1.9
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.3	31.2	29.9	29.5	-0.3	0.3	-0.7	-0.6
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.0	42.3	40.3	39.1	38.1	-1.7	0.3	-0.9	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.13	0.08	0.05	0.03	-1.6	-1.1	-7.0	-8.4
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.14	1.08	0.99	0.94	0.91	-2.3	-1.1	-1.4	-0.8
Industry	1.46	1.24	1.03	0.98	0.86	0.81	0.67	0.57	0.54	-3.4	-1.9	-2.5	-2.2
Residential	1.21	1.09	0.52	0.43	0.36	0.27	0.23	0.20	0.17	-8.1	-3.6	-4.4	-3.1
Tertiary	0.84	0.70	0.96	0.86	0.80	0.72	0.68	0.71	0.69	1.4	-1.9	-1.6	0.3
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	32.0	34.4	44.0	49.8	54.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.3	8.3	9.5				
Gross Electricity generation by source (in GWh)													
			69976	70536	76336	84468	92637	100382	108687		0.9	2.0	1.6
Nuclear energy			22475	23267	23470	36243	36243	36243	29926		0.4	4.4	-1.9
Solids			10359	9486	13763	10197	7519	4876	3548		2.9	-5.9	-7.2
Oil (including refinery gas)			444	419	471	350	267	185	125		0.6	-5.5	-7.3
Gas (including derived gases)			10776	11400	11819	7426	4899	4506	5825		0.9	-8.4	1.7
Biomass-waste			11185	12010	11762	14965	27812	37388	48898		0.5	9.0	5.8
Hydro (pumping excluded)			14657	13782	14070	14183	14216	14290	14348		-0.4	0.1	0.1
Wind			78	170	975	1093	1662	2865	5982		28.7	5.5	13.7
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18319	18372	19172	20262	23093		0.7	0.5	1.9
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4207	3472		0.0	4.6	-1.9
<u>Renewable energy</u>			3057	3104	3458	3535	3833	4293	5509		1.2	1.0	3.7
Hydro (pumping excluded)			3016	3018	3101	3116	3141	3161	3176		0.3	0.1	0.1
Wind			38	82	349	405	668	1098	2289		24.8	6.7	13.1
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12170	10630	11132	11762	14113		0.7	-0.9	2.4
of which cogeneration units			7129	7583	6806	6888	8451	9433	10365		-0.5	2.2	2.1
Solids fired			5539	5687	5630	4464	2829	2109	1455		0.2	-6.6	-6.4
Gas fired			2479	2444	2753	2603	2402	2341	4297		1.1	-1.4	6.0
Oil fired			1341	1340	1341	590	533	448	176		0.0	-8.8	-10.5
Biomass-waste fired			1942	2247	2445	2973	5367	6865	8184		2.3	8.2	4.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.6	50.2	52.5	53.6	50.8				
Efficiency of gross thermal power generation (%)			40.7	38.0	47.6	44.3	49.5	52.8	57.2				
% of gross electricity from CHP			44.9	45.7	44.7	36.5	43.3	46.3	51.9				
Carbon free gross electricity generation (%)			69.2	69.8	65.9	78.7	86.3	90.5	91.3				
- nuclear			32.1	33.0	30.7	42.9	39.1	36.1	27.5				
- renewable energy forms			37.0	36.8	35.1	35.8	47.2	54.4	63.7				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.4	99.0	102.5	106.3	109.2	0.8	1.5	0.8	0.6
Public road transport	8.5	8.0	7.7	7.4	7.6	7.8	8.1	8.3	8.5	-1.0	-0.2	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.3	71.0	72.5	74.2	74.9	0.9	1.9	0.6	0.3
Rail	3.7	3.6	3.9	4.0	4.2	4.5	4.9	5.3	5.6	0.6	0.7	1.6	1.4
Aviation	5.3	6.1	7.9	8.6	9.7	11.1	12.3	13.8	15.3	4.1	2.1	2.5	2.2
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.1	0.3
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.3	43.1	44.0	45.2	46.1	1.7	0.0	0.4	0.5
Trucks	26.3	24.5	32.0	31.9	32.1	32.6	32.9	33.4	33.9	2.0	0.0	0.2	0.3
Rail	8.4	9.6	10.1	9.7	10.1	10.3	11.0	11.6	12.1	1.9	-0.1	0.9	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Energy demand in transport (ktoe)	4309	4151	4443	4816	5021	5020	4977	4949	4984	0.3	1.2	-0.1	0.0
Public road transport	97	84	55	57	58	57	57	56	56	-5.4	0.4	-0.1	-0.2
Private cars and motorcycles	1840	1867	1904	2137	2280	2254	2234	2178	2187	0.3	1.8	-0.2	-0.2
Trucks	1699	1557	1715	1764	1766	1728	1675	1673	1689	0.1	0.3	-0.5	0.1
Rail	99	102	94	97	101	104	103	100	74	-0.6	0.8	0.1	-3.3
Aviation	459	408	505	565	624	687	719	752	790	1.0	2.1	1.4	1.0
Inland navigation	116	134	170	195	191	190	190	189	188	3.9	1.2	-0.1	-0.1

Source: PRIMES

Finland: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20806	23443	24686	1339	2870	3415	6.9	13.9	16.1
Solids	1581	1207	2129	1674	1619	1029	-5	-134	-676	-0.3	-7.6	-39.7
Oil	0	37	205	0	0	0	0	0	0	-87.7	-510.1	-179.6
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	5006	5799	6003	8994	8994	7364	0	0	-416	0.0	0.0	-5.4
Renewable energy sources	5273	7959	8124	10138	12830	16293	1344	3003	4508	15.3	30.6	38.2
Hydro	934	1261	1185	1220	1223	1234	26	20	0	2.1	1.7	0.0
Biomass & Waste	4338	6691	6924	8790	11372	14401	1255	2839	4011	16.7	33.3	38.6
Wind	0	7	15	94	143	514	37	71	386	66.1	98.7	301.2
Solar and others	0	1	1	35	92	144	26	72	110	295.6	376.6	322.2
Geothermal	0	0	0	0	0	0	0	0	0	83.2	184.8	284.8
Net Imports	18031	18512	19163	16449	13117	10898	-2765	-5422	-6433	-14.4	-29.2	-37.1
Solids	4378	3533	3338	3344	2116	1153	-810	-1909	-2424	-19.5	-47.4	-67.8
Oil	10477	10535	10844	9177	8452	7864	-474	-864	-1194	-4.9	-9.3	-13.2
- Crude oil and Feedstocks	8890	12115	11017	11238	10785	10404	-286	-536	-758	-2.5	-4.7	-6.8
- Oil products	1587	-1580	-173	-2062	-2333	-2541	-188	-328	-436	10.0	16.4	20.7
Natural gas	2261	3422	3598	2857	2057	1418	-1467	-2618	-2770	-33.9	-56.0	-66.1
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	36753	36057	35078	-1426	-2552	-3018	-3.7	-6.6	-7.9
Solids	5327	5087	4925	5018	3735	2181	-815	-2042	-3100	-14.0	-35.3	-58.7
Oil	9939	9195	10482	8675	7950	7358	-474	-863	-1193	-5.2	-9.8	-14.0
Natural gas	2261	3422	3598	2857	2057	1418	-1467	-2618	-2770	-33.9	-56.0	-66.1
Nuclear	5006	5799	6003	8994	8994	7364	0	0	-416	0.0	0.0	-5.4
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	10039	12701	16131	1330	2971	4462	15.3	30.5	38.2
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	13.7	10.4	6.2	-1.6	-4.6	-7.6			
Oil	34.3	28.3	30.4	23.6	22.0	21.0	-0.4	-0.8	-1.5			
Natural gas	7.8	10.5	10.4	7.8	5.7	4.0	-3.6	-6.4	-7.0			
Nuclear	17.3	17.9	17.4	24.5	24.9	21.0	0.9	1.6	0.6			
Renewable energy forms	19.0	24.5	23.3	27.3	35.2	46.0	4.5	10.0	15.4			
Gross Electricity Generation in GWh_e	54367	69976	70536	84468	92637	108687	-5076	-8367	419	-5.7	-8.3	0.4
Self consumption and grid losses	5547	5449	5710	7271	8054	10768	-441	-627	124	-5.7	-7.2	1.2
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6399	7029	8787	-600	-1355	-785	-8.6	-16.2	-8.2
Solids	3216	3168	2974	3132	1962	588	-862	-1931	-2993	-21.6	-49.6	-83.6
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0	-100.0	-100.0	-100.0
Gas (including derived gases)	1015	2106	2384	1320	765	501	-913	-1967	-1986	-40.9	-72.0	-79.8
Biomass & Waste	926	1518	2073	1946	4301	7698	1175	2543	4193	152.5	144.6	119.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	12055	15309	15473	15193	14698	13703	-737	-1018	-1501	-4.6	-6.5	-9.9
Refineries	10689	13200	13194	11679	11231	10852	-286	-535	-758	-2.4	-4.6	-6.5
Biofuels and hydrogen production	0	0	0	251	387	498	27	76	48	11.9	24.5	10.6
District heating	573	803	954	2029	1976	1413	-538	-549	-788	-20.9	-21.7	-35.8
Derived gases, cokeries etc.	793	1306	1325	1234	1104	939	60	-9	-3	5.1	-0.8	-0.3
Energy Branch Consumption	781	1285	1228	1199	1215	1311	-63	-81	-82	-5.0	-6.2	-5.9
Non-Energy Uses	1441	896	1095	1212	1234	1258	0	0	0	0.0	0.0	0.0
Final Energy Demand	21727	24159	25121	26197	25699	25543	-1075	-1942	-2376	-3.9	-7.0	-8.5
by sector												
Industry	9618	12053	11988	12714	12683	12865	-223	-392	-298	-1.7	-3.0	-2.3
- energy intensive industries	7351	9456	9067	9440	9367	9470	-150	-285	-204	-1.6	-3.0	-2.1
- other industrial sectors	2267	2596	2921	3274	3316	3395	-73	-106	-93	-2.2	-3.1	-2.7
Residential	5321	4536	4846	4935	4583	4371	-320	-747	-1006	-6.1	-14.0	-18.7
Tertiary	2479	3127	3471	3528	3457	3324	-317	-448	-637	-8.3	-11.5	-16.1
Transport	4309	4443	4816	5020	4977	4984	-215	-355	-435	-4.1	-6.7	-8.0
by fuel												
Solids	1621	1099	966	1019	985	908	8	-76	-125	0.8	-7.2	-12.1
Oil	8100	7507	7890	6785	6311	5913	-425	-686	-986	-5.9	-9.8	-14.3
Gas	1501	1328	1156	1422	937	697	-133	-379	-296	-8.5	-28.8	-29.8
Electricity	5068	6487	6959	7732	7819	8975	-396	-661	32	-4.9	-7.8	0.4
Heat (from CHP and District Heating)	1915	2780	3597	3930	4104	3718	-361	-600	-1074	-8.4	-12.8	-22.4
Renewable energy forms	3522	4957	4552	5308	5542	5331	231	461	74	4.6	9.1	1.4
Other	0	0	0	1	1	2	0	0	-1	5.1	3.7	-28.2
RES in Gross Final Energy Consumption ^(A)		7701	7458	9339	11747	14579	1101	2694	3874	13.4	29.8	36.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	61.7	51.7	40.1	-9.5	-18.8	-24.3	-13.3	-26.6	-37.7
CO₂ Emissions (energy related)	54.4	53.8	54.1	48.5	39.4	29.9	-8.1	-16.8	-22.4	-14.3	-29.8	-42.8
Power generation/District heating	17.8	20.2	20.5	18.0	11.9	5.3	-6.5	-13.3	-17.5	-26.5	-52.7	-76.7
Energy Branch	1.4	2.7	2.5	2.2	2.0	1.3	-0.1	-0.2	-0.7	-4.5	-10.6	-35.7
Industry	14.1	12.5	11.8	10.3	8.4	6.9	-0.2	-1.3	-1.2	-2.3	-13.0	-15.2
Residential	6.4	2.3	2.1	1.4	1.0	0.7	-0.3	-0.3	-0.7	-15.9	-24.0	-50.5
Tertiary	2.1	3.0	3.0	2.5	2.3	2.3	-0.3	-0.4	-0.7	-11.3	-14.6	-22.9
Transport	12.7	13.1	14.2	14.2	13.7	13.4	-0.7	-1.3	-1.5	-4.8	-8.5	-10.0
CO₂ Emissions (non energy related)	3.9	3.9	3.9	3.9	3.7	3.5	0.0	-0.1	-0.2	1.2	-3.3	-5.8
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.4	8.7	6.7	-1.4	-1.9	-1.7	-13.2	-17.9	-20.5
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	85.1	71.4	55.3	-13.1	-25.9	-33.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	181.4	163.0	137.6	-7.0	-11.5	-11.8	-3.7	-6.6	-7.9
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.32	1.09	0.85	-0.16	-0.36	-0.52	-11.0	-24.9	-37.8
Import Dependency %	61.1	55.8	54.7	44.2	35.9	30.6	-5.5	-11.5	-14.3			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	21.3	24.5	30.9	0.6	1.1	2.4	2.7	4.7	8.6
as % of GDP		10.1	10.5	10.5	11.1	12.1	0.3	0.5	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	1.1	2.5						
as % of GDP				0.29	0.51	0.97						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	66.3	60.8	54.4	-1.2	-1.9	-1.3	-1.7	-3.0	-2.3
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	74.8	64.4	54.1	-4.8	-10.5	-12.4	-6.1	-14.0	-18.7
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	80.5	71.8	59.0	-7.2	-9.3	-11.3	-8.3	-11.5	-16.1
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.3	31.2	29.5	-0.5	-0.8	-1.2	-1.6	-2.6	-3.8
Freight transport (toe/Mtkm)	50.4	42.6	44.5	42.3	40.3	38.1	-1.9	-3.4	-3.4	-4.3	-7.8	-8.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.13	0.08	0.03	-0.04	-0.08	-0.10	-21.3	-47.5	-74.8
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.08	0.99	0.91	-0.01	-0.05	-0.07	-1.3	-4.6	-7.2
Industry	1.46	1.03	0.98	0.81	0.67	0.54	0.00	-0.08	-0.08	-0.6	-10.3	-13.2
Residential	1.21	0.52	0.43	0.27	0.23	0.17	-0.03	-0.03	-0.11	-10.5	-11.6	-39.1
Tertiary	0.84	0.96	0.86	0.72	0.68	0.69	-0.02	-0.03	-0.06	-3.3	-3.6	-8.1
Transport	2.94	2.94	2.94	2.82	2.75	2.68	-0.02	-0.06	-0.06	-0.8	-2.0	-2.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	34.4	44.0	54.8	5.3	12.5	17.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.3	9.5	0.7	1.9	1.7			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	84468	92637	108687	108687	-5076	-8367	419	-5.7	-8.3	0.4
Nuclear energy	22475	23267	36243	36243	29926		0	0	-1896	0.0	0.0	-6.0
Solids	10359	9486	10197	7519	3548		-4305	-7661	-11138	-29.7	-50.5	-75.8
Oil (including refinery gas)	444	419	350	267	125		-83	-62	25	-19.2	-18.7	25.4
Gas (including derived gases)	10776	11400	7426	4899	5825		-4852	-11658	-10959	-39.5	-70.4	-65.3
Biomass-waste	11185	12010	14965	27812	48898		3433	9951	19895	29.8	55.7	68.6
Hydro (pumping excluded)	14657	13782	14183	14216	14348		297	237	0	2.1	1.7	0.0
Wind	78	170	1093	1662	5982		435	826	4491	66.1	98.7	301.2
Solar	2	3	11	18	35		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18372	19172	23093	23093	-233	-967	1678	-1.3	-4.8	7.8
<u>Nuclear energy</u>	2687	2690	4207	4207	3472		0	0	-219	0.0	0.0	-5.9
<u>Renewable energy</u>	3057	3104	3535	3833	5509		183	386	1753	5.5	11.2	46.7
Hydro (pumping excluded)	3016	3018	3116	3141	3176		44	44	44	1.4	1.4	1.4
Wind	38	82	405	668	2289		139	342	1709	52.0	104.5	294.5
Solar	3	4	14	23	44		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10630	11132	14113		-416	-1353	144	-3.8	-10.8	1.0
of which cogeneration units	7129	7583	6888	8451	10365		-326	-606	-325	-4.5	-6.7	-3.0
Solids fired	5539	5687	4464	2829	1455		-584	-1014	-1476	-11.6	-26.4	-50.4
Gas fired	2479	2444	2603	2402	4297		-388	-2016	-1245	-13.0	-45.6	-22.5
Oil fired	1341	1340	590	533	176		-110	-134	-189	-15.7	-20.0	-51.8
Biomass-waste fired	1942	2247	2973	5367	8184		667	1810	3055	28.9	50.9	59.5
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	50.2	52.5	50.8		-2.4	-2.2	-3.8			
Efficiency of gross thermal power generation (%)	40.7	38.0	44.3	49.5	57.2		-3.3	-1.7	2.7			
% of gross electricity from CHP	44.9	45.7	36.5	43.3	51.9		-2.2	-3.3	-1.5			
Carbon free gross electricity generation (%)	69.2	69.8	78.7	86.3	91.3		9.1	18.1	20.4			
- nuclear	32.1	33.0	42.9	39.1	27.5		2.4	3.2	-1.9			
- renewable energy forms	37.0	36.8	35.8	47.2	63.7		6.7	14.8	22.3			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	74.8	81.0	88.2	99.0	102.5	109.2	-1.3	-2.0	-2.7	-1.3	-1.9	-2.4
Private cars and motorcycles	8.5	7.7	7.4	7.8	8.1	8.5	0.1	0.2	0.2	1.7	2.4	2.9
Rail	51.9	56.6	63.4	71.0	72.5	74.9	-1.2	-1.9	-2.5	-1.7	-2.6	-3.2
Aviation	3.7	3.9	4.0	4.5	4.9	5.6	0.1	0.2	0.2	1.8	3.2	3.3
Inland navigation	5.3	7.9	8.6	11.1	12.3	15.3	-0.2	-0.4	-0.5	-2.1	-3.1	-3.4
Freight transport activity (Gtkm)	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	0.0	-0.7	-0.6	-0.6
Trucks	35.8	42.4	41.8	43.1	44.0	46.1	-0.9	-1.3	-1.6	-2.0	-2.8	-3.4
Rail	26.3	32.0	31.9	32.6	32.9	33.9	-1.2	-1.7	-2.2	-3.5	-5.0	-6.0
Inland navigation	8.4	10.1	9.7	10.3	11.0	12.1	0.3	0.5	0.6	3.0	4.5	4.9
Energy demand in transport (ktoe)	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.1	0.3	0.4
Public road transport	4309	4443	4816	5020	4977	4984	-215	-355	-435	-4.1	-6.7	-8.0
Private cars and motorcycles	97	55	57	57	57	56	0	-1	-4	-0.6	-1.9	-6.0
Trucks	1840	1904	2137	2254	2234	2187	-74	-112	-154	-3.2	-4.8	-6.6
Rail	1699	1715	1764	1728	1675	1689	-123	-207	-223	-6.7	-11.0	-11.7
Aviation	99	94	97	104	103	74	2	1	-2	1.7	1.2	-2.5
Inland navigation	459	505	565	687	719	790	-17	-33	-48	-2.5	-4.4	-5.7
Inland navigation	116	170	195	190	190	188	-2	-3	-5	-1.1	-1.5	-2.5

Source: PRIMES

France: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	139234	150054	156817	161782	160165	1.8	0.5	1.2	0.2	
Solids	7625	5359	2267	383	393	216	12	0	0	-11.4	-16.1	-29.6	-30.1	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	117473	2.8	0.9	0.5	-0.4	
Renewable energy sources	15778	17903	18065	16695	22251	27563	34408	38650	42692	1.4	2.1	4.5	2.2	
Hydro	4635	6322	5822	4491	5897	5874	5916	6078	6110	2.3	0.1	0.0	0.3	
Biomass & Waste	11014	11434	12087	11968	15177	18754	23735	26171	27175	0.9	2.3	4.6	1.4	
Wind	0	0	7	82	762	1271	2263	3768	6532		60.7	11.5	11.2	
Solar and others	19	15	26	24	230	1384	2231	2387	2672	2.8	24.5	25.5	1.8	
Geothermal	110	132	124	130	185	280	263	247	202	1.2	4.1	3.6	-2.6	
Net Imports	120027	116049	133463	143600	137910	130503	123871	120468	114481	1.1	0.3	-1.1	-0.8	
Solids	13004	9010	13201	13660	13271	8632	7663	7935	6417	0.2	0.1	-5.3	-1.8	
Oil	86558	85551	90452	94460	92366	91698	88575	86928	85045	0.4	0.2	-0.4	-0.4	
- Crude oil and Feedstocks	76007	78951	84375	84707	84823	84488	83008	82202	81281	1.0	0.1	-0.2	-0.2	
- Oil products	10551	6600	6077	9753	7544	7209	5567	4726	3764	-5.4	2.2	-3.0	-3.8	
Natural gas	24371	27493	35778	40720	37573	35360	32022	28676	25116	3.9	0.5	-1.6	-2.4	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274233	277509	277528	278970	271246	1.3	0.6	0.1	-0.2	
Solids	19955	15287	15240	14428	13664	8848	7674	7935	6417	-2.7	-1.1	-5.6	-1.8	
Oil	87673	85826	88790	92086	89455	88651	85415	83648	81645	0.1	0.1	-0.5	-0.5	
Natural gas	26032	29577	35766	40996	37573	35360	32022	28676	25116	3.2	0.5	-1.6	-2.4	
Nuclear	81018	97308	107093	116474	116590	122274	122397	123132	117473	2.8	0.9	0.5	-0.4	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	22181	27477	34299	38529	42567	1.4	2.1	4.5	2.2	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	5.0	3.2	2.8	2.8	2.4					
Oil	38.7	35.8	34.3	33.4	32.6	31.9	30.8	30.0	30.1					
Natural gas	11.5	12.3	13.8	14.9	13.7	12.7	11.5	10.3	9.3					
Nuclear	35.8	40.6	41.4	42.3	42.5	44.1	44.1	44.1	43.3					
Renewable energy forms	7.0	7.5	7.0	6.0	8.1	9.9	12.4	13.8	15.7					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	586368	605053	629128	686303	734032	2.6	0.9	0.7	1.6	
Self consumption and grid losses	48047	53203	56438	59733	57979	59030	61235	73882	83754	1.6	0.3	0.5	3.2	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	10437	6774	8222	12198	12559	1.7	-2.3	-2.4	4.3	
Solids	7334	5441	6231	6402	6171	1678	1091	1645	689	-1.6	-0.1	-15.9	-4.5	
Oil (including refinery gas)	1921	605	1272	1653	0	0	0	13	1	-4.0				
Gas (including derived gases)	1423	1216	4062	6291	2483	1479	837	961	1125	11.1	-4.8	-10.3	3.0	
Biomass & Waste	439	1224	1565	1640	1782	3618	6295	9578	10744	13.6	1.3	13.5	5.5	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	95378	96305	95619	94967	94057	0.8	-0.2	0.0	-0.2	
Refineries	79634	83057	90084	87693	86408	86120	84680	83925	83046	1.2	-0.4	-0.2	-0.2	
Biofuels and hydrogen production	0	155	328	434	2241	3672	5277	5807	6171		21.2	8.9	1.6	
District heating	1019	605	312	273	262	265	264	229	208	-11.1	-1.7	0.1	-2.4	
Derived gases, cokeries etc.	8896	7079	6668	5837	6467	6248	5398	5006	4632	-2.8	-0.3	-1.8	-1.5	
Energy Branch Consumption	9230	10345	10689	10095	9243	7522	7126	7470	7715	1.5	-1.4	-2.6	0.8	
Non-Energy Uses	13272	16593	15672	15786	16411	17110	17690	18243	18734	1.7	0.5	0.8	0.6	
Final Energy Demand	136214	141436	152315	156523	160007	163005	161925	160514	158260	1.1	0.5	0.1	-0.2	
by sector														
Industry	36205	36949	36579	35580	36265	37390	37619	37509	37831	0.1	-0.1	0.4	0.1	
- energy intensive industries	24279	21310	22143	20671	20793	21051	20793	20429	20317	-0.9	-0.6	0.0	-0.2	
- other industrial sectors	11926	15639	14436	14909	15472	16826	16826	17080	17514	1.9	0.7	0.8	0.4	
Residential	36375	36198	42516	45491	46041	46034	45438	43883	41755	1.6	0.8	-0.1	-0.8	
Tertiary	21726	24164	21620	25696	26582	26588	25514	24996	24101	0.0	2.1	-0.4	-0.6	
Transport	41908	44125	51599	49756	51119	52993	53354	54126	54574	2.1	-0.1	0.4	0.2	
by fuel														
Solids	9017	6905	5775	4685	4061	3886	3873	3813	3425	-4.4	-3.5	-0.5	-1.2	
Oil	67377	67964	71964	71245	72010	71071	67860	65740	63572	0.7	0.0	-0.6	-0.7	
Gas	23400	27098	30880	33902	32883	31293	28576	25032	21880	2.8	0.6	-1.4	-2.6	
Electricity	25960	29456	33096	36330	37798	40780	43500	48655	52885	2.5	1.3	1.4	2.0	
Heat (from CHP and District Heating)	774	459	237	207	230	237	250	235	215	-11.1	-0.3	0.8	-1.5	
Renewable energy forms	9686	9553	10364	10153	13022	15729	17852	17023	16265	0.7	2.3	3.2	-0.9	
Other	0	0	0	0	4	8	15	17	18			14.5	1.8	
RES in Gross Final Energy Consumption (A)			16928	15420	21271	26133	32367	36180	39895		2.3	4.3	2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	529.6	494.5	467.4	445.1	417.7	-0.1	-0.6	-1.2	-1.1	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	358.4	330.2	307.0	293.7	272.2	0.6	-0.4	-1.5	-1.2	
Power generation/District heating	40.1	27.6	39.6	46.7	31.5	11.4	7.6	10.1	6.6	-0.1	-2.3	-13.3	-1.4	
Energy Branch	17.1	19.1	19.6	16.6	14.1	13.3	10.7	9.9	7.5	1.4	-3.2	-2.7	-3.4	
Industry	79.1	76.1	70.1	66.0	67.1	66.8	63.2	61.4	58.6	-1.2	-0.4	-0.6	-0.8	
Residential	55.2	52.2	61.5	64.8	61.5	55.9	50.4	40.3	31.1	1.1	0.0	-2.0	-4.7	
Tertiary	39.2	40.9	32.1	39.2	38.9	35.4	30.9	27.2	23.8	-2.0	1.9	-2.3	-2.6	
Transport	122.1	129.0	150.6	145.2	145.3	147.4	144.2	144.8	144.7	2.1	-0.4	-0.1	0.0	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.8	30.4	30.0	29.4	29.0	-1.8	0.0	-0.3	-0.4	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	134.0	130.4	122.0	116.5	-1.1	-1.1	-0.7	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	93.8	87.6	82.8	78.8	73.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										France: Cost Efficiency with JI/CDM Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.7	127.4	114.0	104.0	93.3	-0.7	-1.3	-2.2	-2.0
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.31	1.19	1.11	1.05	1.00	-0.8	-1.0	-1.7	-1.0
Import Dependency %	52.4	47.9	50.9	51.6	49.8	46.5	44.1	42.7	41.7				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	164.3	183.0	202.5	217.2	232.8		1.6	2.1	1.4
as % of GDP			8.9	8.6	8.5	8.4	8.3	8.1	8.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	83.0	75.4	67.7	61.2	57.0	-1.5	-1.8	-2.0	-1.7
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	88.1	79.5	71.6	63.8	56.6	-0.1	-1.3	-2.0	-2.3
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.4	89.4	76.7	68.2	60.5	-2.3	0.1	-2.8	-2.4
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.6	27.9	26.2	24.4	-0.2	-1.8	-1.0	-1.3
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	73.4	70.4	68.0	66.0	0.8	0.7	-0.6	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.05	0.02	0.01	0.01	0.01	-2.4	-3.1	-13.9	
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.95	1.87	1.78	1.71	1.63	-0.5	-0.5	-0.9	-0.9
Industry	2.18	2.06	1.92	1.85	1.85	1.79	1.68	1.64	1.55	-1.3	-0.4	-1.0	-0.8
Residential	1.52	1.44	1.45	1.43	1.34	1.21	1.11	0.92	0.74	-0.5	-0.8	-1.8	-3.9
Tertiary	1.81	1.69	1.48	1.53	1.46	1.33	1.21	1.09	0.99	-2.0	-0.1	-1.9	-2.0
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.70	2.68	2.65	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	12.9	15.5	19.4	21.7	24.2				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.3	6.8	9.8	10.7	11.4				
Gross Electricity generation by source (in GWh)													
			536004	570542	586368	605053	629128	686303	734032		0.9	0.7	1.6
Nuclear energy			415087	451448	451980	475395	475869	482785	496799		0.9	0.5	0.4
Solids			25644	27018	26211	9680	6317	9388	3942		0.2	-13.3	-4.6
Oil (including refinery gas)			6896	7042	1980	1559	522	826	538		-11.7	-12.5	0.3
Gas (including derived gases)			16214	26341	21198	19115	16861	25367	22637		2.7	-2.3	3.0
Biomass-waste			4381	5496	7045	15655	33010	51654	60990		4.9	16.7	6.3
Hydro (pumping excluded)			67698	52224	68573	68307	68790	70677	71050		0.1	0.0	0.3
Wind			77	959	8863	14780	26317	43809	75956		60.7	11.5	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	1262	1499	1627			10.6	2.6
Net Generation Capacity in MW_e			111945	113154	114724	117626	122330	131243	153340		0.2	0.6	2.3
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	56219	57671		0.0	0.3	-1.1
<u>Renewable energy</u>			25092	26102	29233	31652	36367	43322	55592		1.5	2.2	4.3
Hydro (pumping excluded)			25016	25313	25406	25461	25525	25717	25801		0.2	0.0	0.1
Wind			66	756	3518	5834	9980	16498	28404		48.8	11.0	11.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	655	778	844			10.6	2.6
<u>Thermal power</u>			24306	24482	22681	21408	21276	31702	40078		-0.7	-0.6	6.5
of which cogeneration units			4205	5546	4840	6054	8644	13190	14460		1.4	6.0	5.3
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	9336	8719	8520	16033	24409		7.8	-0.9	11.1
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	1726	3549	6822	10333	11827		7.2	14.7	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	55.9	56.5	56.6	57.5	52.5				
Efficiency of gross thermal power generation (%)			34.8	35.5	46.5	58.4	59.3	61.5	60.3				
% of gross electricity from CHP			3.1	2.9	4.8	5.9	8.0	11.2	11.2				
Carbon free gross electricity generation (%)			90.9	89.4	91.6	95.0	96.2	94.8	96.3				
- nuclear			77.4	79.1	77.1	78.6	75.6	70.3	67.7				
- renewable energy forms			13.5	10.3	14.5	16.4	20.6	24.5	28.6				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	994.2	1057.5	1115.5	1180.6	1245.6	1.7	1.2	1.2	1.1
Public road transport	41.3	41.6	42.4	44.0	46.9	50.0	54.1	58.0	61.7	0.3	1.0	1.4	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	816.0	843.1	876.0	906.1	1.7	0.9	0.8	0.7
Rail	73.9	64.6	80.7	89.7	99.5	112.5	125.2	137.3	150.5	0.9	2.1	2.3	1.9
Aviation	26.1	34.1	46.0	53.1	62.0	75.3	89.1	105.1	122.8	5.8	3.0	3.7	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.2	4.5	-1.7	-0.9	0.6	1.2
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	273.4	295.7	316.4	340.5	365.5	2.4	0.2	1.5	1.5
Trucks	153.5	178.2	204.0	205.3	228.6	250.6	269.1	290.2	311.3	2.9	1.1	1.6	1.5
Rail	50.7	48.1	55.3	40.7	35.9	36.3	38.3	41.1	45.0	0.9	-4.2	0.7	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.8	9.0	9.2	9.3	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	51119	52993	53354	54126	54574	2.1	-0.1	0.4	0.2
Public road transport	384	403	417	424	424	435	449	438	425	0.8	0.2	0.6	-0.5
Private cars and motorcycles	23233	22171	24945	23052	22732	22634	22073	21610	20581	0.7	-0.9	-0.3	-0.7
Trucks	12587	14909	17407	18419	19446	20680	21267	22213	23305	3.3	1.1	0.9	0.9
Rail	1150	1220	1373	1264	1172	1161	1116	1045	942	1.8	-1.6	-0.5	-1.7
Aviation	3839	4690	6683	6291	7047	7789	8147	8507	9002	5.7	0.5	1.5	1.0
Inland navigation	714	731	775	305	297	294	302	312	319	0.8	-9.1	0.1	0.6

Source: PRIMES

France: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	150054	156817	160165	5805	9548	18361	4.0	6.5	12.9
Solids	7625	2267	383	216	12	0	0	-4	-14	0.0	-23.0	-97.6
Oil	3491	2877	1468	0	0	0	0	0	0		-100.0	-100.0
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	122397	117473	0	0	4287	0.0	0.0	3.8
Renewable energy sources	15778	18065	16695	27563	34408	42692	5805	9552	14088	26.7	38.4	49.3
Hydro	4635	5822	4491	5874	5916	6110	423	349	0	7.8	6.3	0.0
Biomass & Waste	11014	12087	11968	18754	23735	27175	4108	6987	7657	28.0	41.7	39.2
Wind	0	7	82	1271	2263	6532	122	464	4510	10.6	25.8	223.1
Solar and others	19	26	24	1384	2231	2672	1007	1626	1851	266.6	268.9	225.4
Geothermal	110	124	130	280	263	202	145	125	69	108.0	91.0	51.9
Net Imports	120027	133463	143600	130503	123871	114481	-17433	-26091	-35099	-11.8	-17.4	-23.5
Solids	13004	13201	13660	8632	7663	6417	-5318	-5642	-1046	-38.1	-42.4	-14.0
Oil	86558	90452	94460	91698	88575	85045	-5128	-8950	-14669	-5.3	-9.2	-14.7
- Crude oil and Feedstocks	76007	84375	84707	84488	83008	81281	-3362	-5440	-9044	-3.8	-6.2	-10.0
- Oil products	10551	6077	9753	7209	5567	3764	-1766	-3510	-5625	-19.7	-38.7	-59.9
Natural gas	24371	35778	40720	35360	32022	25116	-6968	-11466	-19349	-16.5	-26.4	-43.5
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	277509	277528	271246	-11627	-16538	-16729	-4.0	-5.6	-5.8
Solids	19955	15240	14428	8848	7674	6417	-5318	-5646	-1060	-37.5	-42.4	-14.2
Oil	87673	88790	92086	88651	85415	81645	-5127	-8945	-14660	-5.5	-9.5	-15.2
Natural gas	26032	35766	40996	35360	32022	25116	-6968	-11466	-19349	-16.5	-26.4	-43.5
Nuclear	81018	107093	116474	122274	122397	117473	0	0	4287	0.0	0.0	3.8
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	27477	34299	42567	5786	9519	14053	26.7	38.4	49.3
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	3.2	2.8	2.4	-1.7	-1.8	-0.2			
Oil	38.7	34.3	33.4	31.9	30.8	30.1	-0.5	-1.3	-3.3			
Natural gas	11.5	13.8	14.9	12.7	11.5	9.3	-1.9	-3.3	-6.2			
Nuclear	35.8	41.4	42.3	44.1	44.1	43.3	1.8	2.5	4.0			
Renewable energy forms	7.0	7.0	6.0	9.9	12.4	15.7	2.4	3.9	5.8			
Gross Electricity Generation in GWh_e	416667	536004	570542	605053	629128	734032	-19997	-8122	102458	-3.2	-1.3	16.2
Self consumption and grid losses	48047	56438	59733	59030	61235	83754	-4703	-3620	14519	-7.4	-5.6	21.0
Fuel Inputs to Thermal Power Generation	11117	13129	15985	6774	8222	12559	-5746	-4910	3979	-45.9	-37.4	46.4
Solids	7334	6231	6402	1678	1091	689	-5198	-5351	-599	-75.6	-83.1	-46.5
Oil (including refinery gas)	1921	1272	1653	0	0	1	0	-13	-2		-100.0	-77.2
Gas (including derived gases)	1423	4062	6291	1479	837	1125	-2991	-3474	-1971	-66.9	-80.6	-63.7
Biomass & Waste	439	1565	1640	3618	6295	10744	2443	3926	6551	207.9	165.8	156.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	96305	95619	94057	-2885	-4479	-8840	-2.9	-4.5	-8.6
Refineries	79634	90084	87693	86120	84680	83046	-3362	-5440	-9044	-3.8	-6.0	-9.8
Biofuels and hydrogen production	0	328	434	3672	5277	6171	433	1100	558	13.4	26.3	9.9
District heating	1019	312	273	265	264	208	-26	-39	-104	-9.0	-13.0	-33.4
Derived gases, cokeries etc.	8896	6668	5837	6248	5398	4632	69	-100	-250	1.1	-1.8	-5.1
Energy Branch Consumption	9230	10689	10095	7522	7126	7715	-500	-617	-50	-6.2	-8.0	-0.6
Non-Energy Uses	13272	15672	15786	17110	17690	18734	0	1	3	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	163005	161925	158260	-7494	-12508	-21174	-4.4	-7.2	-11.8
by sector												
Industry	36205	36579	35580	37390	37619	37831	-340	-1029	-1962	-0.9	-2.7	-4.9
- energy intensive industries	24279	22143	20671	21051	20793	20317	-68	-421	-833	-0.3	-2.0	-3.9
- other industrial sectors	11926	14436	14909	16340	16826	17514	-272	-608	-1129	-1.6	-3.5	-6.1
Residential	36375	42516	45491	46034	45438	41755	-2002	-2799	-6569	-4.2	-5.8	-13.6
Tertiary	21726	21620	25696	26588	25514	24101	-2951	-4673	-6460	-10.0	-15.5	-21.1
Transport	41908	51599	49756	52993	53354	54574	-2200	-4007	-6183	-4.0	-7.0	-10.2
by fuel												
Solids	9017	5775	4685	3886	3873	3425	-159	-279	-389	-3.9	-6.7	-10.2
Oil	67377	71964	71245	71071	67860	63572	-4968	-8488	-13600	-6.5	-11.1	-17.6
Gas	23400	30880	33902	31293	28576	21880	-3786	-7285	-16193	-10.8	-20.3	-42.5
Electricity	25960	33096	36330	40780	43500	52885	-1302	-361	7585	-3.1	-0.8	16.7
Heat (from CHP and District Heating)	774	237	207	237	250	215	-25	-28	-78	-9.4	-10.0	-26.7
Renewable energy forms	9686	10364	10153	15729	17852	16265	2745	3932	1501	21.1	28.2	10.2
Other	0	0	0	8	15	18	1	1	-1	8.1	3.7	-3.9
RES in Gross Final Energy Consumption ^(A)	16928	15420	26133	32367	39895	5354	9036	12987	25.8	38.7	48.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	494.5	467.4	417.7	-61.2	-88.3	-105.5	-11.0	-15.9	-20.2
CO₂ Emissions (energy related)	352.9	373.5	378.4	330.2	307.0	272.2	-52.6	-75.8	-93.0	-13.7	-19.8	-25.5
Power generation/District heating	40.1	39.6	46.7	11.4	7.6	6.6	-27.5	-29.3	-7.1	-70.6	-79.4	-51.9
Energy Branch	17.1	19.6	16.6	13.3	10.7	7.5	-0.6	-2.5	-5.1	-4.0	-18.7	-40.4
Industry	79.1	70.1	66.0	66.8	63.2	58.6	-2.3	-5.2	-9.8	-3.3	-7.5	-14.3
Residential	55.2	61.5	64.8	55.9	50.4	31.1	-8.0	-13.0	-31.9	-12.5	-20.5	-50.7
Tertiary	39.2	32.1	39.2	35.4	30.9	23.8	-6.4	-10.4	-17.2	-15.3	-25.1	-41.9
Transport	122.1	150.6	145.2	147.4	144.2	144.7	-7.9	-15.5	-21.9	-5.1	-9.7	-13.2
CO ₂ Emissions (non energy related)	36.8	30.7	31.1	30.4	30.0	29.0	0.1	-0.4	-1.1	0.4	-1.2	-3.6
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	134.0	130.4	116.5	-8.7	-12.1	-11.4	-6.1	-8.5	-8.9
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	87.6	82.8	73.9	-10.8	-15.6	-18.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						France: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	127.4	114.0	93.3	-5.3	-6.8	-5.8	-4.0	-5.6	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.19	1.11	1.00	-0.13	-0.20	-0.26	-10.1	-15.0	-20.9
Import Dependency %	52.4	50.9	51.6	46.5	44.1	41.7	-4.1	-6.3	-9.7			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	183.0	202.5	232.8	5.1	7.4	12.3	2.9	3.8	5.6
as % of GDP		8.9	8.6	8.4	8.3	8.0	0.2	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				5.3	7.6	12.5						
as % of GDP				0.24	0.31	0.43						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	75.4	67.7	57.0	-0.7	-1.9	-3.0	-0.9	-2.7	-4.9
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	79.5	71.6	56.6	-3.5	-4.4	-8.9	-4.2	-5.8	-13.6
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	89.4	76.7	60.5	-9.9	-14.1	-16.2	-10.0	-15.5	-21.1
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.6	27.9	24.4	-0.6	-1.0	-1.4	-2.0	-3.6	-5.3
Freight transport (toe/Mtkm)	65.0	70.2	76.8	73.4	70.4	66.0	-2.6	-5.0	-7.8	-3.4	-6.7	-10.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.02	0.01	0.01	-0.04	-0.05	-0.01	-69.6	-79.1	-58.5
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.87	1.78	1.63	-0.06	-0.12	-0.26	-3.2	-6.5	-13.7
Industry	2.18	1.92	1.85	1.79	1.68	1.55	-0.05	-0.09	-0.17	-2.5	-5.0	-9.9
Residential	1.52	1.45	1.43	1.21	1.11	0.74	-0.12	-0.21	-0.56	-8.7	-15.7	-42.9
Tertiary	1.81	1.48	1.53	1.33	1.21	0.99	-0.08	-0.16	-0.35	-5.8	-11.4	-26.3
Transport	2.91	2.92	2.92	2.78	2.70	2.65	-0.03	-0.08	-0.09	-1.2	-2.9	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	15.5	19.4	24.2	3.7	6.4	9.6			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	6.8	9.8	11.4	1.1	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	536004	570542	605053	629128	734032	-19997	-8122	102458	-3.2	-1.3	16.2	
Nuclear energy	415087	451448	475395	475869	496799	0	0	19482	0.0	0.0	4.1	
Solids	25644	27018	9680	6317	3942	-22258	-23651	-3387	-69.7	-78.9	-46.2	
Oil (including refinery gas)	6896	7042	1559	522	538	-163	-1118	-2944	-9.5	-68.2	-84.5	
Gas (including derived gases)	16214	26341	19115	16861	22637	-13946	-15101	-5564	-42.2	-47.2	-19.7	
Biomass-waste	4381	5496	15655	33010	60990	10031	21500	41260	178.4	186.8	209.1	
Hydro (pumping excluded)	67698	52224	68307	68790	71050	4919	4053	0	7.8	6.3	0.0	
Wind	77	959	14780	26317	75956	1419	5396	52447	10.6	25.8	223.1	
Solar	6	15	99	181	492	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	463	1262	1627	0	799	1165	0.0	172.7	251.8	
Net Generation Capacity in MW_e	111945	113154	117626	122330	153340	-553	4135	38255	-0.5	3.5	33.2	
<u>Nuclear energy</u>	62547	62570	64567	64687	57671	0	0	2299	0.0	0.0	4.2	
<u>Renewable energy</u>	25092	26102	31652	36367	55592	268	2506	20284	0.9	7.4	57.5	
Hydro (pumping excluded)	25016	25313	25461	25525	25801	55	55	24	0.2	0.2	0.1	
Wind	66	756	5834	9980	28404	212	2037	19657	3.8	25.6	224.7	
Solar	11	33	117	207	542	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	240	655	844	0	415	604	0.0	172.7	251.8	
<u>Thermal power</u>	24306	24482	21408	21276	40078	-821	1629	15672	-3.7	8.3	64.2	
of which cogeneration units	4205	5546	6054	8644	14460	-1443	627	2951	-19.3	7.8	25.6	
Solids fired	9912	9150	4039	3774	2454	0	0	0	0.0	0.0	0.0	
Gas fired	4408	5210	8719	8520	24409	-2809	-2822	10910	-24.4	-24.9	80.8	
Oil fired	9128	8975	5100	2160	1387	0	0	-2795	0.0	0.0	-66.8	
Biomass-waste fired	860	1147	3549	6822	11827	1989	4450	7557	127.4	187.6	177.0	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	52.2	54.9	56.5	56.6	52.5	-1.5	-2.7	-7.6				
Efficiency of gross thermal power generation (%)	34.8	35.5	58.4	59.3	60.3	8.7	10.1	1.5				
% of gross electricity from CHP	3.1	2.9	5.9	8.0	11.2	-0.4	1.5	3.1				
Carbon free gross electricity generation (%)	90.9	89.4	95.0	96.2	96.3	5.7	6.2	2.5				
- nuclear	77.4	79.1	78.6	75.6	67.7	2.5	1.0	-7.9				
- renewable energy forms	13.5	10.3	16.4	20.6	28.6	3.1	5.2	10.4				
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1057.5	1115.5	1245.6	-12.6	-21.0	-27.9	-1.2	-1.9	-2.2
Public road transport	41.3	42.4	44.0	50.0	54.1	61.7	0.8	1.3	1.7	1.7	2.4	2.8
Private cars and motorcycles	599.7	713.2	749.5	816.0	843.1	906.1	-14.3	-23.6	-32.9	-1.7	-2.7	-3.5
Rail	73.9	80.7	89.7	112.5	125.2	150.5	2.6	4.1	7.9	2.3	3.4	5.5
Aviation	26.1	46.0	53.1	75.3	89.1	122.8	-1.6	-2.8	-4.5	-2.1	-3.1	-3.6
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	0.0	-0.8	-0.8	-0.8
Freight transport activity (Gtkm)	211.8	268.4	254.9	295.7	316.4	365.5	-5.3	-8.8	-12.4	-1.8	-2.7	-3.3
Trucks	153.5	204.0	205.3	250.6	269.1	311.3	-7.0	-11.2	-16.0	-2.7	-4.0	-4.9
Rail	50.7	55.3	40.7	36.3	38.3	45.0	1.6	2.2	3.4	4.6	6.2	8.2
Inland navigation	7.6	9.1	8.9	8.8	9.0	9.3	0.1	0.1	0.2	1.1	1.6	2.0
Energy demand in transport (ktoe)	41908	51599	49756	52993	53354	54574	-2200	-4007	-6183	-4.0	-7.0	-10.2
Public road transport	384	417	424	435	449	425	-2	-7	-28	-0.5	-1.5	-6.2
Private cars and motorcycles	23233	24945	23052	22634	22073	20581	-726	-1116	-1294	-3.1	-4.8	-5.9
Trucks	12587	17407	18419	20680	21267	23305	-1192	-2269	-3751	-5.4	-9.6	-13.9
Rail	1150	1373	1264	1161	1116	942	9	8	4	0.8	0.7	0.4
Aviation	3839	6683	6291	7789	8147	9002	-287	-620	-1111	-3.5	-7.1	-11.0
Inland navigation	714	775	305	294	302	319	-2	-3	-2	-0.6	-1.0	-0.8

Source: PRIMES

Germany: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	115867	110004	99107	91638	93186	-3.3	-1.4	-1.6	-0.6	
Solids	125210	78868	59628	56514	42683	39400	37173	37353	36876	-7.2	-3.3	-1.4	-0.1	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	23104	29936	39937	44285	47810	5.4	8.0	5.6	1.8	
Hydro	1498	1873	1869	1684	1820	1853	1857	1872	1889	2.2	-0.3	0.2	0.2	
Biomass & Waste	4797	5351	7877	12190	16327	20386	27081	29640	31245	5.1	7.6	5.2	1.4	
Wind	6	147	804	2341	3660	4177	6224	7882	9384	62.9	16.4	5.5	4.2	
Solar and others	11	41	96	365	1051	3117	4373	4507	4944	24.3	27.0	15.3	1.2	
Geothermal	7	9	10	138	247	403	402	382	349	3.4	38.2	5.0	-1.4	
Net Imports	164822	195060	204678	214351	206429	207578	208263	212054	208429	2.2	0.1	0.1	0.0	
Solids	2881	10931	21576	26781	31564	37950	43315	46652	47082	22.3	3.9	3.2	0.8	
Oil	120126	130810	125974	122228	109962	106603	103175	102357	99024	0.5	-1.4	-0.6	-0.4	
- Crude oil and Feedstocks	88505	101168	101801	113120	108934	107327	105782	106500	104852	1.4	0.7	-0.3	-0.1	
- Oil products	31621	29643	24173	9108	1028	-724	-2607	-4144	-5828	-2.7	-27.1			
Natural gas	41747	52904	56865	65734	64368	62088	60409	61611	60872	3.1	1.2	-0.6	0.1	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319742	314951	304662	300913	298775	-0.4	-0.6	-0.5	-0.2	
Solids	131510	92177	83727	82805	74247	77350	80489	84005	83958	-4.4	-1.2	0.8	0.4	
Oil	124248	133627	129918	123409	110267	106501	102667	99578	96184	0.4	-1.6	-0.7	-0.7	
Natural gas	54976	67298	71853	80856	77868	74088	71409	71611	69372	2.7	0.8	-0.9	-0.3	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	23104	29936	39937	44285	47810	5.4	8.0	5.6	1.8	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.2	24.6	26.4	27.9	28.1					
Oil	35.0	39.5	38.2	35.7	34.5	33.8	33.7	33.1	32.2					
Natural gas	15.5	19.9	21.1	23.4	24.4	23.5	23.4	23.8	23.2					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.3	2.9	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	7.2	9.5	13.1	14.7	16.0					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	584744	600485	610530	667088	722545	0.4	0.3	0.4	1.7	
Self consumption and grid losses	65998	62673	74099	72965	66993	68244	70731	80164	86644	1.2	-1.0	0.5	2.0	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	72561	77322	86108	97702	101019	-0.9	-1.6	1.7	1.6	
Solids	75843	69147	68066	66172	57905	61488	65282	69686	70518	-1.1	-1.6	1.2	0.8	
Oil (including refinery gas)	2871	2083	1108	2038	198	101	98	113	115	-9.1	-15.8	-6.8	1.6	
Gas (including derived gases)	12676	11982	12906	19233	10184	10816	11509	14994	15842	0.2	-2.3	1.2	3.2	
Biomass & Waste	1824	2665	3174	5102	4240	4873	9166	12848	14481	5.7	2.9	8.0	4.7	
Geothermal heat	0	0	0	0	35	44	53	61	63			4.2	1.9	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	140494	138991	137348	134315	131565	-1.8	0.3	-0.2	-0.4	
Refineries	106658	116715	119856	127082	119326	117282	115050	113138	111016	1.2	0.0	-0.4	-0.4	
Biofuels and hydrogen production	0	31	222	1942	4325	6123	8091	8185	8408		34.6	6.5	0.4	
District heating	6389	3638	1435	873	3354	2991	2667	2404	2265	-13.9	8.9	-2.3	-1.6	
Derived gases, cokeries etc.	51565	19819	15423	14625	13489	12595	11539	10589	9876	-11.4	-1.3	-1.5	-1.5	
Energy Branch Consumption	15384	14906	14242	15144	13255	12620	12013	11803	11665	-0.8	-0.7	-1.0	-0.3	
Non-Energy Uses	23249	22912	25272	24779	24685	24722	24672	24251	23836	0.8	-0.2	0.0	-0.3	
Final Energy Demand	228372	223279	220163	216010	217732	217418	215317	212962	210993	-0.4	-0.1	-0.1	-0.2	
by sector														
Industry	72116	61981	59715	56706	57084	56027	54118	52968	52889	-1.9	-0.4	-0.5	-0.2	
- energy intensive industries	49422	42778	40359	38652	38648	37832	36169	34875	34367	-2.0	-0.4	-0.7	-0.5	
- other industrial sectors	22693	19203	19356	18053	18436	18195	17949	18093	18522	-1.6	-0.5	-0.3	0.3	
Residential	58400	62212	61905	65931	65898	65746	65952	65310	64534	0.6	0.6	0.0	-0.2	
Tertiary	39361	35275	32547	33416	32032	31645	31183	30407	29506	-1.9	-0.2	-0.3	-0.6	
Transport	58494	62910	65997	61958	62718	63999	64064	64277	64064	1.2	-0.5	0.2	0.0	
by fuel														
Solids	38693	14917	10951	9639	9990	9964	9760	9302	8704	-11.9	-0.9	-0.2	-1.1	
Oil	96422	104474	98052	87411	80524	77393	73355	71152	69026	0.2	-2.0	-0.9	-0.6	
Gas	42724	52595	58030	61814	64177	61009	58715	55312	51843	3.1	1.0	-0.9	-1.2	
Electricity	38391	38912	41496	44497	43665	45442	46812	51096	55343	0.8	0.5	0.7	1.7	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7433	7494	7558	7733	7388	-2.9	0.8	0.2	-0.2	
Renewable energy forms	2991	2734	4804	7222	11939	16106	19097	18344	18665	4.9	9.5	4.8	-0.2	
Other	0	0	0	0	5	8	19	23	23			15.4	1.8	
RES in Gross Final Energy Consumption (A)			8812	13195	21362	27964	36926	40637	43953		9.3	5.6	1.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	925.0	906.4	894.3	879.9	849.7	-1.7	-1.2	-0.3	-0.5	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	728.8	722.4	719.4	727.0	713.8	-1.5	-1.2	-0.1	-0.1	
Power generation/District heating	375.1	328.9	316.2	325.0	268.9	283.4	299.9	324.7	329.5	-1.7	-1.6	1.1	0.9	
Energy Branch	26.2	27.7	27.1	28.9	23.4	19.8	18.8	18.2	17.4	0.3	-1.5	-2.2	-0.8	
Industry	170.5	130.6	118.3	105.6	103.6	99.6	93.0	89.0	85.7	-3.6	-1.3	-1.1	-0.8	
Residential	134.3	127.4	117.7	120.0	113.0	104.3	99.2	90.6	81.9	-1.3	-0.4	-1.3	-1.9	
Tertiary	84.7	64.1	53.1	51.1	48.8	44.6	42.0	37.9	34.3	-4.6	-0.8	-1.5	-2.0	
Transport	168.9	181.9	190.9	174.3	171.1	170.7	166.6	166.6	164.9	1.2	-1.1	-0.3	-0.1	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	76.4	78.4	77.9	77.4	76.1	-0.2	-0.8	0.2	-0.2	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	105.6	96.9	75.5	59.9	-3.7	-1.1	-2.1	-4.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.6	73.1	72.1	70.9	68.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Germany: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.4	116.1	104.1	96.5	91.2	-2.1	-1.9	-2.2	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.28	2.29	2.36	2.42	2.39	-1.1	-0.6	0.4	0.1
Import Dependency %	46.1	57.3	59.8	61.6	64.0	65.4	67.8	69.8	69.1				
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	258.9	277.6	300.2	313.5	323.3		2.6	1.5	0.7
as % of GDP			9.2	10.5	10.5	10.2	10.3	10.1	9.9				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.9	71.5	63.6	58.1	55.0	-2.8	-2.2	-2.3	-1.4
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.6	88.7	83.0	77.5	72.8	-1.3	-0.3	-1.5	-1.3
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	84.1	74.8	67.8	61.8	56.8	-4.3	-1.7	-2.1	-1.8
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	36.1	34.1	32.3	30.9	-1.2	-1.6	-1.1	-1.0
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	30.9	29.8	29.0	28.1	0.6	-2.4	-0.9	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.39	0.41	0.42	0.43	0.40	-1.4	-2.0	0.7	-0.5
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	2.00	1.93	1.86	1.80	1.74	-1.1	-0.8	-0.7	-0.7
Industry	2.36	2.11	1.98	1.86	1.82	1.78	1.72	1.68	1.62	-1.8	-0.9	-0.6	-0.6
Residential	2.30	2.05	1.90	1.82	1.71	1.59	1.50	1.39	1.27	-1.9	-1.0	-1.3	-1.7
Tertiary	2.15	1.82	1.63	1.53	1.52	1.41	1.35	1.25	1.16	-2.7	-0.7	-1.2	-1.5
Transport	2.89	2.89	2.89	2.81	2.73	2.67	2.60	2.59	2.57	0.0	-0.6	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	9.5	12.5	16.6	18.5	20.1				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	7.0	9.8	12.9	13.2	13.8				
Gross Electricity generation by source (in GWh)													
			567219	613054	584744	600485	610530	667088	722545		0.3	0.4	1.7
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6	
Solids			286571	262420	294520	314439	337712	364977	389187		0.3	1.4	1.4
Oil (including refinery gas)			5476	23814	1040	517	4328	6759	6743		-15.3	15.3	4.5
Gas (including derived gases)			64676	96524	73992	81662	85959	112548	117955		1.4	1.5	3.2
Biomass-waste			9782	19186	18211	29009	50407	64823	72623		6.4	10.7	3.7
Hydro (pumping excluded)			21728	19577	21160	21541	21592	21772	21960		-0.3	0.2	0.2
Wind			9350	27224	42553	48573	72374	91653	109112		16.4	5.5	4.2
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0
Geothermal and other renewables			0	0	40	51	61	70	73			4.2	1.9
Net Generation Capacity in MW_e			112509	122874	130707	131163	141439	154815	165386		1.5	0.8	1.6
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5	
<u>Renewable energy</u>			9611	23545	30334	33045	42339	49705	53454		12.2	3.4	2.4
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2
Wind			6113	18428	23976	25689	34246	41048	44326		14.6	3.6	2.6
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			81597	78649	84765	85953	94995	105110	111932		0.4	1.1	1.7
of which cogeneration units			40073	37870	29145	29222	33247	34229	32803		-3.1	1.3	-0.1
Solids fired			47883	45326	47625	48790	50993	52614	53720		-0.1	0.7	0.5
Gas fired			24817	24439	27678	29475	32990	39345	44072		1.1	1.8	2.9
Oil fired			7114	6403	5466	1860	1774	1733	1687		-2.6	-10.6	-0.5
Biomass-waste fired			1783	2481	3988	5817	9226	11404	12438		8.4	8.7	3.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	8	10	12	13	14			4.2	1.9
Avg. Load factor of net power capacity (%)			53.7	53.1	47.7	49.0	46.2	46.1	46.8				
Efficiency of gross thermal power generation (%)			37.0	37.4	46.0	47.3	47.8	48.3	49.9				
% of gross electricity from CHP			16.9	15.5	20.3	20.7	24.3	25.1	24.1				
Carbon free gross electricity generation (%)			37.1	37.6	36.8	34.0	29.9	27.4	28.9				
- nuclear			29.9	26.6	22.4	16.9	5.6	0.0	0.0				
- renewable energy forms			7.2	11.0	14.4	17.1	24.3	27.4	28.9				
Transport sector													
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1224.8	1317.7	1390.8	1461.8	1519.5	2.0	1.2	1.3	0.9
Public road transport	73.1	68.5	69.0	68.2	67.1	70.6	75.8	80.2	84.3	-0.6	-0.3	1.2	1.1
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1040.0	1079.8	1115.1	1139.9	2.0	1.3	1.0	0.5
Rail	76.1	85.4	90.0	90.2	94.0	101.8	111.0	124.5	139.4	1.7	0.4	1.7	2.3
Aviation	34.3	46.2	62.0	70.5	83.8	102.8	121.7	139.3	153.2	6.1	3.1	3.8	2.3
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-1.0	0.6	0.7
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	497.9	532.0	559.5	586.6	610.1	1.9	1.6	1.2	0.9
Trucks	196.4	237.8	280.7	310.1	327.5	348.6	367.9	388.8	407.1	3.6	1.6	1.2	1.0
Rail	101.7	69.5	77.5	89.7	103.6	112.7	116.4	118.7	120.2	-2.7	2.9	1.2	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.8	70.7	75.1	79.1	82.8	1.9	0.0	1.2	1.0
Energy demand in transport (ktoe)	58494	62910	65997	61958	62718	63999	64064	64277	64064	1.2	-0.5	0.2	0.0
Public road transport	656	611	612	529	478	472	482	478	489	-0.7	-2.4	0.1	0.1
Private cars and motorcycles	38247	40001	39981	36421	36046	35659	34543	33752	33147	0.4	-1.0	-0.4	-0.4
Trucks	11518	13643	15834	14528	14193	14337	14560	15010	15425	3.2	-1.1	0.3	0.6
Rail	2111	2126	1946	1858	2015	2060	2006	1869	1604	-0.8	0.3	0.0	-2.2
Aviation	5307	5975	7345	8304	9658	11131	12118	12798	13018	3.3	2.8	2.3	0.7
Inland navigation	656	554	279	318	327	341	356	370	382	-8.2	1.6	0.8	0.7

Source: PRIMES

Germany: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	110004	99107	93186	623	11092	14950	0.6	12.6	19.1
Solids	125210	59628	56514	39400	37173	36876	-4865	-824	-176	-11.0	-2.2	-0.5
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	0.0
Natural gas	13532	15800	14224	12000	11000	8500	0	0	0	0.0	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	29936	39937	47810	5488	11916	15126	22.4	42.5	46.3
Hydro	1498	1869	1684	1853	1857	1889	65	57	0	3.6	3.1	0.0
Biomass & Waste	4797	7877	12190	20386	27081	31245	3155	8004	9555	18.3	42.0	44.1
Wind	6	804	2341	4177	6224	9384	0	581	2086	0.0	10.3	28.6
Solar and others	11	96	365	3117	4373	4944	2040	3067	3357	189.5	234.8	211.5
Geothermal	7	10	138	403	402	349	229	208	129	130.8	107.4	58.5
Net Imports	164822	204678	214351	207578	208263	208429	-17698	-31075	-36663	-7.9	-13.0	-15.0
Solids	2881	21576	26781	37950	43315	47082	-752	-4911	-2384	-1.9	-10.2	-4.8
Oil	120126	125974	122228	106603	103175	99024	-7622	-10995	-13653	-6.7	-9.6	-12.1
- Crude oil and Feedstocks	88505	101801	113120	107327	105782	104852	-3794	-5515	-7002	-3.4	-5.0	-6.3
- Oil products	31621	24173	9108	-724	-2607	-5828	-3828	-5480	-6651	-123.3	-190.7	-808.2
Natural gas	41747	56865	65734	62088	60409	60872	-9324	-15169	-20627	-13.1	-20.1	-25.3
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	314951	304662	298775	-17073	-19975	-21702	-5.1	-6.2	-6.8
Solids	131510	83727	82805	77350	80489	83958	-5617	-5735	-2559	-6.8	-6.7	-3.0
Oil	124248	129918	123409	106501	102667	96184	-7620	-10988	-13641	-6.7	-9.7	-12.4
Natural gas	54976	71853	80856	74088	71409	69372	-9324	-15169	-20627	-11.2	-17.5	-22.9
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	29936	39937	47810	5488	11916	15126	22.4	42.5	46.3
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	24.6	26.4	28.1	-0.4	-0.1	1.1			
Oil	35.0	38.2	35.7	33.8	33.7	32.2	-0.6	-1.3	-2.1			
Natural gas	15.5	21.1	23.4	23.5	23.4	23.2	-1.6	-3.2	-4.9			
Nuclear	10.6	12.9	12.2	8.3	2.9	0.0	0.4	0.2	0.0			
Renewable energy forms	1.8	3.1	4.8	9.5	13.1	16.0	2.1	4.5	5.8			
Gross Electricity Generation in GWh_e	547549	567219	613054	600485	610530	722545	-63778	-62248	28727	-9.6	-9.3	4.1
Self consumption and grid losses	65998	74099	72965	68244	70731	86644	-7460	-5926	5816	-9.9	-7.7	7.2
Fuel Inputs to Thermal Power Generation	93214	85253	92546	77322	86108	101019	-11782	-12473	58	-13.2	-12.7	0.1
Solids	75843	68066	66172	61488	65282	70518	-6249	-6082	-1247	-9.2	-8.5	-1.7
Oil (including refinery gas)	2871	1108	2038	101	98	115	-2030	-2025	-1632	-95.3	-95.4	-93.4
Gas (including derived gases)	12676	12906	19233	10816	11509	15842	-3447	-7815	-4532	-24.2	-40.4	-22.2
Biomass & Waste	1824	3174	5102	4873	9166	14481	-80	3433	7470	-1.6	59.9	106.6
Geothermal heat	0	0	0	44	53	63	23	16	0	112.9	44.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	138991	137348	131565	-2177	-2818	-7028	-1.5	-2.0	-5.1
Refineries	106658	119856	127082	117282	115050	111016	-3817	-5554	-7042	-3.2	-4.6	-6.0
Biofuels and hydrogen production	0	222	1942	6123	8091	8408	687	1655	869	12.6	25.7	11.5
District heating	6389	1435	873	2991	2667	2265	93	370	-1491	3.2	16.1	-39.7
Derived gases, cokeries etc.	51565	15423	14625	12595	11539	9876	861	710	635	7.3	6.6	6.9
Energy Branch Consumption	15384	14242	15144	12620	12013	11665	-625	-702	-750	-4.7	-5.5	-6.0
Non-Energy Uses	23249	25272	24779	24722	24672	23836	-62	-111	-125	-0.2	-0.4	-0.5
Final Energy Demand	228372	220163	218010	217418	215317	210993	-10803	-14143	-20873	-4.7	-6.2	-9.0
by sector												
Industry	72116	59715	56706	56027	54118	52889	-78	-887	-1719	-0.1	-1.6	-3.1
- energy intensive industries	49422	40359	38652	37832	36169	34367	386	-217	-826	1.0	-0.6	-2.3
- other industrial sectors	22693	19356	18053	18195	17949	18522	-464	-670	-892	-2.5	-3.6	-4.6
Residential	58400	61905	65931	65746	65952	64534	-3453	-3959	-7083	-5.0	-5.7	-9.9
Tertiary	39361	32547	33416	31645	31183	29506	-4837	-5332	-6770	-13.3	-14.6	-18.7
Transport	58494	65997	61958	63999	64064	64064	-2434	-3965	-5302	-3.7	-5.8	-7.6
by fuel												
Solids	38693	10951	9639	9964	9760	8704	205	20	-94	2.1	0.2	-1.1
Oil	96422	98052	87411	77393	73355	69026	-4302	-8174	-11742	-5.3	-10.0	-14.5
Gas	42724	58030	61814	61009	58715	51843	-5472	-6458	-14289	-12.0	-9.9	-21.6
Electricity	38391	41496	44497	45442	46812	55343	-4827	-4813	2023	-9.6	-9.3	3.8
Heat (from CHP and District Heating)	9150	6831	7428	7494	7558	7388	-737	-1075	-1374	-9.0	-12.5	-15.7
Renewable energy forms	2991	4804	7222	16106	19097	18665	4330	6355	4607	36.8	49.9	32.8
Other	0	0	0	8	19	23	0	1	-6	6.1	7.1	-21.3
RES in Gross Final Energy Consumption ^(A)		8812	13195	27964	36926	43953	6092	11239	13979	27.9	43.8	46.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	906.4	894.3	849.7	-76.7	-105.1	-110.9	-7.8	-10.5	-11.5
CO₂ Emissions (energy related)	959.8	823.3	804.8	722.4	719.4	713.8	-68.1	-91.4	-99.3	-8.6	-11.3	-12.2
Power generation/District heating	375.1	316.2	325.0	283.4	299.9	329.5	-39.9	-48.1	-26.8	-12.3	-13.8	-7.5
Energy Branch	26.2	27.1	28.9	19.8	18.8	17.4	-3.5	-4.1	-3.8	-15.0	-17.8	-18.0
Industry	170.5	118.3	105.6	99.6	93.0	85.7	4.8	3.9	3.1	5.1	4.4	3.7
Residential	134.3	117.7	120.0	104.3	99.2	81.9	-13.1	-18.2	-37.0	-11.1	-15.5	-31.1
Tertiary	84.7	53.1	51.1	44.6	42.0	34.3	-7.4	-8.6	-14.7	-14.2	-17.0	-30.0
Transport	168.9	190.9	174.3	170.7	166.6	164.9	-9.1	-16.3	-20.0	-5.0	-8.9	-10.8
CO₂ Emissions (non energy related)	84.5	82.9	75.8	78.4	77.9	76.1	2.4	0.9	-0.6	3.2	1.1	-0.7
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	105.6	96.9	59.9	-11.0	-14.6	-11.0	-9.5	-13.1	-15.6
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	73.1	72.1	68.5	-6.2	-8.5	-8.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Germany: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	116.1	104.1	91.2	-6.3	-6.8	-6.6	-5.1	-6.2	-6.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.29	2.36	2.39	-0.09	-0.14	-0.15	-3.7	-5.5	-5.8
Import Dependency %	46.1	59.8	61.6	65.4	67.8	69.1	-2.0	-5.4	-6.7			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	277.6	300.2	323.3	6.8	11.4	17.7	2.5	4.0	5.8
as % of GDP		9.2	10.5	10.2	10.3	9.9	0.3	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				6.9	11.7	17.9						
as % of GDP				0.26	0.40	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	71.5	63.6	55.0	-0.1	-1.0	-1.8	-0.1	-1.6	-3.1
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	88.7	83.0	72.8	-4.7	-5.0	-8.0	-5.0	-5.7	-9.9
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	74.8	67.8	56.8	-11.4	-11.6	-13.0	-13.3	-14.6	-18.7
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	36.1	34.1	30.9	-0.7	-1.0	-1.4	-1.8	-2.7	-4.4
Freight transport (toe/Mtkm)	39.2	41.5	35.3	30.9	29.8	28.1	-1.2	-1.9	-2.1	-3.6	-6.1	-6.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.41	0.42	0.40	-0.01	-0.02	-0.04	-3.2	-4.6	-8.9
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.93	1.86	1.74	-0.02	-0.06	-0.14	-0.9	-2.9	-7.4
Industry	2.36	1.98	1.86	1.78	1.72	1.62	0.09	0.10	0.11	5.2	6.1	7.1
Residential	2.30	1.90	1.82	1.59	1.50	1.27	-0.11	-0.18	-0.39	-6.5	-10.4	-23.6
Tertiary	2.15	1.63	1.53	1.41	1.35	1.16	-0.02	-0.04	-0.19	-1.1	-2.9	-14.0
Transport	2.89	2.89	2.81	2.67	2.60	2.57	-0.04	-0.09	-0.09	-1.4	-3.3	-3.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	12.5	16.6	20.1	3.2	5.8	7.6			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	9.8	12.9	13.8	1.5	3.3	2.5			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	0.0
Solids	286571	262420	314439	337712	389187		-31515	-29836	-38	-9.1	-8.1	0.0
Oil (including refinery gas)	5476	23814	517	4328	6743		-15304	-12107	-8206	-96.7	-73.7	-54.9
Gas (including derived gases)	64676	96524	81662	85959	117955		-20321	-48527	-23721	-19.9	-36.1	-16.7
Biomass-waste	9782	19186	29009	50407	72623		2583	20788	36438	9.8	70.2	100.7
Hydro (pumping excluded)	21728	19577	21541	21592	21960		751	659	0	3.6	3.1	0.0
Wind	9350	27224	48573	72374	109112		0	6757	24253	0.0	10.3	28.6
Solar	60	1282	3366	3997	4891		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	51	61	73		27	19	0	112.9	44.0	0.0
Net Generation Capacity in MW_e	112509	122874	131163	141439	165386	-11604	-9578	13341	-8.1	-6.3	8.8	
<u>Nuclear energy</u>	21301	20680	12165	4105	0	0	0	0	0.0	0.0		
<u>Renewable energy</u>	9611	23545	33045	42339	53454	-17	1800	9072	-0.1	4.4	20.4	
Hydro (pumping excluded)	3408	3580	3732	3790	3862	0	0	0	0.0	0.0	0.0	
Wind	6113	18428	25689	34246	44326	-17	1800	9072	-0.1	5.5	25.7	
Solar	90	1537	3624	4303	5266	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
<u>Thermal power</u>	81597	78649	85953	94995	111932	-11586	-11377	4269	-11.9	-10.7	4.0	
of which cogeneration units	40073	37870	29222	33247	32803	-4914	-7582	-3397	-14.4	-18.6	-9.4	
Solids fired	47883	45326	48790	50993	53720	-4167	-2507	1565	-7.9	-4.7	3.0	
Gas fired	24817	24439	29475	32990	44072	-6251	-10236	-2341	-17.5	-23.7	-5.0	
Oil fired	7114	6403	1860	1774	1687	-3260	-2604	-1651	-63.7	-59.5	-49.5	
Biomass-waste fired	1783	2481	5817	9226	12438	2086	3966	6694	55.9	75.4	116.5	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	10	12	14	5	4	0	111.3	43.6	0.0	
Avg. Load factor of net power capacity (%)	53.7	53.1	49.0	46.2	46.8	-0.8	-1.5	-2.0				
Efficiency of gross thermal power generation (%)	37.0	37.4	47.3	47.8	49.9	0.0	0.0	0.4				
% of gross electricity from CHP	16.9	15.5	20.7	24.3	24.1	-1.7	-4.6	-4.4				
Carbon free gross electricity generation (%)	37.1	37.6	34.0	29.9	28.9	3.8	7.0	7.6				
- nuclear	29.9	26.6	16.9	5.6	0.0	1.6	0.5	0.0				
- renewable energy forms	7.2	11.0	17.1	24.3	28.9	2.1	6.4	7.6				
Transport sector												
Passenger transport activity (Gpkm)	889.5	1081.9	1142.4	1317.7	1390.8	1519.5	-18.5	-31.3	-39.7	-1.4	-2.2	-2.5
Public road transport	73.1	69.0	68.2	70.6	75.8	84.3	1.1	1.8	2.3	1.7	2.5	2.8
Private cars and motorcycles	702.1	858.2	911.1	1040.0	1079.8	1139.9	-19.8	-32.0	-40.3	-1.9	-2.9	-3.4
Rail	76.1	90.0	90.2	101.8	111.0	139.4	2.3	2.6	3.6	2.4	2.4	2.6
Aviation	34.3	62.0	70.5	102.8	121.7	153.2	-2.2	-3.7	-5.3	-2.1	-2.9	-3.4
Inland navigation	3.8	2.7	2.5	2.5	2.5	2.7	0.0	0.0	0.0	-0.5	-0.2	-0.1
Freight transport activity (Gtkm)	352.9	424.7	463.9	532.0	559.5	610.1	-8.7	-14.6	-19.8	-1.6	-2.5	-3.1
Trucks	196.4	280.7	310.1	348.6	367.9	407.1	-12.7	-19.9	-26.1	-3.5	-5.1	-6.0
Rail	101.7	77.5	89.7	112.7	116.4	120.2	3.8	4.7	5.5	3.5	4.2	4.8
Inland navigation	54.8	66.5	64.1	70.7	75.1	82.8	0.2	0.6	0.8	0.3	0.8	1.0
Energy demand in transport (ktoe)	58494	65997	61958	63999	64064	64064	-2434	-3965	-5302	-3.7	-5.8	-7.6
Public road transport	656	612	529	472	482	489	-2	-7	-27	-0.5	-1.4	-5.2
Private cars and motorcycles	38247	39981	36421	35659	34543	33147	-1208	-1804	-2125	-3.3	-5.0	-6.0
Trucks	11518	15834	14528	14337	14560	15425	-921	-1654	-2034	-6.0	-10.2	-11.6
Rail	2111	1946	1858	2060	2006	1604	23	99	168	1.1	5.2	11.7
Aviation	5307	7345	8304	11131	12118	13018	-324	-597	-1279	-2.8	-4.7	-8.9
Inland navigation	656	279	318	341	356	382	-2	-2	-5	-0.4	-0.6	-1.3

Source: PRIMES

Greece: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9152	9740	10010	10315	10881	6767	6481	6371	6256	0.9	0.8	-5.0	-0.4	
Solids	7077	7911	8222	8538	8273	3288	2154	1499	1061	1.5	0.1	-12.6	-6.8	
Oil	832	459	280	100	97	100	98	0	0	-10.3	-10.1	0.2		
Natural gas	138	44	42	18	29	0	0	0	0	-11.2	-3.7			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2483	3379	4229	4871	5195	2.9	5.4	5.5	2.1	
Hydro	152	303	318	431	424	427	435	439	442	7.6	2.9	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2800	2840	1.2	4.2	4.6	1.8	
Wind	0	3	39	109	254	486	695	862	1079	74.8	20.7	10.6	4.5	
Solar and others	56	82	99	102	264	503	626	664	716	5.8	10.3	9.0	1.4	
Geothermal	3	3	2	1	19	61	95	106	118	-4.7	27.9	17.6	2.2	
Net Imports	15415	18207	21982	23336	24830	28325	29030	29832	29872	3.6	1.2	1.6	0.3	
Solids	988	925	768	371	226	1070	1072	1084	1441	-2.5	-11.5	16.8	3.0	
Oil	14366	17214	19527	20307	20605	21377	20585	20234	19729	3.1	0.5	0.0	-0.4	
- Crude oil and Feedstocks	14757	16955	20439	19352	20465	21194	20797	20664	20407	3.3	0.0	0.2	-0.2	
- Oil products	-391	259	-912	955	139	183	-212	-431	-678					
Natural gas	0	0	1689	2332	3688	5247	5732	6642	6826		8.1	4.5	1.8	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	32605	31772	32019	32572	32390	2.4	1.5	-0.2	0.1	
Solids	8091	8783	9040	8952	8499	4358	3227	2584	2502	1.1	-0.6	-9.2	-2.5	
Oil	12883	13952	15929	17951	17595	18157	17191	16602	15991	2.1	1.0	-0.2	-0.7	
Natural gas	138	44	1705	2354	3717	5247	5732	6642	6826	28.6	8.1	4.4	1.8	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2527	3770	5653	6549	6896	2.9	5.6	8.4	2.0	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.1	13.7	10.1	7.9	7.7					
Oil	57.8	57.7	56.6	57.5	54.0	57.1	53.7	51.0	49.4					
Natural gas	0.6	0.2	6.1	7.5	11.4	16.5	17.9	20.4	21.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	7.8	11.9	17.7	20.1	21.3					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	62348	63328	67377	75012	80997	4.4	1.6	0.8	1.9	
Self consumption and grid losses	5818	6451	8431	10125	9838	9027	9322	10324	11042	3.8	1.6	-0.5	1.7	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11772	9650	9376	10052	10224	3.0	0.1	-2.2	0.9	
Solids	6890	7810	8234	8693	8159	4019	2907	2312	2235	1.8	-0.1	-9.8	-2.6	
Oil (including refinery gas)	1708	2075	2036	2053	1027	1452	1236	1091	1069	1.8	-6.6	1.9	-1.4	
Gas (including derived gases)	18	14	1280	1605	2471	3709	4348	5293	5518	53.1	6.8	5.8	2.4	
Biomass & Waste	0	38	64	52	98	412	793	1254	1289		4.4	23.3	5.0	
Geothermal heat	0	0	0	0	17	59	92	102	113			18.2	2.1	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21220	22158	22011	21886	21685	3.0	-0.6	0.4	-0.1	
Refineries	16621	17860	22404	21415	20906	21630	21232	21005	20743	3.0	-0.7	0.2	-0.2	
Biofuels and hydrogen production	0	0	0	0	252	474	734	851	923			11.3	2.3	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	62	54	45	30	20	-8.8	7.4	-3.1	-7.9	
Energy Branch Consumption	1196	1174	1637	1758	1619	1566	1600	1602	1568	3.2	-0.1	-0.1	-0.2	
Non-Energy Uses	651	441	689	711	702	701	712	721	719	0.6	0.2	0.1	0.1	
Final Energy Demand	14509	15801	18513	20742	22527	23620	24095	24329	24196	2.5	2.0	0.7	0.0	
by sector														
Industry	3942	4107	4437	4132	4058	4135	4167	4109	4104	1.2	-0.9	0.3	-0.2	
- energy intensive industries	2534	2489	2693	2526	2524	2595	2629	2617	2603	0.6	-0.6	0.4	-0.1	
- other industrial sectors	1408	1618	1744	1607	1534	1540	1538	1492	1500	2.2	-1.3	0.0	-0.2	
Residential	3048	3323	4470	5467	6259	6738	6972	7051	6966	3.9	3.4	1.1	0.0	
Tertiary	1711	1940	2410	3075	3253	3345	3362	3434	3417	3.5	3.0	0.3	0.2	
Transport	5808	6431	7196	8068	8957	9402	9594	9735	9709	2.2	2.2	0.7	0.1	
by fuel														
Solids	1053	1074	888	446	321	322	305	263	261	-1.7	-9.7	-0.5	-1.6	
Oil	10041	10799	12584	14219	14974	15201	15026	14673	14123	2.3	1.8	0.0	-0.6	
Gas	15	14	257	585	938	1186	1064	1017	969	33.0	13.8	1.3	-0.9	
Electricity	2448	2931	3710	4377	4606	4731	5030	5580	6016	4.2	2.2	0.9	1.8	
Heat (from CHP and District Heating)	0	0	28	49	39	42	58	74	86		3.2	4.1	4.1	
Renewable energy forms	952	982	1046	1066	1649	2136	2609	2719	2739	0.9	4.7	4.7	0.5	
Other	0	0	0	0	1	1	3	3	3			16.9	1.3	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2445	3555	4615	5234	5588		5.4	6.6	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.5	112.6	105.2	102.1	99.9	2.0	0.2	-1.9	-0.5	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	94.9	82.8	76.3	73.8	72.0	2.3	0.6	-2.2	-0.6	
Power generation/District heating	34.1	39.0	43.7	46.3	43.0	29.8	26.0	25.2	25.2	2.5	-0.2	-4.9	-0.3	
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.0	1.2	1.0	0.9	2.9	-0.8	-8.9	-3.1	
Industry	9.4	10.0	10.1	8.6	7.7	7.5	6.9	6.4	6.2	0.7	-2.7	-1.2	-1.0	
Residential	4.6	4.7	7.4	9.6	10.8	11.5	11.5	10.8	9.6	4.9	3.8	0.6	-1.8	
Tertiary	3.3	3.2	3.4	4.2	4.4	4.4	4.1	3.8	3.7	0.1	2.7	-0.6	-1.2	
Transport	17.2	19.0	21.2	23.8	25.8	26.6	26.5	26.7	26.4	2.1	2.0	0.3	-0.1	
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.3	9.7	9.8	9.8	1.2	0.8	0.8	0.2	
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	20.5	19.3	18.5	18.0	1.3	-1.6	-2.0	-0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	123.8	109.4	102.3	99.2	97.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	151.4	126.9	112.7	103.2	94.9	0.0	-2.4	-2.9	-1.7	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.91	2.61	2.38	2.27	2.22	-0.1	-0.9	-2.0	-0.7	
Import Dependency %	62.1	65.7	69.3	68.5	69.5	80.7	81.7	82.4	82.7					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	22.9	26.7	30.6	33.4	35.2		4.1	2.9	1.4	
as % of GDP			10.5	10.2	10.6	10.7	10.8	10.6	10.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.5	64.1	58.5	54.1	51.2	1.1	-3.4	-1.8	-1.3	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.8	92.6	85.3	78.2	71.8	1.6	-0.1	-1.5	-1.7	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.6	82.1	72.9	66.8	61.4	1.2	-0.8	-2.4	-1.7	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.1	29.8	28.6	27.2	-2.0	-0.8	-0.9	-0.9	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	94.3	88.5	85.7	83.9	-1.1	-1.4	-1.2	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.47	0.38	0.33	0.31	-1.9	-1.7	-5.7	-2.1	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.16	2.12	2.04	1.96	1.90	-0.4	-0.5	-0.6	-0.7	
Industry	2.39	2.43	2.28	2.09	1.90	1.80	1.65	1.56	1.52	-0.5	-1.8	-1.4	-0.8	
Residential	1.51	1.43	1.66	1.76	1.73	1.70	1.65	1.52	1.38	0.9	0.4	-0.5	-1.8	
Tertiary	1.96	1.65	1.40	1.36	1.36	1.32	1.23	1.12	1.07	-3.3	-0.3	-0.9	-1.4	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.5	14.6	18.5	20.7	22.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.2	8.1	8.8					
Gross Electricity generation by source (in GWh)														
			53415	59416	62348	63328	67377	75012	80997		1.6	0.8	1.9	
Nuclear energy			0	0	0	0	0	0	0					
Solids			33790	35982	34221	19116	14478	12001	12365		0.1	-8.2	-1.6	
Oil (including refinery gas)			8979	8858	4873	7022	6050	5387	5232		-5.9	2.2	-1.4	
Gas (including derived gases)			5960	8114	14699	23594	26932	32700	35009		9.4	6.2	2.7	
Biomass-waste			543	179	571	2510	5714	8462	8821		0.5	25.9	4.4	
Hydro (pumping excluded)			3692	5016	4926	4961	5057	5102	5135		2.9	0.3	0.2	
Wind			451	1266	2957	5650	8082	10028	12546		20.7	10.6	4.5	
Solar			0	1	73	397	606	832	1343			23.6	8.3	
Geothermal and other renewables			0	0	28	77	459	499	545			32.2	1.7	
Net Generation Capacity in MW_e			11361	13277	15919	18928	20811	21935	23581		3.4	2.7	1.3	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			3233	3744	4521	5835	7354	8406	9731		3.4	5.0	2.8	
Hydro (pumping excluded)			3043	3165	3235	3386	3489	3542	3577		0.6	0.8	0.2	
Wind			189	573	1226	2126	3203	4002	4916		20.6	10.1	4.4	
Solar			1	5	60	324	494	678	1051		46.8	23.6	7.8	
Other renewables (tidal etc.)			0	0	0	0	168	183	187				1.1	
<u>Thermal power</u>			8128	9533	11398	13092	13457	13530	13849		3.4	1.7	0.3	
of which cogeneration units			340	381	514	724	840	1030	1125		4.2	5.0	3.0	
Solids fired			4505	4798	4796	4263	4263	4217	3942		0.6	-1.2	-0.8	
Gas fired			1134	1876	3344	5639	5610	5530	6567		11.4	5.3	1.6	
Oil fired			2487	2827	3145	2773	2652	2545	1944		2.4	-1.7	-3.1	
Biomass-waste fired			2	31	105	400	896	1201	1289		52.1	23.9	3.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	8	17	37	37	107			16.6	11.2	
Avg. Load factor of net power capacity (%)			49.7	47.4	41.9	36.5	35.5	37.6	37.9					
Efficiency of gross thermal power generation (%)			36.5	36.8	39.7	46.6	48.9	50.2	51.8					
% of gross electricity from CHP			1.2	1.5	2.5	5.0	8.3	9.4	9.4					
Carbon free gross electricity generation (%)			8.8	10.9	13.7	21.5	29.6	33.2	35.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			8.8	10.9	13.7	21.5	29.6	33.2	35.1					
Transport sector														
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	159.0	174.0	185.1	193.2	198.6	4.4	3.2	1.5	0.7	
Public road transport	17.7	20.2	21.7	21.4	21.7	21.9	22.4	22.6	22.8	2.0	0.0	0.3	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	103.4	109.8	114.5	116.8	6.2	4.7	1.7	0.6	
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.8	5.2	5.6	0.9	2.2	2.3	1.6	
Aviation	15.5	19.9	24.1	27.7	31.5	35.5	39.1	41.8	44.2	4.5	2.7	2.2	1.2	
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.9	9.1	9.1	9.2	2.1	0.2	0.3	0.2	
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	37.6	42.3	46.0	49.1	51.3	3.0	3.5	2.0	1.1	
Trucks	12.5	14.6	17.5	22.0	25.4	28.6	31.3	33.8	35.8	3.4	3.8	2.1	1.3	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.3	-3.5	6.5	3.2	1.4	
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.6	14.1	14.3	2.8	2.8	1.7	0.5	
Energy demand in transport (ktoe)	5808	6431	7196	8068	8957	9402	9594	9735	9709	2.2	2.2	0.7	0.1	
Public road transport	154	175	175	153	150	141	140	133	124	1.3	-1.5	-0.7	-1.2	
Private cars and motorcycles	1404	1704	2243	2913	3290	3382	3428	3423	3288	4.8	3.9	0.4	-0.4	
Trucks	2345	2726	2902	3120	3519	3736	3807	3933	4040	2.2	1.9	0.8	0.6	
Rail	75	57	60	58	64	69	75	77	73	-2.2	0.7	1.5	-0.2	
Aviation	1264	1226	1325	1181	1269	1394	1452	1476	1496	0.5	-0.4	1.4	0.3	
Inland navigation	566	544	491	643	665	680	692	692	687	-1.4	3.1	0.4	-0.1	

Source: PRIMES

Greece: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	6767	6481	6256	-2552	-3823	-4084	-27.4	-37.1	-39.5
Solids	7077	8222	8538	3288	2154	1061	-3240	-4883	-5230	-49.6	-69.4	-83.1
Oil	832	280	100	100	98	0	0	-2	0	0.0	-1.8	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3379	4229	5195	688	1061	1147	25.6	33.5	28.3
Hydro	152	318	431	427	435	442	1	4	3	0.2	0.9	0.6
Biomass & Waste	893	1010	1015	1903	2378	2840	323	558	634	20.4	30.7	28.7
Wind	0	39	109	486	695	1079	29	114	141	6.4	19.7	15.0
Solar and others	56	99	102	503	626	716	290	352	366	136.2	128.5	104.4
Geothermal	3	2	1	61	95	118	45	33	3	291.5	53.9	2.9
Net Imports	15415	21982	23336	28325	29030	29872	-623	-840	-915	-2.2	-2.8	-3.0
Solids	988	768	371	1070	1072	1441	-5	-10	49	-0.4	-1.0	3.5
Oil	14366	19527	20307	21377	20585	19729	-1015	-2236	-3006	-4.5	-9.8	-13.2
- Crude oil and Feedstocks	14757	20439	19352	21194	20797	20407	-628	-1422	-1822	-2.9	-6.4	-8.2
- Oil products	-391	-912	955	183	-212	-678	-387	-814	-1185	-67.9	-135.3	-233.8
Natural gas	0	1689	2332	5247	5732	6826	5	-18	341	0.1	-0.3	5.3
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	31772	32019	32390	-3173	-4659	-4990	-9.1	-12.7	-13.3
Solids	8091	9040	8952	4358	3227	2502	-3245	-4893	-5181	-42.7	-60.3	-67.4
Oil	12883	15929	17951	18157	17191	15991	-1014	-2234	-2998	-5.3	-11.5	-15.8
Natural gas	138	1705	2354	5247	5732	6826	5	-18	341	0.1	-0.3	5.3
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3770	5653	6896	1080	2486	2848	40.1	78.5	70.4
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	13.7	10.1	7.7	-8.0	-12.1	-12.8			
Oil	57.8	56.6	57.5	57.1	53.7	49.4	2.3	0.7	-1.4			
Natural gas	0.6	6.1	7.5	16.5	17.9	21.1	1.5	2.2	3.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.9	17.7	21.3	4.2	9.0	10.5			
Gross Electricity Generation in GWh_e	34767	53415	59416	63328	67377	80997	-11147	-12625	-7154	-15.0	-15.8	-8.1
Self consumption and grid losses	5818	8431	10125	9027	9322	11042	-2308	-2852	-2300	-20.4	-23.4	-17.2
Fuel Inputs to Thermal Power Generation	8617	11614	12403	9650	9376	10224	-2879	-3860	-2961	-23.0	-29.2	-22.5
Solids	6890	8234	8693	4019	2907	2235	-3230	-4854	-5082	-44.6	-62.5	-69.5
Oil (including refinery gas)	1708	2036	2053	1452	1236	1069	-104	-121	84	-6.7	-8.9	8.5
Gas (including derived gases)	18	1280	1605	3709	4348	5518	74	442	1051	2.0	11.3	23.5
Biomass & Waste	0	64	52	412	793	1289	337	641	987	450.8	422.6	326.8
Geothermal heat	0	0	0	59	92	113	45	32	0	312.5	52.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	22158	22011	21685	-588	-1292	-1771	-2.6	-5.5	-7.6
Refineries	16621	22404	21415	21630	21232	20743	-629	-1426	-1824	-2.8	-6.3	-8.1
Biofuels and hydrogen production	0	0	0	474	734	923	54	149	86	12.8	25.5	10.2
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	54	45	20	-12	-15	-32	-18.5	-25.2	-62.1
Energy Branch Consumption	1196	1637	1758	1566	1600	1568	-129	-133	-177	-7.6	-7.7	-10.1
Non-Energy Uses	651	689	711	701	712	719	-2	-3	-3	-0.3	-0.4	-0.4
Final Energy Demand	14509	18513	20742	23620	24095	24196	-1064	-1804	-2584	-4.3	-7.0	-9.6
by sector												
Industry	3942	4437	4132	4135	4167	4104	-68	-135	-265	-1.6	-3.1	-6.1
- energy intensive industries	2534	2693	2526	2595	2629	2603	-24	-55	-102	-0.9	-2.1	-3.8
- other industrial sectors	1408	1744	1607	1540	1538	1500	-44	-80	-163	-2.8	-4.9	-9.8
Residential	3048	4470	5467	6738	6972	6966	-197	-370	-605	-2.8	-5.0	-8.0
Tertiary	1711	2410	3075	3345	3362	3417	-424	-638	-765	-11.3	-15.9	-18.3
Transport	5808	7196	8068	9402	9594	9709	-375	-661	-948	-3.8	-6.4	-8.9
by fuel												
Solids	1053	888	446	322	305	261	-11	-34	-89	-3.3	-10.1	-25.4
Oil	10041	12584	14219	15201	15026	14123	-723	-1376	-2220	-4.5	-8.4	-13.6
Gas	15	257	585	1186	1064	969	-111	-418	-678	-8.6	-28.2	-41.2
Electricity	2448	3710	4377	4731	5030	6016	-756	-833	-404	-13.8	-14.2	-6.3
Heat (from CHP and District Heating)	0	28	49	42	58	86	-6	5	29	-11.9	9.6	52.1
Renewable energy forms	952	1046	1066	2136	2609	2739	543	851	777	34.1	48.4	39.6
Other	0	0	0	1	3	3	0	0	0	7.8	5.8	-6.9
RES in Gross Final Energy Consumption ^(A)		1439	1626	3555	4615	5588	980	1650	1871	38.1	55.7	50.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	112.6	105.2	99.9	-19.7	-31.4	-34.2	-14.9	-23.0	-25.5
CO₂ Emissions (energy related)	71.2	89.2	96.2	82.8	76.3	72.0	-16.5	-27.1	-29.7	-16.7	-26.2	-29.2
Power generation/District heating	34.1	43.7	46.3	29.8	26.0	25.2	-13.6	-19.6	-18.5	-31.3	-43.0	-42.3
Energy Branch	2.6	3.4	3.6	3.0	1.2	0.9	-0.5	-2.2	-2.6	-14.0	-64.4	-74.1
Industry	9.4	10.1	8.6	7.5	6.9	6.2	-0.3	-0.9	-1.5	-4.0	-11.6	-19.5
Residential	4.6	7.4	9.6	11.5	11.5	9.6	-0.8	-1.5	-3.0	-6.8	-11.2	-23.9
Tertiary	3.3	3.4	4.2	4.4	4.1	3.7	-0.1	-0.5	-0.9	-2.1	-11.6	-20.0
Transport	17.2	21.2	23.8	26.6	26.5	26.4	-1.2	-2.3	-3.2	-4.5	-8.1	-10.8
CO₂ Emissions (non energy related)	7.2	8.2	8.6	9.3	9.7	9.8	-0.1	-0.2	-0.2	-0.6	-1.6	-2.1
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	20.5	19.3	18.0	-3.1	-4.2	-4.3	-13.0	-17.7	-19.3
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	109.4	102.3	97.0	-19.1	-30.5	-33.3			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Greece: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	126.9	112.7	94.9	-12.7	-16.4	-14.6	-9.1	-12.7	-13.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.61	2.38	2.22	-0.24	-0.44	-0.50	-8.3	-15.5	-18.3
Import Dependency %	62.1	69.3	68.5	80.7	81.7	82.7	5.1	7.4	7.8			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	26.7	30.6	35.2	1.1	1.9	2.6	4.5	6.8	8.1
as % of GDP		10.5	10.2	10.7	10.8	10.3	0.5	0.7	0.8			
Total Compliance Costs ^(D) (in 000 M€05)				1.2	2.0	2.7						
as % of GDP				0.47	0.71	0.80						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	64.1	58.5	51.2	-1.1	-1.9	-3.3	-1.6	-3.1	-6.1
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	92.6	85.3	71.8	-2.7	-4.5	-6.2	-2.8	-5.0	-8.0
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	82.1	72.9	61.4	-10.4	-13.8	-13.7	-11.3	-15.9	-18.3
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.1	29.8	27.2	-0.5	-0.7	-1.1	-1.5	-2.4	-3.8
Freight transport (toe/Mtkm)	127.8	114.6	101.5	94.3	88.5	83.9	-3.6	-6.4	-8.6	-3.7	-6.7	-9.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.47	0.38	0.31	-0.11	-0.18	-0.18	-19.2	-32.5	-37.6
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.12	2.04	1.90	-0.01	-0.06	-0.14	-0.4	-2.9	-6.8
Industry	2.39	2.28	2.09	1.80	1.65	1.52	-0.05	-0.16	-0.25	-2.4	-8.8	-14.3
Residential	1.51	1.66	1.76	1.70	1.65	1.38	-0.07	-0.12	-0.29	-4.0	-6.5	-17.3
Tertiary	1.96	1.40	1.36	1.32	1.23	1.07	0.12	0.06	-0.02	10.3	5.1	-2.1
Transport	2.96	2.95	2.95	2.83	2.77	2.72	-0.02	-0.05	-0.06	-0.7	-1.8	-2.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.6	18.5	22.2	4.5	7.5	8.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.2	8.8	0.7	1.9	1.6			
Gross Electricity generation by source (in GWh_e)												
	53415	59416	63328	67377	80997	80997	-11147	-12625	-7154	-15.0	-15.8	-8.1
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	33790	35982	19116	14478	12365	12365	-13232	-20007	-21043	-40.9	-58.0	-63.0
Oil (including refinery gas)	8979	8858	7022	6050	5232	5232	-872	-940	-45	-11.0	-13.5	-0.9
Gas (including derived gases)	5960	8114	23594	26932	35009	35009	384	1600	4221	1.7	6.3	13.7
Biomass-waste	543	179	2510	5714	8821	8821	2168	4988	7413	634.1	687.1	526.6
Hydro (pumping excluded)	3692	5016	4961	5057	5135	5135	11	44	30	0.2	0.9	0.6
Wind	451	1266	5650	8082	12546	12546	339	1330	1640	6.4	19.7	15.0
Solar	0	1	397	606	1343	1343	0	0	268	0.0	0.0	24.9
Geothermal and other renewables	0	0	77	459	545	545	53	361	361	228.9	367.8	196.6
Net Generation Capacity in MW_e												
	11361	13277	18928	20811	23581	23581	175	922	-375	0.9	4.6	-1.6
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	3233	3744	5835	7354	9731	9731	114	717	859	2.0	10.8	9.7
Hydro (pumping excluded)	3043	3165	3386	3489	3577	3577	0	28	28	0.0	0.8	0.8
Wind	189	573	2126	3203	4916	4916	114	521	468	5.7	19.4	10.5
Solar	1	5	324	494	1051	1051	0	0	175	0.0	0.0	19.9
Other renewables (tidal etc.)	0	0	0	168	187	187	0	168	187			
<u>Thermal power</u>	8128	9533	13092	13457	13849	13849	61	206	-1234	0.5	1.6	-8.2
of which cogeneration units	340	381	724	840	1125	1125	-20	-7	173	-2.7	-0.8	18.2
Solids fired	4505	4798	4263	4263	3942	3942	-126	-126	46	-2.9	-2.9	1.2
Gas fired	1134	1876	5639	5610	6567	6567	0	-320	-2311	0.0	-5.4	-26.0
Oil fired	2487	2827	2773	2652	1944	1944	-152	-122	-89	-5.2	-4.4	-4.4
Biomass-waste fired	2	31	400	896	1289	1289	330	764	1112	474.7	581.1	628.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	17	37	107	107	9	9	9	115.5	33.0	9.4
Avg. Load factor of net power capacity (%)	49.7	47.4	36.5	35.5	37.9	37.9	-6.4	-8.0	-2.0			
Efficiency of gross thermal power generation (%)	36.5	36.8	46.6	48.9	51.8	51.8	2.8	5.0	5.5			
% of gross electricity from CHP	1.2	1.5	5.0	8.3	9.4	9.4	0.3	3.1	3.9			
Carbon free gross electricity generation (%)	8.8	10.9	21.5	29.6	35.1	35.1	6.7	13.1	13.9			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	21.5	29.6	35.1	35.1	6.7	13.1	13.9			
Transport sector												
Passenger transport activity (Gpkm)												
	75.3	116.2	141.2	174.0	185.1	198.6	-2.1	-3.7	-4.7	-1.2	-1.9	-2.3
Public road transport	17.7	21.7	21.4	21.9	22.4	22.8	0.4	0.6	0.7	1.9	2.7	3.1
Private cars and motorcycles	32.2	58.6	80.0	103.4	109.8	116.8	-1.9	-3.2	-4.0	-1.8	-2.8	-3.3
Rail	2.8	3.1	3.4	4.3	4.8	5.6	0.1	0.1	0.2	1.8	1.9	3.1
Aviation	15.5	24.1	27.7	35.5	39.1	44.2	-0.7	-1.1	-1.4	-1.9	-2.7	-3.2
Inland navigation	7.0	8.7	8.7	8.9	9.1	9.2	-0.1	-0.1	-0.1	-0.7	-0.7	-0.9
Freight transport activity (Gtkm)												
	19.8	26.6	32.7	42.3	46.0	51.3	-0.8	-1.3	-1.7	-1.8	-2.7	-3.3
Trucks	12.5	17.5	22.0	28.6	31.3	35.8	-0.9	-1.5	-2.0	-3.1	-4.5	-5.4
Rail	0.6	0.4	0.6	0.9	1.1	1.3	0.0	0.1	0.1	3.8	4.9	5.7
Inland navigation	6.6	8.7	10.1	12.7	13.6	14.3	0.1	0.2	0.2	0.8	1.3	1.5
Energy demand in transport (ktoe)												
	5808	7196	8068	9402	9594	9709	-375	-661	-948	-3.8	-6.4	-8.9
Public road transport	154	175	153	141	140	124	0	-2	-6	-0.3	-1.3	-5.0
Private cars and motorcycles	1404	2243	2913	3382	3428	3288	-110	-181	-244	-3.1	-5.0	-6.9
Trucks	2345	2902	3120	3736	3807	4040	-230	-413	-603	-5.8	-9.8	-13.0
Rail	75	60	58	69	75	73	1	-1	1	1.6	-1.4	1.9
Aviation	1264	1325	1181	1394	1452	1496	-29	-54	-78	-2.0	-3.6	-5.0
Inland navigation	566	491	643	680	692	687	-7	-10	-18	-1.0	-1.5	-2.5

Source: PRIMES

Hungary: Cost Efficiency with JI/CDM Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	14146	13456	11207	10514	10398	10291	10137	10622	10838	-2.3	-0.7	-0.3	0.7	
Solids	3948	3095	2893	1748	1720	1105	231	219	216	-3.1	-5.1	-18.2	-0.7	
Oil	2320	2329	1665	1655	1200	1000	996	900	800	-3.3	-3.2	-1.9	-2.2	
Natural gas	3812	3788	2475	2331	2200	2000	1831	1625	1604	-4.2	-1.2	-1.8	-1.3	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Renewable energy sources	523	626	516	1212	1491	2323	3139	3906	4246	-0.1	11.2	7.7	3.1	
Hydro	15	14	15	17	17	17	17	17	17	0.0	0.9	0.1	0.1	
Biomass & Waste	422	526	415	1105	1309	2027	2590	3238	3430	-0.2	12.2	7.1	2.8	
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8	
Solar and others	0	0	0	2	23	110	370	478	619			32.0	5.3	
Geothermal	86	86	86	87	136	161	145	142	132	0.0	4.7	0.6	-0.9	
Net Imports	14436	12629	14011	17558	17898	19023	20218	20798	21124	-0.3	2.5	1.2	0.4	
Solids	1686	1395	1081	1340	1140	1101	928	848	954	-4.3	0.5	-2.0	0.3	
Oil	6621	5496	5352	5875	6505	7070	7001	7223	7354	-2.1	2.0	0.7	0.5	
- Crude oil and Feedstocks	6475	5937	5866	6167	6580	7124	7091	7308	7440	-1.0	1.2	0.8	0.5	
- Oil products	146	-441	-514	-291	-75	-54	-90	-85	-86					
Natural gas	5170	5532	7283	9807	9714	10501	9615	8531	8419	3.5	2.9	-0.1	-1.3	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Gross Inland Consumption	28641	25864	25000	27920	28296	29314	30355	31419	31962	-1.4	1.2	0.7	0.5	
Solids	5969	4549	3967	3090	2860	2206	1159	1067	1170	-4.0	-3.2	-8.6	0.1	
Oil	8734	7689	6907	7420	7705	8070	7997	8123	8154	-2.3	1.1	0.4	0.2	
Natural gas	8913	9175	9657	12094	11914	12501	11447	10156	10023	0.8	2.1	-0.4	-1.3	
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Renewable energy forms	523	626	516	1212	1491	2323	5511	7881	8457	-0.1	11.2	14.0	4.4	
as % in Gross Inland Consumption														
Solids	20.8	17.6	15.9	11.1	10.1	7.5	3.8	3.4	3.7					
Oil	30.5	29.7	27.6	26.6	27.2	27.5	26.3	25.9	25.5					
Natural gas	31.1	35.5	38.6	43.3	42.1	42.6	37.7	32.3	31.4					
Nuclear	12.4	14.0	14.6	12.8	13.4	13.2	13.0	12.6	12.4					
Renewable energy forms	1.8	2.4	2.1	4.3	5.3	7.9	18.2	25.1	26.5					
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	37406	43342	47445	55418	61729	2.2	0.6	2.4	2.7	
Self consumption and grid losses	5478	6171	6295	5979	5565	5730	5987	7067	7709	1.4	-1.2	0.7	2.6	
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5069	5263	5454	6867	7825	1.9	-1.6	0.7	3.7	
Solids	2871	2977	2731	1924	1965	1351	372	342	461	-0.5	-3.2	-15.3	2.2	
Oil (including refinery gas)	440	1447	1052	122	0	5	1	2	12	9.1			27.8	
Gas (including derived gases)	1636	1634	2140	3078	2806	3141	2806	2437	2850	2.7	2.7	0.0	0.2	
Biomass & Waste	24	55	62	534	297	766	2276	4086	4503	10.2	17.0	22.6	7.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11679	10680	9226	9831	10322	10909	11067	11152	11144	-2.3	1.1	0.7	0.1	
Refineries	8831	8500	7588	8390	8964	9423	9381	9477	9471	-1.5	1.7	0.5	0.1	
Biofuels and hydrogen production	0	0	0	0	207	320	530	593	626				9.8	
District heating	1145	789	471	629	449	492	541	547	529	-8.5	-0.5	1.9	-0.2	
Derived gases, cokeries etc.	1704	1392	1168	813	702	674	614	535	518	-3.7	-5.0	-1.3	-1.7	
Energy Branch Consumption	1402	1310	1162	1581	1611	1668	1749	1833	1850	-1.9	3.3	0.8	0.6	
Non-Energy Uses	1569	1609	1586	2282	2501	2659	2724	2754	2781	0.1	4.7	0.9	0.2	
Final Energy Demand	19258	15814	15998	16098	19017	19834	20678	21071	21190	-1.8	1.7	0.8	0.2	
by sector														
Industry	6523	3808	3489	3427	3459	3621	3855	3910	3999	-6.1	-0.1	1.1	0.4	
- energy intensive industries	4160	2691	2563	2328	2259	2329	2449	2467	2467	-4.7	-1.3	0.8	0.1	
- other industrial sectors	2364	1116	926	1099	1200	1292	1406	1532	1532	-8.9	2.6	1.6	0.9	
Residential	6437	5911	5465	6411	6724	6835	7095	7096	7058	-1.6	2.1	0.5	-0.1	
Tertiary	3273	3442	3792	4085	4223	4388	4498	4608	4592	1.5	1.1	0.6	0.2	
Transport	3024	2653	3252	4175	4611	4990	5230	5458	5542	0.7	3.6	1.3	0.6	
by fuel														
Solids	2502	965	793	692	573	544	492	465	455	-10.9	-3.2	-1.5	-0.8	
Oil	6009	4147	4173	4792	5037	5357	5395	5542	5553	-3.6	1.9	0.7	0.3	
Gas	5941	6370	6503	7852	7922	7957	7456	7046	6651	0.9	2.0	-0.6	-1.1	
Electricity	2811	2500	2658	2823	3004	3309	3591	4104	4558	-0.6	1.2	1.8	2.4	
Heat (from CHP and District Heating)	1570	1287	1440	1297	1396	1244	1158	1376	1433	-0.9	-0.3	-1.8	2.1	
Renewable energy forms	425	545	430	642	1084	1424	2583	2537	2538	0.1	9.7	9.1	-0.2	
Other	0	0	0	0	0	1	2	2	2			16.8	2.6	
RES in Gross Final Energy Consumption ^(A)			482	869	1344	2081	4707	6084	6492		10.8	13.4	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	79.7	76.8	69.4	65.7	65.6	-2.1	0.4	-1.4	-0.6	
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	54.5	53.7	46.7	43.7	43.9	-2.0	0.2	-1.5	-0.6	
Power generation/District heating	20.5	23.0	21.0	17.3	15.8	14.2	8.8	7.9	9.1	0.2	-2.8	-5.7	0.3	
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.5	2.1	0.8	0.6	-4.9	5.1	-1.6	-11.2	
Industry	14.7	8.7	6.4	6.3	6.0	6.3	5.1	4.7	4.7	-7.9	-0.7	-1.7	-0.6	
Residential	13.7	9.9	9.0	10.5	10.6	10.2	10.1	9.5	8.7	-4.1	1.6	-0.4	-1.5	
Tertiary	5.6	5.5	6.2	6.7	6.7	6.7	6.6	6.5	6.1	1.1	0.7	-0.1	-0.7	
Transport	8.6	7.6	9.4	12.2	13.0	13.8	14.0	14.5	14.5	0.9	3.3	0.8	0.4	
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.4	3.7	3.9	4.0	-3.6	-0.4	1.6	0.8	
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	19.7	19.0	18.1	17.8	-2.2	1.0	-1.5	-0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	83.7	80.7	72.9	69.0	69.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	270.1	233.4	205.9	185.0	166.8	-2.5	-2.5	-2.7	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.92	1.83	1.54	1.39	1.37	-0.7	-1.1	-2.2	-1.1
Import Dependency %	50.4	48.8	56.0	62.9	63.3	64.9	66.6	66.2	66.1				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	17.9	21.0	24.2	27.0	28.1		3.2	3.1	1.5
as % of GDP			18.2	16.1	17.1	16.7	16.4	15.9	14.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.3	63.3	59.2	53.2	49.5	-9.6	-3.5	-1.7	-1.8
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	76.8	65.3	58.0	50.5	44.7	-1.9	-2.6	-2.8	-2.6
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	75.5	65.9	57.5	51.1	45.0	1.6	-2.8	-2.7	-2.4
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.6	33.9	32.6	31.2	29.3	2.1	2.2	-0.6	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	38.8	37.6	35.6	34.3	33.2	0.5	0.7	-0.9	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.28	0.23	0.14	0.10	0.11	-0.8	-3.3	-6.8	-2.1
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.90	1.87	1.73	1.66	1.61	-1.3	-0.2	-0.9	-0.7
Industry	2.25	2.28	1.85	1.84	1.73	1.75	1.31	1.19	1.19	-2.0	-0.7	-2.7	-1.0
Residential	2.13	1.68	1.64	1.64	1.57	1.50	1.43	1.34	1.23	-2.6	-0.4	-1.0	-1.5
Tertiary	1.70	1.59	1.64	1.64	1.58	1.52	1.46	1.40	1.34	-0.3	-0.4	-0.7	-0.9
Transport	2.84	2.85	2.90	2.92	2.81	2.77	2.68	2.65	2.63	0.2	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.9	10.2	22.2	28.1	29.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.0	5.8	9.2	10.0	10.5				
Gross Electricity generation by source (in GWh)													
			35185	35749	37406	43342	47445	55418	61729		0.6	2.4	2.7
Nuclear energy			14177	13832	14678	14971	15271	15394	15394		0.3	0.4	0.1
Solids			8350	5838	5640	4210	1851	1843	2416		-3.8	-10.5	2.7
Oil (including refinery gas)			4243	497	55	123	62	72	106		-35.2	1.1	5.5
Gas (including derived gases)			8040	13021	15079	19863	18746	16362	19282		6.5	2.2	0.3
Biomass-waste			197	2348	1693	3875	11095	21137	23694		24.0	20.7	7.9
Hydro (pumping excluded)			178	203	194	196	197	198	199		0.9	0.1	0.1
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9787	10654	10331	10257	11104		2.3	0.5	0.7
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7921	8712	8225	7907	8425		2.8	0.4	0.2
of which cogeneration units			1915	2391	2273	2735	2870	2113	2305		1.7	2.4	-2.2
Solids fired			1683	1592	1521	1142	494	486	377		-1.0	-10.6	-2.7
Gas fired			3516	4572	5668	6394	5470	3942	4331		4.9	-0.4	-2.3
Oil fired			762	313	322	233	167	134	95		-8.3	-6.3	-5.5
Biomass-waste fired			76	316	411	943	2094	3345	3622		18.5	17.7	5.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	41.4	44.5	50.3	58.7	60.5				
Efficiency of gross thermal power generation (%)			29.9	33.0	38.1	45.9	50.1	49.4	50.0				
% of gross electricity from CHP			24.5	28.3	31.3	26.5	26.9	26.9	26.8				
Carbon free gross electricity generation (%)			41.4	45.9	44.5	44.2	56.5	67.0	64.7				
- nuclear			40.3	38.7	39.2	34.5	32.2	27.8	24.9				
- renewable energy forms			1.1	7.2	5.2	9.6	24.3	39.2	39.7				
Transport sector													
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.5	94.5	103.5	112.5	121.1	-0.2	0.8	1.8	1.6
Public road transport	19.3	16.6	18.7	18.2	17.8	16.8	16.2	15.6	15.1	-0.3	-0.5	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.3	61.4	69.7	78.0	85.5	-0.1	1.3	2.7	2.1
Rail	13.9	10.9	12.3	12.2	12.2	12.2	12.4	12.4	12.4	-1.2	-0.1	0.2	0.0
Aviation	1.6	1.9	2.4	2.7	3.2	4.1	5.2	6.6	8.1	4.3	2.9	5.0	4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	41.6	47.4	52.4	56.9	59.9	-1.9	4.1	2.3	1.4
Trucks	15.2	13.8	19.1	25.2	30.2	35.2	39.5	43.3	45.9	2.4	4.7	2.7	1.5
Rail	16.8	8.4	8.8	8.6	9.1	9.5	9.9	10.3	10.6	-6.3	0.3	0.9	0.7
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.2	3.4			2.1	1.3
Energy demand in transport (ktoe)	3024	2653	3252	4175	4611	4990	5230	5458	5542	0.7	3.6	1.3	0.6
Public road transport	160	124	149	167	157	138	123	107	96	-0.7	0.5	-2.4	-2.5
Private cars and motorcycles	1482	1462	1824	2321	2529	2719	2848	2948	2942	2.1	3.3	1.2	0.3
Trucks	938	695	886	1297	1510	1672	1753	1848	1917	-0.6	5.5	1.5	0.9
Rail	271	190	175	159	151	144	137	125	98	-4.3	-1.5	-1.0	-3.3
Aviation	164	182	219	230	264	316	369	428	488	2.9	1.9	3.4	2.8
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1

Source: PRIMES

Hungary: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	10291	10137	10838	201	-141	582	2.0	-1.4	5.7
Solids	3948	2893	1748	1105	231	216	-620	-1503	-1524	-35.9	-86.7	-87.6
Oil	2320	1665	1655	1000	996	800	0	-4	0	0.0	-0.4	0.0
Natural gas	3812	2475	2331	2000	1831	1604	0	-69	-96	0.0	-3.6	-5.7
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Renewable energy sources	523	516	1212	2323	3139	4246	820	1435	2203	54.6	84.2	107.8
Hydro	15	15	17	17	17	17	0	0	0	2.7	2.4	0.0
Biomass & Waste	422	415	1105	2027	2590	3430	650	1056	1644	47.2	68.8	92.1
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	110	370	619	90	296	472	430.9	399.0	319.6
Geothermal	86	86	87	161	145	132	81	83	87	99.6	133.6	190.5
Net Imports	14436	14011	17558	19023	20218	21124	-1647	-1857	-2260	-8.0	-8.4	-9.7
Solids	1686	1081	1340	1101	928	954	-1	-270	-367	-0.1	-22.6	-27.8
Oil	6621	5352	5875	7070	7001	7354	-514	-923	-981	-6.8	-11.6	-11.8
- Crude oil and Feedstocks	6475	5866	6167	7124	7091	7440	-490	-848	-902	-6.4	-10.7	-10.8
- Oil products	146	-514	-291	-54	-90	-86	-23	-75	-79	75.2	506.2	1126.5
Natural gas	5170	7283	9807	10501	9615	8419	-1132	-3035	-5121	-9.7	-24.0	-37.8
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	29314	30355	31962	-1446	-1998	-1679	-4.7	-6.2	-5.0
Solids	5969	3967	3090	2206	1159	1170	-621	-1773	-1892	-22.0	-60.5	-61.8
Oil	8734	6907	7420	8070	7997	8154	-514	-927	-981	-6.0	-10.4	-10.7
Natural gas	8913	9657	12094	12501	11447	10023	-1132	-3104	-5218	-8.3	-21.3	-34.2
Nuclear	3544	3658	3569	3863	3940	3972	0	0	0	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	2323	5511	8457	820	3806	6413	54.6	223.3	313.7
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	7.5	3.8	3.7	-1.7	-5.2	-5.4			
Oil	30.5	27.6	26.6	27.5	26.3	25.5	-0.4	-1.2	-1.6			
Natural gas	31.1	38.6	43.3	42.6	37.7	31.4	-1.7	-7.3	-13.9			
Nuclear	12.4	14.6	12.8	13.2	13.0	12.4	0.6	0.8	0.6			
Renewable energy forms	1.8	2.1	4.3	7.9	18.2	26.5	3.0	12.9	20.4			
Gross Electricity Generation in GWh_e	28431	35185	35749	43342	47445	61729	-3744	-5263	1276	-8.0	-10.0	2.1
Self consumption and grid losses	5478	6295	5979	5730	5987	7709	-563	-801	546	-8.9	-11.8	7.6
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5263	5454	7825	-745	-1150	519	-12.4	-17.4	7.1
Solids	2871	2731	1924	1351	372	461	-621	-1638	-1731	-31.5	-81.5	-79.0
Oil (including refinery gas)	440	1052	122	5	1	12	-158	-141	-4	-96.7	-99.3	-24.3
Gas (including derived gases)	1636	2140	3078	3141	2806	2850	-426	-1310	-1807	-12.0	-31.8	-38.8
Biomass & Waste	24	62	534	766	2276	4503	460	1940	4060	150.4	577.3	917.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	10909	11067	11144	-484	-787	-943	-4.2	-6.6	-7.8
Refineries	8831	7588	8390	9423	9381	9471	-491	-852	-903	-5.0	-8.3	-8.7
Biofuels and hydrogen production	0	0	0	320	530	626	40	115	62	14.2	27.8	11.1
District heating	1145	471	629	492	541	529	-63	-48	-85	-11.3	-8.1	-13.8
Derived gases, cokeries etc.	1704	1168	813	674	614	518	30	-2	-17	4.7	-0.3	-3.1
Energy Branch Consumption	1402	1162	1581	1668	1749	1850	-55	-42	7	-3.2	-2.4	0.4
Non-Energy Uses	1569	1586	2282	2659	2724	2781	-1	0	-2	0.0	0.0	-0.1
Final Energy Demand	19258	15998	18098	19834	20678	21190	-1100	-1305	-1943	-5.3	-5.9	-8.4
by sector												
Industry	6523	3489	3427	3621	3855	3999	-39	-15	-202	-1.1	-0.4	-4.8
- energy intensive industries	4160	2563	2328	2329	2449	2467	-5	3	-130	-0.2	0.1	-5.0
- other industrial sectors	2364	926	1099	1292	1406	1532	-34	-18	-71	-2.5	-1.3	-4.4
Residential	6437	5465	6411	6835	7095	7058	-443	-328	-482	-6.1	-4.4	-6.4
Tertiary	3273	3792	4085	4388	4498	4592	-407	-583	-703	-8.5	-11.5	-13.3
Transport	3024	3252	4175	4990	5230	5542	-211	-380	-556	-4.1	-6.8	-9.1
by fuel												
Solids	2502	793	692	544	492	455	-11	-35	-55	-2.0	-6.6	-10.8
Oil	6009	4173	4792	5357	5395	5553	-253	-523	-759	-4.5	-8.8	-12.0
Gas	5941	6503	7852	7957	7456	6651	-674	-1567	-2374	-7.8	-17.4	-26.3
Electricity	2811	2658	2823	3309	3591	4558	-271	-378	73	-7.6	-9.5	1.6
Heat (from CHP and District Heating)	1570	1440	1297	1244	1158	1433	-231	-179	9	-15.7	-13.4	0.6
Renewable energy forms	425	430	642	1424	2583	2538	340	1376	1164	31.4	114.0	84.7
Other	0	0	0	1	2	2	0	0	0	5.9	5.9	-3.5
RES in Gross Final Energy Consumption ^(A)		482	869	2081	4707	6492	801	3242	4610	62.6	221.4	244.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	76.8	69.4	65.6	-9.7	-21.4	-26.9	-11.2	-23.5	-29.1
CO₂ Emissions (energy related)	65.5	53.6	55.0	53.7	46.7	43.9	-6.8	-17.2	-22.7	-11.2	-26.9	-34.1
Power generation/District heating	20.5	21.0	17.3	14.2	8.8	9.1	-4.3	-11.2	-12.6	-23.1	-56.0	-58.1
Energy Branch	2.5	1.5	1.9	2.5	2.1	0.6	-0.2	-0.6	-2.0	-5.9	-23.0	-75.9
Industry	14.7	6.4	6.3	6.3	5.1	4.7	0.1	-1.9	-2.3	2.3	-27.6	-32.4
Residential	13.7	9.0	10.5	10.2	10.1	8.7	-1.0	-0.8	-1.8	-8.9	-7.1	-17.3
Tertiary	5.6	6.2	6.7	6.7	6.6	6.1	-0.8	-1.2	-1.9	-10.2	-15.3	-23.6
Transport	8.6	9.4	12.2	13.8	14.0	14.5	-0.7	-1.5	-2.1	-5.1	-9.6	-12.4
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.4	3.7	4.0	0.0	0.0	-0.1	0.2	-0.4	-1.8
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	19.7	19.0	17.8	-3.0	-4.1	-4.2	-13.1	-17.9	-19.0
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	80.7	72.9	69.0	-10.2	-22.5	-28.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Hungary: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	233.4	205.9	166.8	-11.5	-13.5	-8.8	-4.7	-6.2	-5.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.83	1.54	1.37	-0.13	-0.44	-0.60	-6.8	-22.1	-30.6
Import Dependency %	50.4	56.0	62.9	64.9	66.6	66.1	-2.3	-1.6	-3.4			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	21.0	24.2	28.1	0.7	1.5	1.9	3.2	6.4	7.1
as % of GDP		18.2	16.1	16.7	16.4	14.7	0.5	1.0	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.7	1.5	1.9						
as % of GDP				0.55	1.03	1.01						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	63.3	59.2	49.5	-0.7	-0.2	-2.5	-1.1	-0.4	-4.8
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	65.3	58.0	44.7	-4.2	-2.7	-3.1	-6.1	-4.4	-6.4
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	65.9	57.5	45.0	-6.1	-7.5	-6.9	-8.5	-11.5	-13.3
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	33.9	32.6	29.3	-0.8	-1.2	-1.3	-2.3	-3.6	-4.3
Freight transport (toe/Mtkm)	34.4	36.4	39.3	37.6	35.6	33.2	-1.6	-2.8	-3.9	-4.0	-7.2	-10.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.23	0.14	0.11	-0.04	-0.14	-0.16	-14.9	-50.8	-58.7
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.87	1.73	1.61	-0.01	-0.14	-0.21	-0.8	-7.6	-11.7
Industry	2.25	1.85	1.84	1.75	1.31	1.19	0.06	-0.49	-0.48	3.4	-27.3	-29.0
Residential	2.13	1.64	1.64	1.50	1.43	1.23	-0.05	-0.04	-0.16	-3.0	-2.8	-11.6
Tertiary	1.70	1.64	1.64	1.52	1.46	1.34	-0.03	-0.07	-0.18	-1.8	-4.4	-11.9
Transport	2.84	2.90	2.92	2.77	2.68	2.63	-0.03	-0.08	-0.10	-1.1	-3.0	-3.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	10.2	22.2	29.7	4.3	15.7	21.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	9.2	10.5	0.9	2.5	2.1			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	43342	47445	61729	61729	-3744	-5263	1276	-8.0	-10.0	2.1
Nuclear energy	14177	13832	14971	15271	15394	15394	0	0	0	0.0	0.0	0.0
Solids	8350	5838	4210	1851	2416	2416	-2615	-6228	-7790	-38.3	-77.1	-76.3
Oil (including refinery gas)	4243	497	123	62	106	106	-660	-630	-46	-84.3	-91.1	-30.4
Gas (including derived gases)	8040	13021	19863	18746	19282	19282	-2625	-7786	-12253	-11.7	-29.3	-38.9
Biomass-waste	197	2348	3875	11095	23694	23694	2152	9376	21364	124.8	545.4	917.0
Hydro (pumping excluded)	178	203	196	197	199	199	5	5	0	2.7	2.4	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	7789	8587	10654	10331	11104	11104	80	399	60	0.8	4.0	0.5
<u>Nuclear energy</u>	1708	1730	1781	1794	1794	1794	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	8712	8225	8425	8425	80	399	60	0.9	5.1	0.7
of which cogeneration units	1915	2391	2735	2870	2305	2305	-89	89	-247	-3.2	3.2	-9.7
Solids fired	1683	1592	1142	494	377	377	-214	-407	-805	-15.8	-45.2	-68.1
Gas fired	3516	4572	6394	5470	4331	4331	-287	-898	-2001	-4.3	-14.1	-31.6
Oil fired	762	313	233	167	95	95	-21	-52	-169	-8.2	-23.7	-64.1
Biomass-waste fired	76	316	943	2094	3622	3622	603	1755	3034	177.1	518.8	515.4
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	44.5	50.3	60.5	60.5	-4.1	-7.7	0.6			
Efficiency of gross thermal power generation (%)	29.9	33.0	45.9	50.1	50.0	50.0	0.3	1.9	-2.0			
% of gross electricity from CHP	24.5	28.3	26.5	26.9	26.8	26.8	-1.0	3.7	1.1			
Carbon free gross electricity generation (%)	41.4	45.9	44.2	56.5	64.7	64.7	8.1	23.4	34.0			
- nuclear	40.3	38.7	34.5	32.2	24.9	24.9	2.7	3.2	-0.5			
- renewable energy forms	1.1	7.2	9.6	24.3	39.7	39.7	5.3	20.2	34.5			
Transport sector												
Passenger transport activity (Gpkm)												
	82.0	80.0	80.3	94.5	103.5	121.1	-0.9	-1.8	-3.1	-0.9	-1.7	-2.5
Public road transport	19.3	18.7	18.2	16.8	16.2	15.1	0.2	0.3	0.4	1.3	1.9	2.4
Private cars and motorcycles	47.3	46.6	47.2	61.4	69.7	85.5	-1.2	-2.3	-3.4	-2.0	-3.3	-3.8
Rail	13.9	12.3	12.2	12.2	12.4	12.4	0.2	0.5	0.2	2.0	3.9	2.0
Aviation	1.6	2.4	2.7	4.1	5.2	8.1	-0.1	-0.2	-0.3	-2.4	-3.5	-4.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	34.0	27.9	35.8	47.4	52.4	59.9	-0.8	-1.3	-1.9	-1.6	-2.4	-3.0
Trucks	15.2	19.1	25.2	35.2	39.5	45.9	-1.1	-1.8	-2.4	-3.1	-4.4	-5.1
Rail	16.8	8.8	8.6	9.5	9.9	10.6	0.3	0.5	0.5	3.8	5.3	5.3
Inland navigation	2.0	0.0	2.1	2.7	3.0	3.4	0.0	0.0	0.1	0.8	1.3	1.7
Energy demand in transport (ktoe)												
	3024	3252	4175	4990	5230	5542	-211	-380	-556	-4.1	-6.8	-9.1
Public road transport	160	149	167	138	123	96	-2	-3	-6	-1.1	-2.6	-5.9
Private cars and motorcycles	1482	1824	2321	2719	2848	2942	-95	-162	-207	-3.4	-5.4	-6.6
Trucks	938	886	1297	1672	1753	1917	-107	-202	-313	-6.0	-10.3	-14.1
Rail	271	175	159	144	137	98	2	7	10	1.1	5.5	11.8
Aviation	164	219	230	316	369	488	-10	-19	-39	-3.0	-5.0	-7.5
Inland navigation	9	0	1	1	1	2	0	0	0	0.1	0.0	-0.6

Source: PRIMES

Ireland: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	3353	4020	2175	1650	1958	2387	2792	3186	3522	-4.2	-1.0	3.6	2.3
Solids	1312	1606	959	789	754	667	520	420	501	-3.1	-2.4	-3.6	-0.4
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	477	459	455	442	478	-6.5	-6.7	-0.5	0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	727	1262	1817	2324	2544	4.4	10.9	9.6	3.4
Hydro	60	61	73	54	80	81	82	83	83	2.0	1.0	0.3	0.1
Biomass & Waste	108	102	164	250	375	469	587	721	777	4.3	8.6	4.6	2.9
Wind	0	1	21	96	252	557	875	1227	1340		28.2	13.3	4.4
Solar and others	0	0	0	0	20	154	273	293	342	14.8	59.0	30.1	2.3
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.4	6.4	2.4
Net Imports	7074	7604	12234	13620	14927	14870	14439	13751	13595	5.6	2.0	-0.3	-0.6
Solids	2064	1823	1789	1969	2035	1992	1237	650	498	-1.4	1.3	-4.9	-8.7
Oil	5010	5698	7959	8466	9620	9531	9409	9222	8904	4.7	1.9	-0.2	-0.6
- Crude oil and Feedstocks	2018	2260	3002	3297	3341	3300	3253	3197	3118	4.1	1.1	-0.3	-0.4
- Oil products	2992	3438	4957	5168	6279	6232	6156	6025	5786	5.2	2.4	-0.2	-0.6
Natural gas	0	85	2478	3010	3117	2994	2973	2885	3121		2.3	-0.5	0.5
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	10225	10844	14319	15121	16766	17129	17097	16799	16976	3.4	1.6	0.2	-0.1
Solids	3416	2775	2711	2685	2789	2658	1758	1071	998	-2.3	0.3	-4.5	-5.5
Oil	4768	5571	7906	8390	9500	9403	9275	9083	8763	5.2	1.9	-0.2	-0.6
Natural gas	1873	2334	3436	3470	3594	3453	3429	3327	3599	6.3	0.5	-0.5	0.5
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	803	1529	2541	3215	3504	4.4	12.0	12.2	3.3
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	16.6	15.5	10.3	6.4	5.9				
Oil	46.6	51.4	55.2	55.5	56.7	54.9	54.2	54.1	51.6				
Natural gas	18.3	21.5	24.0	22.9	21.4	20.2	20.1	19.8	21.2				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.8	8.9	14.9	19.1	20.6				
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	27739	30222	32952	37146	40833	5.2	1.6	1.7	2.2
Self consumption and grid losses	2263	2665	3458	3870	3570	3740	3682	3846	4292	4.3	0.3	0.3	1.5
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4369	4144	3668	3344	3656	4.7	-0.9	-1.7	0.0
Solids	1839	2028	1925	1903	2191	2129	1325	716	685	0.5	1.3	-4.9	-6.4
Oil (including refinery gas)	339	622	1019	774	147	28	0	1	1	11.6	-17.6		
Gas (including derived gases)	841	1060	1825	2040	1951	1881	2039	2146	2348	8.1	0.7	0.4	1.4
Biomass & Waste	0	0	24	30	80	106	303	481	622		12.9	14.3	7.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	1939	2429	3481	3472	3557	3650	3801	3775	3718	6.0	0.2	0.7	-0.2
Refineries	1742	2263	3310	3336	3341	3300	3253	3197	3118	6.6	0.1	-0.3	-0.4
Biofuels and hydrogen production	0	0	0	1	138	291	508	553	584			13.9	1.4
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	197	167	171	135	79	59	40	25	16	-1.4	-7.5	-6.6	-8.8
Energy Branch Consumption	168	185	246	380	339	334	304	279	283	3.9	3.3	-1.1	-0.7
Non-Energy Uses	617	545	546	299	411	466	515	556	590	-1.2	-2.8	2.3	1.4
Final Energy Demand	7355	7903	10678	12346	13268	13701	13966	13958	13956	3.8	2.2	0.5	0.0
by sector													
Industry	1744	1851	2344	2484	2717	2822	2902	2969	3085	3.0	1.5	0.7	0.6
- energy intensive industries	869	879	1170	1231	1383	1470	1536	1586	1646	3.0	1.7	1.1	0.7
- other industrial sectors	875	972	1173	1253	1334	1352	1366	1383	1439	3.0	1.3	0.2	0.5
Residential	2404	2208	2509	2923	3034	3116	3131	2991	2916	0.4	1.9	0.3	-0.7
Tertiary	1222	1502	1821	1958	1906	1895	1926	1915	1884	4.1	0.5	0.1	-0.2
Transport	1985	2343	4005	4981	5611	5868	6006	6082	6071	7.3	3.4	0.7	0.1
by fuel													
Solids	1784	933	699	704	582	517	423	348	305	-9.0	-1.8	-3.2	-3.2
Oil	3874	4796	6894	7990	8612	8607	8488	8286	7995	5.9	2.3	-0.1	-0.6
Gas	568	796	1201	1337	1565	1502	1327	1124	1160	7.8	2.7	-1.6	-1.3
Electricity	1020	1277	1744	2094	2144	2350	2599	2954	3242	5.5	2.1	1.9	2.2
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			6.2	2.3
Renewable energy forms	108	102	141	221	362	724	1125	1240	1247	2.7	9.9	12.0	1.0
Other	0	0	0	0	1	1	3	3	4			18.7	2.6
RES in Gross Final Energy Consumption ^(A)			245	382	764	1456	2395	3043	3258		12.0	12.1	3.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.2	71.5	66.5	63.2	62.7	2.1	0.8	-1.2	-0.6
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.5	45.3	41.2	37.7	37.0	3.1	1.0	-1.2	-1.1
Power generation/District heating	10.4	12.6	15.2	14.8	13.8	13.0	10.1	7.9	8.3	3.9	-1.0	-3.1	-1.9
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.6	0.6	0.5	4.0	5.8	-0.3	-0.9
Industry	4.0	3.9	4.8	5.2	5.7	5.7	5.4	5.1	5.3	1.8	1.7	-0.5	-0.1
Residential	7.5	6.0	6.1	6.6	6.6	6.3	5.9	5.2	4.5	-2.1	0.9	-1.2	-2.6
Tertiary	2.9	3.4	3.8	3.6	3.5	3.0	2.7	2.2	1.9	2.8	-0.8	-2.5	-3.6
Transport	5.9	6.9	11.9	14.8	16.4	16.8	16.6	16.7	16.5	7.3	3.2	0.1	-0.1
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.7	6.2	6.7	7.2	2.1	5.5	1.9	1.4
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	20.5	19.1	18.8	18.5	0.6	-0.3	-2.1	-0.3
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	134.0	127.3	118.5	112.5	111.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.5	70.3	59.7	51.1	46.5	-3.6	-3.2	-3.2	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.78	2.64	2.41	2.24	2.18	-0.3	-0.6	-1.4	-1.0
Import Dependency %	69.1	69.4	84.5	89.5	88.4	86.2	83.8	81.2	79.4				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	14.5	15.8	17.7	18.5	19.1		3.9	2.0	0.8
as % of GDP			7.9	7.4	7.1	6.5	6.2	5.6	5.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.4	60.0	52.6	47.3	44.7	-4.0	-3.6	-2.7	-1.6
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.8	72.8	63.6	53.7	47.6	-4.7	-1.9	-2.6	-2.9
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	66.4	55.5	48.1	41.5	36.6	-2.4	-4.0	-3.2	-2.7
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.5	49.4	44.8	42.1	-0.2	-0.8	-1.8	-1.6
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	91.7	85.6	82.2	77.9	2.8	-1.5	-1.6	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.43	0.31	0.21	0.20	-1.3	-2.5	-4.7	-4.0
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.42	2.31	2.19	2.09	2.02	-1.0	-0.3	-1.0	-0.8
Industry	2.31	2.09	2.05	2.08	2.08	2.01	1.85	1.73	1.73	-1.2	0.2	-1.2	-0.7
Residential	3.11	2.71	2.42	2.27	2.19	2.02	1.88	1.73	1.56	-2.5	-1.0	-1.5	-1.9
Tertiary	2.34	2.28	2.07	1.83	1.82	1.57	1.40	1.17	0.99	-1.2	-1.3	-2.6	-3.4
Transport	2.96	2.96	2.97	2.98	2.92	2.86	2.76	2.74	2.72	0.1	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.4	16.8	21.3	22.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.9	8.6	9.4	10.1				
Gross Electricity generation by source (in GWh)													
			23669	24992	27739	30222	32952	37146	40833		1.6	1.7	2.2
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10577	10278	6384	3435	3334		1.9	-4.9	-6.3
Oil (including refinery gas)			4516	3390	641	92	0	8	8		-17.7	-63.2	74.8
Gas (including derived gases)			9231	11197	12297	11932	12970	14557	16011		2.9	0.5	2.1
Biomass-waste			96	125	357	486	1907	3143	3932		14.0	18.2	7.5
Hydro (pumping excluded)			846	631	932	944	955	966	969		1.0	0.3	0.1
Wind			244	1112	2930	6478	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	545	742	956				5.8
Net Generation Capacity in MW_e			4627	6052	8292	8113	10183	12448	13878		6.0	2.1	3.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2647	4143	5484	6098		17.3	9.4	3.9
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2379	3571	4787	5260		28.5	9.5	3.9
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	283	385	496				5.8
<u>Thermal power</u>			4284	5338	6602	5466	6040	6964	7780		4.4	-0.9	2.6
of which cogeneration units			108	561	405	584	616	573	579		14.1	4.3	-0.6
Solids fired			1282	1367	1361	1335	1314	1312	1350		0.6	-0.4	0.3
Gas fired			1974	2937	4116	3900	4263	4915	5674		7.6	0.4	2.9
Oil fired			1010	995	1006	92	64	9	9		0.0	-24.1	-18.3
Biomass-waste fired			18	39	119	138	399	729	748		20.7	12.8	6.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.1	40.6	35.7	33.3	32.8				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.3	49.9	54.4	54.8				
% of gross electricity from CHP			1.1	0.9	6.2	7.1	7.0	8.6	8.0				
Carbon free gross electricity generation (%)			5.0	7.5	15.2	26.2	41.3	51.5	52.6				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	15.2	26.2	41.3	51.5	52.6				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	62.3	70.4	77.6	82.8	5.5	3.7	2.6	1.6
Public road transport	3.9	5.2	6.1	6.7	7.3	7.6	8.1	8.4	8.8	4.7	1.8	1.1	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	36.2	40.7	44.4	46.3	5.3	4.1	2.6	1.3
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.3	4.0	4.6	1.3	5.5	3.5	3.3
Aviation	3.2	5.1	7.9	9.6	11.7	14.2	16.7	19.2	21.5	9.5	4.0	3.6	2.6
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.9	29.5	31.7	33.1	8.5	5.9	2.2	1.2
Trucks	5.1	5.5	12.3	17.9	22.6	25.8	28.2	30.2	31.5	9.2	6.3	2.2	1.1
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.5	-1.8	-3.3	1.8	1.1
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.2	9.3	2.1	2.9	2.3
Energy demand in transport (ktoe)	1985	2343	4005	4981	5611	5868	6006	6082	6071	7.3	3.4	0.7	0.1
Public road transport	58	76	99	101	98	91	88	87	90	5.5	-0.2	-1.0	0.3
Private cars and motorcycles	993	1146	1695	1915	2085	2119	2115	2024	1970	5.5	2.1	0.1	-0.7
Trucks	495	653	1532	2066	2355	2438	2490	2568	2562	12.0	4.4	0.6	0.3
Rail	48	50	42	44	51	51	39	39	27	-1.4	2.1	-2.7	-3.7
Aviation	365	390	613	836	1002	1147	1251	1339	1397	5.3	5.0	2.2	1.1
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.9

Source: PRIMES

Ireland: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2387	2792	3522	145	356	849	6.5	14.6	31.8
Solids	1312	959	789	667	520	501	-76	-208	-171	-10.3	-28.5	-25.5
Oil	0	0	0	0	0	0	0	0	0	-94.0	12060.0	-25.1
Natural gas	1873	958	461	459	455	478	-110	-120	-22	-19.3	-20.8	-4.4
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	168	258	401	1262	1817	2544	331	684	1042	35.5	60.3	69.4
Hydro	60	73	54	81	82	83	4	2	0	5.1	2.7	0.0
Biomass & Waste	108	164	250	469	587	777	0	0	-5	0.0	0.0	-0.7
Wind	0	21	96	557	875	1340	208	460	772	59.8	110.7	135.9
Solar and others	0	0	0	154	273	342	119	222	275	332.5	432.9	409.7
Geothermal	0	0	0	0	0	0	0	0	0	46.6	120.1	203.6
Net Imports	7074	12234	13620	14870	14439	13595	-1493	-2448	-3374	-9.1	-14.5	-19.9
Solids	2064	1789	1969	1992	1237	498	-302	-1414	-1651	-13.2	-53.3	-76.8
Oil	5010	7959	8466	9531	9409	8904	-672	-850	-1531	-6.6	-8.3	-14.7
- Crude oil and Feedstocks	2018	3002	3297	3300	3253	3118	-258	-301	-451	-7.3	-8.5	-12.6
- Oil products	2992	4957	5168	6232	6156	5786	-414	-549	-1080	-6.2	-8.2	-15.7
Natural gas	0	2478	3010	2994	2973	3121	-715	-782	-985	-19.3	-20.8	-24.0
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	17129	17097	16976	-1348	-2091	-2524	-7.3	-10.9	-12.9
Solids	3416	2711	2685	2658	1758	998	-378	-1622	-1822	-12.5	-48.0	-64.6
Oil	4768	7906	8390	9403	9275	8763	-672	-850	-1530	-6.7	-8.4	-14.9
Natural gas	1873	3436	3470	3453	3429	3599	-825	-902	-1007	-19.3	-20.8	-21.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1529	2541	3504	526	1282	1835	52.5	101.9	109.9
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	15.5	10.3	5.9	-0.9	-7.3	-8.6			
Oil	46.6	55.2	55.5	54.9	54.2	51.6	0.4	1.5	-1.2			
Natural gas	18.3	24.0	22.9	20.2	20.1	21.2	-3.0	-2.5	-2.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	8.9	14.9	20.6	3.5	8.3	12.1			
Gross Electricity Generation in GWh_e	14226	23669	24992	30222	32952	40833	-4012	-3792	2110	-11.7	-10.3	5.4
Self consumption and grid losses	2263	3458	3870	3740	3682	4292	-549	-897	-239	-12.8	-19.6	-5.3
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4144	3668	3656	-1042	-1711	-1383	-20.1	-31.8	-27.4
Solids	1839	1925	1903	2129	1325	685	-332	-1556	-1762	-13.5	-54.0	-72.0
Oil (including refinery gas)	339	1019	774	28	0	1	-198	-16	1	-87.7	-100.0	93379.7
Gas (including derived gases)	841	1825	2040	1881	2039	2348	-534	-340	-46	-22.1	-14.3	-1.9
Biomass & Waste	0	24	30	106	303	622	23	201	423	26.8	197.7	213.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	1939	3481	3472	3650	3801	3718	-227	-196	-396	-5.9	-4.9	-9.6
Refineries	1742	3310	3336	3300	3253	3118	-258	-301	-451	-7.3	-8.5	-12.6
Biofuels and hydrogen production	0	0	1	291	508	584	37	112	61	14.5	28.3	11.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	197	171	135	59	40	16	-6	-7	-6	-9.4	-14.7	-28.5
Energy Branch Consumption	168	246	380	334	304	283	-29	-70	-72	-8.1	-18.6	-20.2
Non-Energy Uses	617	546	299	466	515	590	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13701	13966	13956	-790	-1119	-1758	-5.5	-7.4	-11.2
by sector												
Industry	1744	2344	2484	2822	2902	3085	-67	-130	-199	-2.3	-4.3	-6.1
- energy intensive industries	869	1170	1231	1470	1536	1646	-17	-31	-49	-1.1	-2.0	-2.9
- other industrial sectors	875	1173	1253	1352	1366	1439	-50	-99	-150	-3.6	-6.7	-9.5
Residential	2404	2509	2923	3116	3131	2916	-131	-180	-426	-4.0	-5.4	-12.8
Tertiary	1222	1821	1958	1895	1926	1884	-389	-444	-594	-17.0	-18.7	-24.0
Transport	1985	4005	4981	5868	6006	6071	-202	-365	-539	-3.3	-5.7	-8.2
by fuel												
Solids	1784	699	704	517	423	305	-45	-62	-57	-7.9	-12.8	-15.7
Oil	3874	6894	7990	8607	8488	7995	-458	-815	-1476	-5.1	-8.8	-15.6
Gas	568	1201	1337	1502	1327	1160	-274	-539	-970	-15.4	-28.9	-45.5
Electricity	1020	1744	2094	2350	2599	3242	-297	-248	203	-11.2	-8.7	6.7
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	0	1	-1.2	31.3	57.8
Renewable energy forms	108	141	221	724	1125	1247	284	545	540	64.5	94.2	76.4
Other	0	0	0	1	3	4	0	0	0	8.1	5.2	-4.8
RES in Gross Final Energy Consumption ^(A)		245	382	1456	2395	3258	518	1233	1742	55.2	106.1	114.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	71.5	66.5	62.7	-7.7	-14.1	-17.5	-9.8	-17.5	-21.8
CO₂ Emissions (energy related)	30.9	42.1	45.7	45.3	41.2	37.0	-5.4	-11.1	-14.2	-10.7	-21.2	-27.7
Power generation/District heating	10.4	15.2	14.8	13.0	10.1	8.3	-3.2	-7.0	-7.1	-19.8	-41.0	-46.1
Energy Branch	0.2	0.3	0.6	0.6	0.6	0.5	0.0	-0.1	-0.1	-3.8	-9.1	-17.8
Industry	4.0	4.8	5.2	5.7	5.4	5.3	-0.3	-0.8	-1.2	-4.7	-13.3	-17.9
Residential	7.5	6.1	6.6	6.3	5.9	4.5	-0.5	-0.8	-1.9	-7.4	-11.6	-29.5
Tertiary	2.9	3.8	3.6	3.0	2.7	1.9	-0.7	-1.0	-2.0	-19.5	-26.3	-51.4
Transport	5.9	11.9	14.8	16.8	16.6	16.5	-0.7	-1.4	-1.9	-4.1	-7.9	-10.6
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.7	6.2	7.2	0.0	-0.1	-0.1	-0.8	-1.1	-1.5
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	20.5	19.1	18.5	-2.2	-3.0	-3.2	-9.9	-13.5	-14.6
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	127.3	118.5	111.6	-13.8	-25.1	-31.1			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Ireland: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	70.3	59.7	46.5	-5.5	-7.3	-6.9	-7.3	-10.9	-12.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.64	2.41	2.18	-0.10	-0.31	-0.44	-3.7	-11.5	-16.9
Import Dependency %	69.1	84.5	89.5	86.2	83.8	79.4	-1.8	-3.6	-7.0			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	15.8	17.7	19.1	0.5	1.1	1.2	3.2	6.5	6.5
as % of GDP		7.9	7.4	6.5	6.2	5.2	0.2	0.4	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	1.1	1.2						
as % of GDP				0.22	0.39	0.33						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	60.0	52.6	44.7	-1.4	-2.4	-2.9	-2.3	-4.3	-6.1
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	72.8	63.6	47.6	-3.1	-3.6	-7.0	-4.0	-5.4	-12.8
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	55.5	48.1	36.6	-11.4	-11.1	-11.5	-17.0	-18.7	-24.0
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.5	49.4	42.1	-0.9	-1.4	-1.7	-1.7	-2.7	-3.9
Freight transport (toe/Mtkm)	89.6	117.7	111.2	91.7	85.6	77.9	-2.3	-4.3	-6.6	-2.5	-4.8	-7.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.43	0.31	0.20	-0.04	-0.16	-0.19	-9.1	-34.2	-48.9
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.31	2.19	2.02	-0.03	-0.10	-0.22	-1.1	-4.4	-9.7
Industry	2.31	2.05	2.08	2.01	1.85	1.73	-0.05	-0.19	-0.25	-2.4	-9.5	-12.6
Residential	3.11	2.42	2.27	2.02	1.88	1.56	-0.07	-0.13	-0.37	-3.5	-6.5	-19.2
Tertiary	2.34	2.07	1.83	1.57	1.40	0.99	-0.05	-0.14	-0.56	-2.9	-9.3	-36.1
Transport	2.96	2.97	2.98	2.86	2.76	2.72	-0.02	-0.06	-0.07	-0.8	-2.3	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.4	16.8	22.7	4.1	9.3	13.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.9	8.6	10.1	0.8	2.3	2.0			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	30222	32952	40833	40833	-4012	-3792	2110	-11.7	-10.3	5.4
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	10278	6384	3334	3334	-1943	-8159	-10149	-15.9	-56.1	-75.3
Oil (including refinery gas)	4516	3390	92	0	8	8	-950	-55	8	-91.2	-99.9	151267.8
Gas (including derived gases)	9231	11197	11932	12970	16011	16011	-3693	-2934	-675	-23.6	-18.4	-4.0
Biomass-waste	96	125	486	1907	3932	3932	106	1441	2991	27.8	309.4	317.8
Hydro (pumping excluded)	846	631	944	955	969	969	45	25	0	5.1	2.7	0.0
Wind	244	1112	6478	10172	15585	15585	2423	5345	8979	59.8	110.7	135.9
Solar	0	0	11	18	38	38	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	545	956	956	0	545	956			
Net Generation Capacity in MW_e												
	4627	6052	8113	10183	13878	13878	-44	1180	3587	-0.5	13.1	34.9
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2647	4143	6098	6098	832	2004	3246	45.8	93.7	113.8
Hydro (pumping excluded)	223	232	239	242	242	242	0	0	0	0.0	0.0	0.0
Wind	118	480	2379	3571	5260	5260	832	1721	2749	53.8	93.1	109.5
Solar	2	2	29	48	100	100	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	283	496	496	0	283	496			
<u>Thermal power</u>	4284	5338	5466	6040	7780	7780	-876	-824	341	-13.8	-12.0	4.6
of which cogeneration units	108	561	584	616	579	579	-23	90	-331	-3.8	17.1	-36.4
Solids fired	1282	1367	1335	1314	1350	1350	-261	-460	-1125	-16.4	-26.0	-45.5
Gas fired	1974	2937	3900	4263	5674	5674	-638	-619	841	-14.1	-12.7	17.4
Oil fired	1010	995	92	64	9	9	0	-17	2	0.0	-20.7	21.4
Biomass-waste fired	18	39	138	399	748	748	22	272	624	19.4	214.2	503.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	40.6	35.7	32.8	32.8	-5.0	-8.7	-8.5			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.3	49.9	54.8	54.8	-1.2	0.3	1.7			
% of gross electricity from CHP	1.1	0.9	7.1	7.0	8.0	8.0	-0.1	-0.8	0.1			
Carbon free gross electricity generation (%)	5.0	7.5	26.2	41.3	52.6	52.6	10.6	24.3	30.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	26.2	41.3	52.6	52.6	10.6	24.3	30.5			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	62.3	70.4	82.8	-0.7	-1.3	-1.9	-1.1	-1.8	-2.3
Public road transport	3.9	6.1	6.7	7.6	8.1	8.8	0.1	0.2	0.3	1.8	2.6	3.0
Private cars and motorcycles	12.6	21.1	26.0	36.2	40.7	46.3	-0.6	-1.1	-1.6	-1.6	-2.7	-3.3
Rail	1.2	1.4	1.8	2.8	3.3	4.6	0.1	0.1	0.1	1.9	2.8	3.0
Aviation	3.2	7.9	9.6	14.2	16.7	21.5	-0.3	-0.5	-0.7	-1.9	-2.8	-3.3
Inland navigation	1.1	1.1	1.2	1.4	1.5	1.7	0.0	0.0	0.0	-0.3	0.1	0.2
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.9	29.5	33.1	-0.5	-0.8	-1.1	-1.7	-2.7	-3.2
Trucks	5.1	12.3	17.9	25.8	28.2	31.5	-0.5	-0.9	-1.2	-1.9	-3.0	-3.6
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.0	5.2	6.7	7.6
Inland navigation	0.2	0.6	0.6	0.8	0.9	1.2	0.0	0.0	0.0	2.3	3.3	3.9
Energy demand in transport (ktoe)												
	1985	4005	4981	5868	6006	6071	-202	-365	-539	-3.3	-5.7	-8.2
Public road transport	58	99	101	91	88	90	-1	-2	-5	-0.6	-2.0	-4.8
Private cars and motorcycles	993	1695	1915	2119	2115	1970	-66	-108	-132	-3.0	-4.9	-6.3
Trucks	495	1532	2066	2438	2490	2562	-108	-201	-312	-4.2	-7.5	-10.9
Rail	48	42	44	51	39	27	1	0	-1	1.4	0.4	-2.1
Aviation	365	613	836	1147	1251	1397	-29	-54	-90	-2.5	-4.1	-6.1
Inland navigation	26	25	18	22	24	26	0	0	0	-0.1	-0.1	-0.7

Source: PRIMES

Italy: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	25537	29408	27099	28044	31001	33713	36119	38835	41283	0.6	1.4	1.5	1.3	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5930	6120	6000	5800	5500	0.1	2.2	0.1	-0.9	
Natural gas	14030	16347	13622	9886	10687	10000	8000	8000	8000	-0.3	-2.4	-2.9	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14384	17593	22119	25035	27783	2.9	5.2	4.4	2.3	
Hydro	2719	3249	3812	3101	3243	3209	3192	3181	3181	3.4	-1.6	-0.2	0.0	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	10002	11209	7.3	11.8	4.6	3.2	
Wind	0	1	48	202	464	858	1522	2082	2453	73.3	25.4	12.6	4.9	
Solar and others	5	8	12	23	124	1567	3725	4196	5218	9.2	26.0	40.5	3.4	
Geothermal	2971	3167	3103	4791	5296	5388	5465	5574	5722	0.4	5.5	0.3	0.5	
Net Imports	132060	134651	152953	160475	163624	169461	173388	176192	175552	1.5	0.7	0.6	0.1	
Solids	13792	12987	13188	16366	16942	17538	17390	17835	17555	-0.4	2.5	0.3	0.1	
Oil	89885	89684	88458	79421	75844	78437	75368	76063	73653	-0.2	-1.5	-0.1	-0.2	
- Crude oil and Feedstocks	84284	82558	90244	94404	90576	93499	91711	92463	91150	0.7	0.0	0.1	-0.1	
- Oil products	5602	7126	-1786	-14983	-14732	-15062	-16344	-16400	-17497					
Natural gas	25311	28530	47008	59840	65686	67084	70858	71350	72546	6.4	3.4	0.8	0.2	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	191086	199532	205834	211332	213142	1.2	1.0	0.7	0.3	
Solids	14621	12272	12659	16477	16942	17538	17390	17835	17555	-1.4	3.0	0.3	0.1	
Oil	89860	93248	88947	83169	78235	80914	77694	78169	75460	-0.1	-1.3	-0.1	-0.3	
Natural gas	39001	44652	57940	70651	76373	77084	78858	79350	80546	4.0	2.8	0.3	0.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	15744	20047	28034	32238	35855	3.3	5.5	5.9	2.5	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.9	8.8	8.4	8.4	8.2					
Oil	58.7	57.8	51.6	44.5	40.9	40.6	37.7	37.0	35.4					
Natural gas	25.5	27.7	33.6	37.8	40.0	38.6	38.3	37.5	37.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	8.2	10.0	13.6	15.3	16.8					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	314826	346398	376446	412328	437924	2.4	1.5	1.8	1.5	
Self consumption and grid losses	30076	32312	36552	38396	33346	37570	40688	45206	47417	2.0	-0.9	2.0	1.5	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	48994	52417	54405	58534	58629	1.7	0.3	1.1	0.8	
Solids	7017	5287	5836	10001	10139	10514	10435	11013	10965	-1.8	5.7	0.3	0.5	
Oil (including refinery gas)	21528	25009	18955	9642	2751	3940	1394	2052	503	-1.3	-17.6	-6.6	-9.7	
Gas (including derived gases)	8971	10234	19665	26402	29474	30014	31132	30545	30037	8.2	4.1	0.5	-0.4	
Biomass & Waste	39	94	419	2270	1532	2758	6183	9556	11584	26.8	13.9	15.0	6.5	
Geothermal heat	2770	2954	2890	4578	5098	5190	5261	5369	5540	0.4	5.8	0.3	0.5	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	105814	110153	110160	110938	109370	0.3	0.3	0.4	-0.1	
Refineries	91545	92283	96749	102214	98618	101777	99888	100354	98665	0.6	0.2	0.1	-0.1	
Biofuels and hydrogen production	0	0	0	162	1945	2996	4960	5467	5883			9.8	1.7	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5251	5380	5311	5117	4822	-2.8	-1.0	0.1	-1.0	
Energy Branch Consumption	7045	7362	7289	8620	7881	8036	8016	8093	7956	0.3	0.8	0.2	-0.1	
Non-Energy Uses	9896	13633	10838	11007	11298	11878	12339	12428	12412	0.9	0.4	0.9	0.1	
Final Energy Demand	107160	113709	123254	134080	142222	148392	153412	156599	159365	1.4	1.4	0.8	0.4	
by sector														
Industry	36221	36430	39489	40729	43399	44692	45637	46768	48112	0.9	0.9	0.5	0.5	
- energy intensive industries	25218	24737	24840	25798	27435	28314	28731	29059	29462	-0.2	1.0	0.5	0.3	
- other industrial sectors	11002	11692	14648	14931	15964	16378	16906	17709	18650	2.9	0.9	0.6	1.0	
Residential	26284	26673	28331	31849	34136	35856	37643	38214	38598	0.8	1.9	1.0	0.3	
Tertiary	11252	12970	14171	17898	18777	19837	20744	21144	21324	2.3	2.9	1.0	0.3	
Transport	33404	37636	41263	43604	45910	48008	49387	50473	51331	2.1	1.1	0.7	0.4	
by fuel														
Solids	4209	4012	3681	4220	4695	4905	4866	4780	4664	-1.3	2.5	0.4	-0.4	
Oil	53623	53099	56147	58196	60054	60948	60025	59964	59020	0.5	0.7	0.0	-0.2	
Gas	29813	34652	37984	43747	45053	45219	45763	46702	48273	2.5	1.7	0.2	0.5	
Electricity	18408	20442	23435	25828	27364	29859	32076	34657	36659	2.4	1.6	1.6	1.3	
Heat (from CHP and District Heating)	0	0	0	0	12	13	15	15	16			1.9	1.0	
Renewable energy forms	1107	1505	2007	2089	5041	7443	10656	10468	10719	6.1	9.6	7.8	0.1	
Other	0	0	0	0	3	6	11	12	13			14.2	1.8	
RES in Gross Final Energy Consumption ^(A)			6472	7301	10429	14745	21862	25420	28490		4.9	7.7	2.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	573.3	576.8	565.7	569.6	562.7	0.7	0.5	-0.1	-0.1	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	446.1	456.7	448.5	452.6	445.9	0.9	0.6	0.1	-0.1	
Power generation/District heating	118.9	126.1	130.7	133.8	119.6	126.2	120.3	123.2	116.7	1.0	-0.9	0.1	-0.3	
Energy Branch	16.6	17.0	16.6	20.2	18.2	18.3	18.0	17.6	17.2	0.1	0.9	-0.2	-0.4	
Industry	79.6	75.4	77.5	81.6	85.9	87.6	88.2	89.3	89.8	-0.3	1.0	0.3	0.2	
Residential	55.6	52.8	54.7	61.3	64.9	65.6	64.7	64.3	63.7	-0.2	1.7	0.0	-0.2	
Tertiary	19.1	21.2	22.0	27.2	27.9	25.9	25.1	24.4	23.8	1.4	2.4	-1.0	-0.5	
Transport	97.1	108.9	119.7	126.8	129.5	133.1	132.2	133.8	134.7	2.1	0.8	0.2	0.2	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.6	38.4	39.0	39.8	40.6	-1.6	2.2	0.4	0.4	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	81.7	78.2	77.1	76.2	0.8	-0.2	-1.3	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	113.0	113.7	111.5	112.3	110.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: Cost Efficiency with JI/CDM Scenario						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
											Annual % Change		
Main Energy System Indicators													
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	124.0	117.1	110.4	104.4	98.3	-0.4	-0.1	-1.2	-1.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.33	2.29	2.18	2.14	2.09	-0.3	-0.4	-0.7	-0.4
Import Dependency %	84.8	82.3	87.3	84.4	84.1	83.4	82.8	81.9	81.0				
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	171.0	193.2	217.2	233.0	245.4		2.3	2.4	1.2
as % of GDP			9.9	10.3	11.1	11.3	11.6	11.5	11.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.8	100.0	92.7	86.4	82.3	-0.3	0.8	-1.5	-1.2
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.6	103.9	100.3	94.2	89.2	-0.9	0.8	-0.8	-1.2
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.9	110.5	105.5	99.0	93.2	0.4	1.5	-0.9	-1.2
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	31.1	31.4	31.0	30.9	-0.5	-0.1	0.2	-0.2
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	54.1	52.7	52.5	52.0	-1.1	1.5	-0.4	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.38	0.36	0.32	0.30	0.27	-1.4	-2.4	-1.7	-1.8
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.17	2.10	2.02	1.99	1.96	-0.5	-0.2	-0.7	-0.3
Industry	2.20	2.07	1.96	2.00	1.98	1.96	1.93	1.91	1.87	-1.1	0.1	-0.2	-0.3
Residential	2.11	1.98	1.93	1.93	1.90	1.83	1.72	1.68	1.65	-0.9	-0.1	-1.0	-0.4
Tertiary	1.70	1.63	1.55	1.52	1.49	1.30	1.21	1.15	1.12	-0.9	-0.4	-2.0	-0.8
Transport	2.91	2.89	2.90	2.91	2.82	2.77	2.68	2.65	2.62	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	7.2	9.7	13.9	15.8	17.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	6.1	9.9	10.9	11.6				
Gross Electricity generation by source (in GWh)													
			270016	296786	314826	346398	376446	412328	437924		1.5	1.8	1.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			25679	45155	48870	55161	54807	60194	60015		6.6	1.2	0.9
Oil (including refinery gas)			82354	43300	13085	19222	6633	10236	2791		-16.8	-6.6	-8.3
Gas (including derived gases)			109707	154992	194937	202919	220087	222886	234987		5.9	1.2	0.7
Biomass-waste			2685	7485	6438	12940	28005	42458	51170		9.1	15.8	6.2
Hydro (pumping excluded)			44328	36061	37714	37309	37118	36987	36985		-1.6	-0.2	0.0
Wind			563	2344	5398	9980	17701	24212	28526		25.4	12.6	4.9
Solar			18	31	84	378	3417	6548	14747		16.6	44.9	15.7
Geothermal and other renewables			4682	7417	8301	8489	8678	8807	8703		5.9	0.4	0.0
Net Generation Capacity in MW_e			69851	76966	100394	93047	98508	104243	121094		3.7	-0.2	2.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			14588	15810	17281	19988	25971	33255	42218		1.7	4.2	5.0
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0
Wind			427	1639	3052	5468	9386	14550	18004		21.7	11.9	6.7
Solar			26	38	93	344	2353	4471	9925		13.6	38.2	15.5
Other renewables (tidal etc.)			0	0	0	38	93	95	150				4.9
<u>Thermal power</u>			55264	61156	83113	73059	72537	70988	78876		4.2	-1.4	0.8
of which cogeneration units			9682	10847	11307	12420	14562	16075	17022		1.6	2.6	1.6
Solids fired			9621	9715	11851	9662	9361	8623	8602		2.1	-2.3	-0.8
Gas fired			27466	33995	53572	51252	50303	48561	57302		6.9	-0.6	1.3
Oil fired			16795	15253	15327	7906	5868	3894	1162		-0.9	-9.2	-15.0
Biomass-waste fired			597	1223	1392	3253	6002	8884	10718		8.8	15.7	6.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			785	971	971	987	1002	1026	1092		2.1	0.3	0.9
Avg. Load factor of net power capacity (%)			41.7	41.7	34.6	41.0	42.1	43.5	39.8				
Efficiency of gross thermal power generation (%)			40.5	42.0	47.7	49.0	50.3	50.6	52.4				
% of gross electricity from CHP			11.6	8.1	17.6	19.6	23.1	23.3	23.3				
Carbon free gross electricity generation (%)			19.4	18.0	18.4	19.9	25.2	28.9	32.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			19.4	18.0	18.4	19.9	25.2	28.9	32.0				
Transport sector													
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	1027.2	1059.0	1092.6	1120.7	3.0	0.3	0.6	0.6
Public road transport	84.0	87.1	93.6	101.3	107.1	110.2	113.2	114.7	115.2	1.1	1.4	0.6	0.2
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	796.4	812.3	831.6	848.0	3.3	0.0	0.4	0.4
Rail	48.9	49.1	52.7	52.3	51.8	52.6	55.5	59.8	64.0	0.8	-0.2	0.7	1.4
Aviation	21.3	27.9	38.2	43.1	51.3	62.1	72.0	80.3	87.3	6.0	3.0	3.5	2.0
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.9	6.0	6.1	6.2	-0.8	-0.1	0.3	0.4
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	296.9	306.6	315.7	321.1	2.5	1.6	1.0	0.5
Trucks	130.9	174.4	184.7	211.8	229.4	245.2	251.8	258.1	261.0	3.5	2.2	0.9	0.4
Rail	19.4	21.7	22.8	20.1	21.3	23.2	25.1	27.1	28.8	1.7	-0.7	1.6	1.4
Inland navigation	35.8	35.4	30.2	28.1	28.2	28.5	29.8	30.6	31.3	-1.7	-0.7	0.5	0.5
Energy demand in transport (ktoe)	33404	37636	41263	43604	45910	48008	49387	50473	51331	2.1	1.1	0.7	0.4
Public road transport	684	599	656	701	752	770	777	763	737	-0.4	1.4	0.3	-0.5
Private cars and motorcycles	20584	23615	25521	24557	25005	25564	26263	26385	26772	2.2	-0.2	0.5	0.2
Trucks	9137	9737	10559	13327	14505	15286	15346	15754	15884	1.5	3.2	0.6	0.3
Rail	738	819	834	907	920	915	912	934	942	1.2	1.0	-0.1	0.3
Aviation	1872	2418	3491	3863	4481	5226	5838	6383	6741	6.4	2.5	2.7	1.4
Inland navigation	389	448	202	248	247	247	251	254	255	-6.3	2.0	0.2	0.2

Source: PRIMES

Italy: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	33713	36119	41283	1666	4281	6923	5.2	13.4	20.1
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	6120	6000	5500	-227	0	0	-3.6	0.0	0.0
Natural gas	14030	13622	9886	10000	8000	8000	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	17593	22119	27783	1893	4281	6923	12.1	24.0	33.2
Hydro	2719	3812	3101	3209	3192	3181	62	92	112	2.0	3.0	3.7
Biomass & Waste	849	1716	3505	6571	8214	11209	356	610	1567	5.7	8.0	16.2
Wind	0	48	202	858	1522	2453	0	323	1273	0.0	27.0	107.8
Solar and others	5	12	23	1567	3725	5218	1022	2780	3898	187.3	294.2	295.1
Geothermal	2971	3103	4791	5388	5465	5722	453	475	73	9.2	9.5	1.3
Net Imports	132060	152953	160475	169461	173388	175552	-12656	-19625	-25376	-6.9	-10.2	-12.6
Solids	13792	13188	16366	17538	17390	17555	-2271	-3353	-3603	-11.5	-16.2	-17.0
Oil	89885	88458	79421	78437	75368	73653	-5923	-10824	-12659	-7.0	-12.6	-14.7
- Crude oil and Feedstocks	84284	90244	94404	93499	91711	91150	-3540	-7279	-8254	-3.6	-7.4	-8.3
- Oil products	5602	-1786	-14983	-15062	-16344	-17497	-2383	-3545	-4405	18.8	27.7	33.6
Natural gas	25311	47008	59840	67084	70858	72546	-5813	-10016	-15478	-8.0	-12.4	-14.6
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	199532	205834	213142	-10988	-15338	-18442	-5.2	-6.9	-8.0
Solids	14621	12659	16477	17538	17390	17555	-2271	-3353	-3603	-11.5	-16.2	-17.0
Oil	89860	88947	83169	80914	77694	75460	-6148	-10817	-12648	-7.1	-12.2	-14.4
Natural gas	39001	57940	70651	77084	78858	80546	-5813	-10016	-15478	-7.0	-11.3	-16.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	20047	28034	35855	3245	8849	13287	19.3	46.1	58.9
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	8.8	8.4	8.2	-0.6	-0.9	-0.9			
Oil	58.7	51.6	44.5	40.6	37.7	35.4	-0.8	-2.3	-2.6			
Natural gas	25.5	33.6	37.8	38.6	38.3	37.8	-0.7	-1.9	-3.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	10.0	13.6	16.8	2.1	4.9	7.1			
Gross Electricity Generation in GWh_e	213400	270016	296786	346398	376446	437924	-47002	-61312	-58276	-11.9	-14.0	-11.7
Self consumption and grid losses	30076	36552	38396	37570	40688	47417	-5004	-6504	-5769	-11.8	-13.8	-10.8
Fuel Inputs to Thermal Power Generation	40325	47764	52894	52417	54405	58629	-7729	-11041	-12131	-12.9	-16.9	-17.1
Solids	7017	5836	10001	10514	10435	10965	-2467	-3244	-3348	-19.0	-23.7	-23.4
Oil (including refinery gas)	21528	18955	9642	3940	1394	503	-2936	-4825	-4575	-42.7	-77.6	-90.1
Gas (including derived gases)	8971	19665	26402	30014	31132	30037	-2820	-6460	-11424	-8.6	-17.2	-27.6
Biomass & Waste	39	419	2270	2758	6183	11584	66	3068	7216	2.4	98.5	165.2
Geothermal heat	2770	2890	4578	5190	5261	5540	427	420	0	9.0	8.7	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	110153	110160	109370	-2926	-5957	-7442	-2.6	-5.1	-6.4
Refineries	91545	96749	102214	101777	99888	98665	-3777	-7292	-8267	-3.6	-6.8	-7.7
Biofuels and hydrogen production	0	0	162	2996	4960	5883	349	1047	607	13.2	26.7	11.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5380	5311	4822	502	287	217	10.3	5.7	4.7
Energy Branch Consumption	7045	7289	8620	8036	8016	7956	-417	-656	-727	-4.9	-7.6	-8.4
Non-Energy Uses	9896	10838	11007	11878	12339	12412	-38	-47	-53	-0.3	-0.4	-0.4
Final Energy Demand	107160	123254	134080	148392	153412	159365	-6682	-9219	-12608	-4.3	-5.7	-7.3
by sector												
Industry	36221	39489	40729	44692	45637	48112	-209	-1108	-2148	-0.5	-2.4	-4.3
- energy intensive industries	25218	24840	25798	28314	28731	29462	255	-365	-1085	0.9	-1.3	-3.6
- other industrial sectors	11002	14648	14931	16378	16906	18650	-464	-743	-1063	-2.8	-4.2	-5.4
Residential	26284	28331	31849	35856	37643	38598	-1493	-1147	-1200	-4.0	-3.0	-3.0
Tertiary	11252	14171	17898	19837	20744	21324	-3095	-3702	-4519	-13.5	-15.1	-17.5
Transport	33404	41263	43604	48008	49387	51331	-1885	-3262	-4741	-3.8	-6.2	-8.5
by fuel												
Solids	4209	3681	4220	4905	4866	4664	208	-64	-206	4.4	-1.3	-4.2
Oil	53623	56147	58196	60948	60025	59020	-2984	-5605	-7564	-4.7	-8.5	-11.4
Gas	29813	37984	43747	45219	45763	48273	-2915	-3368	-3798	-6.1	-6.9	-7.3
Electricity	18408	23435	25828	29859	32076	36659	-3602	-4691	-4481	-10.8	-12.8	-10.9
Heat (from CHP and District Heating)	0	0	0	13	15	16	-10	-10	-10	-42.6	-41.2	-39.3
Renewable energy forms	1107	2007	2089	7443	10656	10719	2620	4519	3458	54.3	73.6	47.6
Other	0	0	0	6	11	13	0	1	-7	6.8	5.4	-34.6
RES in Gross Final Energy Consumption ^(A)		6472	7301	14745	21862	28490	2988	8236	12621	25.4	60.4	79.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	576.8	565.7	562.7	-47.5	-79.0	-98.6	-7.6	-12.3	-14.9
CO₂ Emissions (energy related)	386.9	421.3	451.0	456.7	448.5	445.9	-41.4	-70.0	-89.3	-8.3	-13.5	-16.7
Power generation/District heating	118.9	130.7	133.8	126.2	120.3	116.7	-25.7	-43.4	-54.6	-16.9	-26.5	-31.9
Energy Branch	16.6	16.6	20.2	18.3	18.0	17.2	-0.9	-1.6	-1.9	-4.7	-8.0	-10.2
Industry	79.6	77.5	81.6	87.6	88.2	89.8	0.6	-1.1	-2.8	0.7	-1.2	-3.0
Residential	55.6	54.7	61.3	65.6	64.7	63.7	-4.6	-6.7	-8.0	-6.5	-9.3	-11.2
Tertiary	19.1	22.0	27.2	25.9	25.1	23.8	-4.2	-4.7	-5.0	-14.1	-15.7	-17.5
Transport	97.1	119.7	126.8	133.1	132.2	134.7	-6.6	-12.7	-16.9	-4.7	-8.8	-11.2
CO₂ Emissions (non energy related)	35.5	30.2	36.1	38.4	39.0	40.6	0.0	-0.6	-0.7	-0.1	-1.4	-1.6
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	81.7	78.2	76.2	-6.1	-8.4	-8.6	-6.9	-9.7	-10.1
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	113.7	111.5	110.9	-9.4	-15.6	-19.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	117.1	110.4	98.3	-6.4	-8.2	-8.5	-5.2	-6.9	-8.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.29	2.18	2.09	-0.08	-0.17	-0.22	-3.3	-7.1	-9.5
Import Dependency %	84.8	87.3	84.4	83.4	82.8	81.0	-1.6	-3.1	-4.4			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	193.2	217.2	245.4	3.9	6.7	10.8	2.1	3.2	4.6
as % of GDP		9.9	10.3	11.3	11.6	11.3	0.2	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				4.0	6.9	11.0						
as % of GDP				0.24	0.37	0.51						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	100.0	92.7	82.3	-0.5	-2.3	-3.7	-0.5	-2.4	-4.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	103.9	100.3	89.2	-4.3	-3.1	-2.8	-4.0	-3.0	-3.0
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	110.5	105.5	93.2	-17.2	-18.8	-19.7	-13.5	-15.1	-17.5
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	31.1	31.4	30.9	-0.6	-0.9	-1.4	-1.8	-2.8	-4.3
Freight transport (toe/Mtkm)	53.0	47.3	54.0	54.1	52.7	52.0	-2.2	-4.0	-5.5	-3.8	-7.1	-9.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.36	0.32	0.27	-0.02	-0.05	-0.08	-5.6	-14.5	-22.8
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.10	2.02	1.96	0.00	-0.04	-0.05	-0.2	-1.9	-2.4
Industry	2.20	1.96	2.00	1.96	1.93	1.87	0.02	0.02	0.02	1.2	1.2	1.3
Residential	2.11	1.93	1.93	1.83	1.72	1.65	-0.05	-0.12	-0.15	-2.6	-6.6	-8.4
Tertiary	1.70	1.55	1.52	1.30	1.21	1.12	-0.01	-0.01	0.00	-0.7	-0.6	0.0
Transport	2.91	2.90	2.91	2.77	2.68	2.62	-0.03	-0.08	-0.08	-1.0	-2.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	9.7	13.9	17.4	2.3	5.8	8.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	6.1	9.9	11.6	0.9	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
Total	270016	296786	346398	376446	437924	47002	-61312	-58276	-11.9	-14.0	-11.7	
Nuclear energy	0	0	0	0	0	0	0	0				
Solids	25679	45155	55161	54807	60015	-10903	-14845	-18721	-16.5	-21.3	-23.8	
Oil (including refinery gas)	82354	43300	19222	6633	2791	-14702	-23478	-27026	-43.3	-78.0	-90.6	
Gas (including derived gases)	109707	154992	202919	220087	234987	-23155	-44557	-70932	-10.2	-16.8	-23.2	
Biomass-waste	2685	7485	12940	28005	51170	299	13391	29318	2.4	91.6	134.2	
Hydro (pumping excluded)	44328	36061	37309	37118	36985	726	1070	1307	2.0	3.0	3.7	
Wind	563	2344	9980	17701	28526	0	3759	14801	0.0	27.0	107.8	
Solar	18	31	378	3417	14747	0	2609	12834	0.0	322.9	671.0	
Geothermal and other renewables	4682	7417	8489	8678	8703	733	740	143	9.5	9.3	1.7	
Net Generation Capacity in MW_e	69851	76966	93047	98508	121094	-5448	-5246	2632	-5.5	-5.1	2.2	
Nuclear energy	0	0	0	0	0	0	0	0				
Renewable energy	14588	15810	19988	25971	42218	-14	3637	19072	-0.1	16.3	82.4	
Hydro (pumping excluded)	14135	14133	14138	14139	14139	0	0	0	0.0	0.0	0.0	
Wind	427	1639	5468	9386	18004	-52	1917	10794	-0.9	25.7	149.7	
Solar	26	38	344	2353	9925	0	1656	8204	0.0	237.6	476.8	
Other renewables (tidal etc.)	0	0	38	93	150	38	63	74		211.5	97.5	
Thermal power	55264	61156	73059	72537	78876	-5434	-8883	-16440	-6.9	-10.9	-17.2	
of which cogeneration units	9682	10847	12420	14562	17022	-2493	-2823	-1731	-16.7	-16.2	-9.2	
Solids fired	9621	9715	9662	9361	8602	-269	-533	-1215	-2.7	-5.4	-12.4	
Gas fired	27466	33995	51252	50303	57302	-5661	-11487	-17627	-9.9	-18.6	-23.5	
Oil fired	16795	15253	7906	5868	1162	16	16	-4771	0.2	0.3	-80.4	
Biomass-waste fired	597	1223	3253	6002	10718	464	3090	7185	16.6	106.1	203.4	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	785	971	987	1002	1092	16	32	-13	1.7	3.3	-1.2	
Avg. Load factor of net power capacity (%)	41.7	41.7	41.0	42.1	39.8	-3.0	-4.4	-6.4				
Efficiency of gross thermal power generation (%)	40.5	42.0	49.0	50.3	52.4	-0.5	-0.6	-1.6				
% of gross electricity from CHP	11.6	8.1	19.6	23.1	23.3	-1.1	-0.3	0.0				
Carbon free gross electricity generation (%)	19.4	18.0	19.9	25.2	32.0	2.8	8.5	15.5				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	19.4	18.0	19.9	25.2	32.0	2.8	8.5	15.5				
Transport sector												
Passenger transport activity (Gpkm)	722.2	969.5	980.5	1027.2	1059.0	1120.7	-11.2	-19.3	-25.5	-1.1	-1.8	-2.2
Public road transport	84.0	93.6	101.3	110.2	113.2	115.2	1.9	2.8	3.4	1.8	2.6	3.0
Private cars and motorcycles	561.6	779.1	777.9	796.4	812.3	848.0	-12.4	-20.5	-26.5	-1.5	-2.5	-3.0
Rail	48.9	52.7	52.3	52.6	55.5	64.0	0.6	0.6	0.7	1.1	1.1	1.1
Aviation	21.3	38.2	43.1	62.1	72.0	87.3	-1.3	-2.2	-3.1	-2.1	-3.0	-3.4
Inland navigation	6.4	5.9	5.8	5.9	6.0	6.2	0.0	0.0	0.0	-0.6	-0.4	-0.3
Freight transport activity (Gtkm)	186.1	237.6	260.0	296.9	306.6	321.1	-5.2	-8.0	-9.9	-1.7	-2.5	-3.0
Trucks	130.9	184.7	211.8	245.2	251.8	261.0	-6.4	-9.7	-12.1	-2.6	-3.7	-4.4
Rail	19.4	22.8	20.1	23.2	25.1	28.8	0.9	1.2	1.5	3.9	4.9	5.4
Inland navigation	35.8	30.2	28.1	28.5	29.8	31.3	0.4	0.6	0.7	1.3	2.0	2.4
Energy demand in transport (ktoe)	33404	41263	43604	48008	49387	51331	-1885	-3262	-4741	-3.8	-6.2	-8.5
Public road transport	684	656	701	770	777	737	-6	-20	-40	-0.8	-2.5	-5.2
Private cars and motorcycles	20584	25521	24557	25564	26263	26772	-792	-1267	-1770	-3.0	-4.6	-6.2
Trucks	9137	10559	13327	15286	15346	15884	-939	-1714	-2437	-5.8	-10.0	-13.3
Rail	738	834	907	915	912	942	-6	14	74	-0.6	1.5	8.6
Aviation	1872	3491	3863	5226	5838	6741	-142	-274	-565	-2.6	-4.5	-7.7
Inland navigation	389	202	248	247	251	255	-1	-1	-3	-0.2	-0.4	-1.2

Source: PRIMES

Latvia: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	1245	1639	1576	2304	2840	3452	4533	5164	5473	2.4	6.1	4.8	1.9
Solids	182	234	49	6	4	3	0	0	0	-12.3	-22.6		
Oil	1	0	0	7	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1062	1405	1527	2291	2836	3449	4533	5164	5473	3.7	6.4	4.8	1.9
Hydro	387	253	242	286	262	256	262	262	261	-4.6	0.8	0.0	0.0
Biomass & Waste	675	1153	1284	2001	2543	3112	4148	4731	5010	6.6	7.1	5.0	1.9
Wind	0	0	0	4	30	76	112	157	181		56.5	14.0	4.9
Solar and others	0	0	0	0	1	6	11	15	21			22.7	6.9
Geothermal	0	0	0	0	0	0	0	0	0			14.6	1.2
Net Imports	7440	3358	2253	2783	2834	3010	2527	2319	2365	-11.3	2.3	-1.1	-0.7
Solids	627	170	62	76	76	64	65	69	71	-20.7	2.1	-1.5	0.9
Oil	3944	2086	1096	1662	1968	2259	2289	2400	2433	-12.0	6.0	1.5	0.6
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.6	2.1	0.4
- Oil products	3942	2084	1003	1658	1967	2257	2287	2398	2431	-12.8	7.0	1.5	0.6
Natural gas	2561	999	1113	1434	1347	1397	1137	897	986	-8.0	1.9	-1.7	-1.4
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Gross Inland Consumption	8059	4854	4007	4720	5349	6069	6610	6984	7302	-6.7	2.9	2.1	1.0
Solids	867	456	252	83	80	68	65	69	71	-11.6	-10.9	-2.0	0.9
Oil	3458	1885	1155	1376	1643	1867	1839	1900	1898	-10.4	3.6	1.1	0.3
Natural gas	2380	1010	1092	1358	1347	1397	1137	897	986	-7.5	2.1	-1.7	-1.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Renewable energy forms	1045	1309	1354	1718	2108	2557	3345	3809	4037	2.6	4.5	4.7	1.9
as % in Gross Inland Consumption													
Solids	10.8	9.4	6.3	1.8	1.5	1.1	1.0	1.0	1.0				
Oil	42.9	38.8	28.8	29.2	30.7	30.8	27.8	27.2	26.0				
Natural gas	29.5	20.8	27.3	28.8	25.2	23.0	17.2	12.8	13.5				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	13.0	27.0	33.8	36.4	39.4	42.1	50.6	54.5	55.3				
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6320	7759	8971	9916	11445	-4.6	4.3	3.6	2.5
Self consumption and grid losses	1248	732	720	783	476	569	702	891	1064	-5.4	-4.0	4.0	4.3
Fuel Inputs to Thermal Power Generation	926	722	607	591	555	742	874	998	1220	-4.1	-0.9	4.6	3.4
Solids	59	194	142	0	0	0	0	0	0	9.2			
Oil (including refinery gas)	177	242	77	13	0	23	0	0	0	-8.0			
Gas (including derived gases)	690	286	388	541	500	637	432	120	152	-5.6	2.6	-1.5	-9.9
Biomass & Waste	0	0	0	37	55	81	443	878	1068			23.2	9.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	2601	941	645	591	666	699	777	748	759	-13.0	0.3	1.6	-0.2
Refineries	1	1	1	1	1	2	2	2	2	0.0	1.9	2.1	0.4
Biofuels and hydrogen production	0	0	0	3	51	87	160	189	207			12.1	2.6
District heating	2573	930	643	587	614	610	616	558	550	-12.9	-0.5	0.0	-1.1
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3			
Energy Branch Consumption	130	149	151	102	100	109	113	121	129	1.5	-4.0	1.2	1.4
Non-Energy Uses	77	46	77	91	102	113	124	134	138	0.1	2.8	1.9	1.1
Final Energy Demand	6445	3880	3332	4046	4794	5390	5877	6284	6502	-6.4	3.7	2.1	1.0
by sector													
Industry	1972	701	614	827	1129	1331	1505	1710	1861	-11.0	6.3	2.9	2.1
- energy intensive industries	707	305	219	282	452	531	561	592	611	-11.1	7.5	2.2	0.9
- other industrial sectors	1265	396	396	545	678	799	944	1118	1250	-11.0	5.5	3.4	2.8
Residential	1632	1663	1368	1476	1549	1618	1731	1794	1824	-1.7	1.3	1.1	0.5
Tertiary	1747	804	606	744	860	965	1026	1066	1068	-10.0	3.6	1.8	0.4
Transport	1094	712	744	999	1255	1476	1616	1713	1750	-3.8	5.4	2.6	0.8
by fuel													
Solids	330	126	58	73	75	63	64	69	71	-16.0	2.6	-1.5	0.9
Oil	2047	1119	1003	1220	1434	1629	1708	1759	1753	-6.9	3.6	1.8	0.3
Gas	672	366	329	508	569	661	688	763	809	-6.9	5.6	1.9	1.6
Electricity	768	470	443	537	672	797	933	1082	1200	-5.3	4.2	3.3	2.5
Heat (from CHP and District Heating)	2013	905	590	598	548	546	599	689	718	-11.5	-0.7	0.9	1.8
Renewable energy forms	616	894	909	1111	1495	1693	1884	1921	1951	4.0	5.1	2.3	0.4
Other	0	0	0	0	0	0	1	1	1			18.4	4.6
RES in Gross Final Energy Consumption ^(A)			1305	1787	2026	2421	3108	3512	3679		4.5	4.4	1.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	12.9	13.6	13.2	12.2	12.1	-9.3	2.4	0.2	-0.8
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.1	8.8	8.0	7.6	7.8	-9.7	1.5	-0.1	-0.2
Power generation/District heating	10.0	4.5	2.8	2.1	2.1	2.1	1.0	0.3	0.4	-12.0	-2.8	-7.1	-9.3
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	5.0	-11.3	-2.0	-1.4
Industry	2.5	1.3	0.9	1.0	1.2	1.4	1.4	1.5	1.6	-9.7	2.9	1.7	1.0
Residential	1.2	0.5	0.3	0.5	0.5	0.6	0.6	0.7	0.8	-13.7	6.7	1.7	2.6
Tertiary	2.1	0.8	0.5	0.6	0.6	0.6	0.5	0.5	0.5	-12.8	0.6	-0.6	-0.7
Transport	3.2	2.1	2.2	2.9	3.6	4.1	4.3	4.5	4.5	-3.7	5.1	2.0	0.3
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	1.0	1.2	1.4	1.5	-8.5	11.4	5.4	2.5
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.8	4.0	3.2	2.8	-8.3	3.0	-0.5	-3.5
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	47.7	50.2	48.6	45.1	44.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	283.3	238.9	207.7	182.5	168.4	-3.4	-4.8	-3.1	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.51	1.45	1.21	1.09	1.07	-3.1	-1.4	-2.1	-1.2
Import Dependency %	87.3	67.1	56.1	55.9	49.9	46.6	35.8	31.0	30.2				
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.4	4.2	5.1	5.8	6.3		6.6	4.1	2.1
as % of GDP			20.5	18.8	17.9	16.6	15.9	15.1	14.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	84.0	71.8	64.0	60.1	57.6	-3.7	-1.7	-2.7	-1.0
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.2	40.1	34.4	29.8	26.9	1.7	-6.5	-3.9	-2.4
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	65.2	54.2	46.0	39.6	34.8	-10.7	-4.2	-3.4	-2.7
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	31.6	29.7	28.1	26.8	1.4	-0.5	-1.1	-1.0
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	17.4	17.2	16.8	16.3	-2.5	-0.1	0.1	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.15	0.13	0.06	0.01	0.02	-3.0	-3.7	-9.1	-10.9
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.23	1.18	1.16	1.14	-1.8	0.5	-0.4	-0.4
Industry	1.28	1.88	1.48	1.26	1.07	1.03	0.96	0.90	0.86	1.5	-3.2	-1.2	-1.1
Residential	0.75	0.31	0.21	0.33	0.35	0.36	0.37	0.42	0.45	-12.1	5.4	0.5	2.1
Tertiary	1.21	1.02	0.89	0.85	0.66	0.58	0.52	0.49	0.47	-3.0	-2.9	-2.3	-1.1
Transport	2.90	2.89	2.92	2.94	2.85	2.81	2.69	2.62	2.56	0.1	-0.3	-0.6	-0.5
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	41.0	43.8	51.6	54.7	55.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.4	9.1	10.3	11.3				
Gross Electricity generation by source (in GWh)													
			4135	4904	6320	7759	8971	9916	11445		4.3	3.6	2.5
Nuclear energy			0	0	0	0	0	0	0				
Solids			91	0	0	0	0	0	0				
Oil (including refinery gas)			117	0	0	88	0	0	0				
Gas (including derived gases)			1104	1490	2681	3448	2448	657	907		9.3	-0.9	-9.5
Biomass-waste			0	43	244	371	2171	4390	5389			24.4	9.5
Hydro (pumping excluded)			2818	3324	3041	2971	3043	3044	3037		0.8	0.0	0.0
Wind			4	47	353	879	1305	1820	2106		56.5	14.0	4.9
Solar			0	0	0	2	3	5	7			21.7	7.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2062	2144	2785	3067	3473	3727	3969		3.1	2.2	1.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1519	1578	1730	1970	2161	2440	2613		1.3	2.2	1.9
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0
Wind			2	24	170	404	587	859	1025		56.0	13.2	5.7
Solar			0	0	1	4	7	11	14			21.4	7.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			543	565	1055	1097	1312	1287	1356		6.9	2.2	0.3
of which cogeneration units			542	564	447	642	655	919	766		-1.9	3.9	1.6
Solids fired			29	2	2	2	2	0	0		-23.3	1.1	
Gas fired			414	502	949	957	868	581	578		8.7	-0.9	-4.0
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0
Biomass-waste fired			2	16	44	76	380	690	762		34.1	24.2	7.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			20.4	23.5	25.5	28.4	28.9	29.5	31.9				
Efficiency of gross thermal power generation (%)			18.6	22.3	45.3	45.3	45.4	43.5	44.4				
% of gross electricity from CHP			24.0	11.8	43.3	42.1	39.1	45.4	40.6				
Carbon free gross electricity generation (%)			68.3	69.6	57.6	54.4	72.7	93.4	92.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			68.3	69.6	57.6	54.4	72.7	93.4	92.1				
Transport sector													
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.6	25.0	27.2	28.6	-3.6	4.7	2.5	1.4
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.3	3.3	-8.7	2.7	0.6	0.2
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	17.3	19.3	21.1	22.4	4.2	5.4	2.8	1.5
Rail	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.3	-15.5	3.2	2.8	1.6
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	2.3	6.1	4.8	2.4
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4			
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	43.6	50.6	56.5	60.2	-3.1	7.0	3.6	1.8
Trucks	5.9	1.8	4.8	8.4	11.8	15.9	19.6	23.3	26.2	-2.0	9.5	5.2	2.9
Rail	18.5	9.8	13.3	17.9	23.7	27.7	31.0	33.2	34.0	-3.3	5.9	2.7	0.9
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	1094	712	744	999	1255	1476	1616	1713	1750	-3.8	5.4	2.6	0.8
Public road transport	111	41	23	25	26	25	25	22	21	-14.6	1.3	-0.5	-1.4
Private cars and motorcycles	317	284	373	451	539	595	620	640	644	1.7	3.7	1.4	0.4
Trucks	370	240	241	371	495	631	741	850	926	-4.2	7.5	4.1	2.3
Rail	188	90	75	93	118	134	134	102	59	-8.7	4.6	1.3	-7.8
Aviation	73	26	27	59	77	91	96	99	99	-9.6	11.1	2.2	0.3
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7			

Source: PRIMES

Latvia: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	3452	4533	5473	593	1395	2098	20.8	44.5	62.2
Solids	182	49	6	3	0	0	0	-4	-3	-7.7	-100.0	-100.0
Oil	1	0	7	0	0	0	0	0	0	-245.0	-151.3	-119.5
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	1062	1527	2291	3449	4533	5473	594	1399	2101	20.8	44.6	62.3
Hydro	387	242	286	256	262	261	11	0	1	4.6	0.1	0.5
Biomass & Waste	675	1284	2001	3112	4148	5010	573	1372	2027	22.6	49.4	68.0
Wind	0	0	4	76	112	181	6	20	59	8.2	21.6	48.5
Solar and others	0	0	0	6	11	21	4	7	14	213.1	200.0	191.3
Geothermal	0	0	0	0	0	0	0	0	0	143.9	318.2	360.8
Net Imports	7440	2253	2783	3010	2527	2365	-868	-1750	-2597	-22.4	-40.9	-52.3
Solids	627	62	76	64	65	71	-8	-18	-16	-10.6	-21.8	-18.8
Oil	3944	1096	1662	2259	2289	2433	-184	-368	-598	-7.5	-13.8	-19.7
- Crude oil and Feedstocks	1	93	4	2	2	2	0	0	0	-6.1	-12.2	-17.2
- Oil products	3942	1003	1658	2257	2287	2431	-184	-367	-598	-7.5	-13.8	-19.7
Natural gas	2561	1113	1434	1397	1137	986	-512	-972	-1401	-26.8	-46.1	-58.7
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	6069	6610	7302	-274	-354	-497	-4.3	-5.1	-6.4
Solids	867	252	83	68	65	71	-8	-22	-19	-10.5	-25.0	-21.5
Oil	3458	1155	1376	1867	1839	1898	-184	-367	-597	-9.0	-16.6	-23.9
Natural gas	2380	1092	1358	1397	1137	986	-512	-972	-1401	-26.8	-46.1	-58.7
Nuclear	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2557	3345	4037	430	1006	1520	20.2	43.0	60.4
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.1	1.0	1.0	-0.1	-0.3	-0.2			
Oil	42.9	28.8	29.2	30.8	27.8	26.0	-1.6	-3.9	-6.0			
Natural gas	29.5	27.3	28.8	23.0	17.2	13.5	-7.1	-13.1	-17.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	42.1	50.6	55.3	8.6	17.0	23.0			
Gross Electricity Generation in GWh_e	6647	4135	4904	7759	8971	11445	-476	-262	436	-5.8	-2.8	4.0
Self consumption and grid losses	1248	720	783	569	702	1064	-68	-38	152	-10.7	-5.1	16.7
Fuel Inputs to Thermal Power Generation	926	607	591	742	874	1220	-136	-107	40	-15.5	-10.9	3.4
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	23	0	0	-19	-41	0	-44.9	-100.0	
Gas (including derived gases)	690	388	541	637	432	152	-108	-425	-871	-14.5	-49.6	-85.2
Biomass & Waste	0	0	37	81	443	1068	-9	360	911	-9.5	433.4	579.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	699	777	759	-68	-47	-144	-8.9	-5.7	-16.0
Refineries	1	1	1	2	2	2	0	0	0	-6.1	-12.2	-17.2
Biofuels and hydrogen production	0	0	3	87	160	207	11	33	17	13.8	26.5	9.1
District heating	2573	643	587	610	616	550	-79	-80	-161	-11.4	-11.6	-22.7
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	109	113	129	-20	-27	-25	-15.5	-19.4	-16.3
Non-Energy Uses	77	77	91	113	124	138	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5390	5877	6502	-199	-274	-407	-3.6	-4.4	-5.9
by sector												
Industry	1972	614	827	1331	1505	1861	-19	-59	-71	-1.4	-3.8	-3.7
- energy intensive industries	707	219	282	531	561	611	-2	-8	-5	-0.4	-1.4	-0.9
- other industrial sectors	1265	396	545	799	944	1250	-17	-51	-65	-2.1	-5.1	-5.0
Residential	1632	1368	1476	1618	1731	1824	-58	-21	-22	-3.5	-1.2	-1.2
Tertiary	1747	606	744	965	1026	1068	-47	-49	-82	-4.7	-4.6	-7.1
Transport	1094	744	999	1476	1616	1750	-75	-145	-233	-4.8	-8.2	-11.7
by fuel												
Solids	330	58	73	63	64	71	-8	-10	-12	-11.0	-13.5	-14.7
Oil	2047	1003	1220	1629	1708	1753	-139	-219	-529	-7.8	-11.4	-23.2
Gas	672	329	508	661	688	809	-68	-119	-252	-9.3	-14.7	-23.8
Electricity	768	443	537	797	933	1200	-35	-19	25	-4.2	-2.0	2.1
Heat (from CHP and District Heating)	2013	590	598	546	599	718	-147	-135	-81	-21.2	-18.4	-10.2
Renewable energy forms	616	909	1111	1693	1884	1951	196	229	443	13.1	13.8	29.3
Other	0	0	0	0	1	1	0	0	0	6.5	1.2	-2.6
RES in Gross Final Energy Consumption ^(A)		1305	1787	2421	3108	3679	393	879	1344	19.4	39.4	57.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	13.6	13.2	12.1	-2.5	-4.5	-6.1	-15.4	-25.6	-33.4
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.8	8.0	7.8	-1.8	-3.5	-5.2	-17.0	-30.3	-40.0
Power generation/District heating	10.0	2.8	2.1	2.1	1.0	0.4	-1.0	-2.3	-2.7	-32.6	-69.4	-87.5
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.0	-0.2	-0.2	-0.3	-72.3	-79.2	-83.9
Industry	2.5	0.9	1.0	1.4	1.4	1.6	-0.2	-0.2	-1.2	-12.6	-13.6	-43.5
Residential	1.2	0.3	0.5	0.6	0.6	0.8	-0.1	-0.1	-0.1	-12.9	-15.6	-14.7
Tertiary	2.1	0.5	0.6	0.6	0.5	0.5	-0.1	-0.1	-0.1	-12.3	-16.3	-19.6
Transport	3.2	2.2	2.9	4.1	4.3	4.5	-0.3	-0.5	-0.8	-5.7	-11.0	-15.0
CO₂ Emissions (non energy related)	0.6	0.2	0.2	1.0	1.2	1.5	0.0	0.0	0.0	-0.4	-1.1	-1.4
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.8	4.0	2.8	-0.7	-1.0	-0.8	-15.0	-20.7	-23.4
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	50.2	48.6	44.7	-9.2	-16.8	-22.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	238.9	207.7	168.4	-10.8	-11.1	-11.5	-4.3	-5.1	-6.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.45	1.21	1.07	-0.22	-0.44	-0.60	-13.2	-26.6	-35.9
Import Dependency %	87.3	56.1	55.9	46.6	35.8	30.2	-11.0	-21.9	-29.3			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.2	5.1	6.3	0.1	0.3	0.4	3.6	5.4	7.5
as % of GDP		20.5	18.8	16.6	15.9	14.4	0.6	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.4						
as % of GDP				0.61	0.86	1.04						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	71.8	64.0	57.6	-1.1	-2.5	-2.2	-1.4	-3.8	-3.7
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	40.1	34.4	26.9	-1.4	-0.4	-0.3	-3.5	-1.2	-1.2
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	54.2	46.0	34.8	-2.7	-2.2	-2.7	-4.7	-4.6	-7.1
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	31.6	29.7	26.8	-0.7	-1.1	-1.0	-2.0	-3.5	-3.4
Freight transport (toe/Mtkm)	22.3	17.3	17.5	17.4	17.2	16.3	-0.9	-1.6	-2.5	-5.1	-8.7	-13.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.13	0.06	0.02	-0.04	-0.11	-0.12	-24.7	-66.9	-87.5
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.23	1.18	1.14	-0.07	-0.11	-0.26	-5.1	-8.3	-18.8
Industry	1.28	1.48	1.26	1.03	0.96	0.86	-0.13	-0.11	-0.60	-11.4	-10.2	-41.4
Residential	0.75	0.21	0.33	0.36	0.37	0.45	-0.04	-0.06	-0.07	-9.7	-14.6	-13.7
Tertiary	1.21	0.89	0.85	0.58	0.52	0.47	-0.05	-0.07	-0.07	-8.1	-12.3	-13.4
Transport	2.90	2.92	2.94	2.81	2.69	2.56	-0.03	-0.08	-0.10	-1.0	-3.0	-3.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	43.8	51.6	55.4	55.4	8.5	16.3	22.2			
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.4	9.1	11.3	11.3	0.9	2.6	2.3			
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7759	8971	11445	11445	-476	-262	436	-5.8	-2.8	4.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	88	0	0	0	-72	-159	0	-44.9	-100.0	
Gas (including derived gases)	1104	1490	3448	2448	907	907	-534	-2095	-4885	-13.4	-46.1	-84.3
Biomass-waste	0	43	371	2171	5389	5389	-68	1757	4619	-15.6	423.9	599.5
Hydro (pumping excluded)	2818	3324	2971	3043	3037	3037	132	3	14	4.6	0.1	0.5
Wind	4	47	879	1305	2106	2106	67	232	688	8.2	21.6	48.5
Solar	0	0	2	3	7	7	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2062	2144	3067	3473	3969	3969	14	382	748	0.5	12.4	23.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1519	1578	1970	2161	2613	2613	0	71	360	0.0	3.4	16.0
Hydro (pumping excluded)	1517	1554	1563	1567	1574	1574	0	0	0	0.0	0.0	0.0
Wind	2	24	404	587	1025	1025	0	71	360	-0.1	13.9	54.2
Solar	0	0	4	7	14	14	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	543	565	1097	1312	1356	1356	15	311	388	1.4	31.1	40.1
of which cogeneration units	542	564	642	655	766	766	78	-102	22	13.8	-13.5	3.0
Solids fired	29	2	2	2	0	0	0	0	0	0.0	0.0	
Gas fired	414	502	957	868	578	578	0	-8	-274	0.0	-0.9	-32.2
Oil fired	98	45	61	62	15	15	0	0	0	0.0	0.0	0.0
Biomass-waste fired	2	16	76	380	762	762	15	319	662	24.1	517.7	664.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	28.4	28.9	31.9	31.9	-1.8	-4.5	-6.4			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.3	45.4	44.4	44.4	0.4	0.6	-3.4			
% of gross electricity from CHP	24.0	11.8	42.1	39.1	40.6	40.6	-0.1	1.3	-0.4			
Carbon free gross electricity generation (%)	68.3	69.6	54.4	72.7	92.1	92.1	4.7	23.6	44.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	54.4	72.7	92.1	92.1	4.7	23.6	44.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	12.3	15.8	22.6	25.0	28.6	-0.3	-0.5	-0.7	-1.1	-1.9	-2.5
Private cars and motorcycles	5.9	2.3	2.8	3.2	3.3	3.3	0.1	0.1	0.1	1.7	2.6	3.1
Rail	5.8	8.7	11.6	17.3	19.3	22.4	-0.3	-0.6	-0.9	-1.9	-3.1	-3.8
Aviation	5.8	1.1	1.3	1.7	1.9	2.3	0.0	0.1	0.1	1.8	2.7	3.4
Inland navigation	0.1	0.2	0.2	0.4	0.5	0.7	0.0	0.0	0.0	-2.2	-3.2	-3.6
Freight transport activity (Gtkm)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	24.8	18.1	26.3	43.6	50.6	60.2	-0.6	-1.1	-1.8	-1.3	-2.1	-2.9
Rail	5.9	4.8	8.4	15.9	19.6	26.2	-0.8	-1.5	-2.3	-5.0	-6.9	-8.0
Inland navigation	18.5	13.3	17.9	27.7	31.0	34.0	0.2	0.4	0.5	0.9	1.2	1.4
Energy demand in transport (ktoe)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1094	744	999	1476	1616	1750	-75	-145	-233	-4.8	-8.2	-11.7
Private cars and motorcycles	111	23	25	25	25	21	0	0	-2	-0.4	-1.4	-9.4
Trucks	317	373	451	595	620	644	-19	-34	-34	-3.1	-5.2	-5.1
Rail	370	241	371	631	741	926	-52	-103	-181	-7.6	-12.2	-16.3
Aviation	188	75	93	134	134	59	0	0	-4	0.0	-0.3	-6.5
Inland navigation	73	27	59	91	96	99	-4	-8	-11	-4.0	-7.5	-10.2
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	4768	3724	3210	3721	1284	1755	4928	5440	5865	-3.9	-8.8	14.4	1.8
Solids	42	43	35	39	9	6	4	3	2	-1.7	-13.1	-7.0	-8.2
Oil	12	130	347	239	231	253	251	248	253	40.0	-4.0	0.8	0.1
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Renewable energy sources	321	501	656	777	1045	1496	1874	2344	2718	7.4	4.8	6.0	3.8
Hydro	36	32	29	39	36	37	37	37	37	-2.0	2.1	0.2	0.1
Biomass & Waste	285	469	627	735	950	1369	1723	2154	2468	8.2	4.3	6.1	3.7
Wind	0	0	0	0	58	86	104	138	191			6.1	6.2
Solar and others	0	0	0	0	1	5	10	15	21			22.1	8.0
Geothermal	0	0	0	3	0	0	0	0	0			13.2	0.8
Net Imports	11666	5643	4327	5096	6458	6966	5692	5759	5965	-9.4	4.1	-1.3	0.5
Solids	758	157	84	190	216	203	148	150	165	-19.8	9.9	-3.7	1.1
Oil	7260	3686	2299	2677	2774	3023	2944	2875	2932	-10.9	1.9	0.6	0.0
- Crude oil and Feedstocks	9531	3609	4827	9054	9731	10641	10517	10403	10612	-6.6	7.3	0.8	0.1
- Oil products	-2271	77	-2528	-6377	-6957	-7618	-7573	-7528	-7680				
Natural gas	4678	2029	2065	2492	3470	3846	2365	2067	2048	-7.9	5.3	-3.8	-1.4
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Gross Inland Consumption	16071	8706	7080	8606	7574	8530	10416	10986	11616	-7.9	0.7	3.2	1.1
Solids	831	285	121	215	224	209	153	152	167	-17.5	6.4	-3.8	0.9
Oil	6878	3080	2190	2746	2836	3086	2990	2910	2972	-10.8	2.6	0.5	-0.1
Natural gas	4678	2029	2064	2476	3470	3846	2365	2067	2048	-7.9	5.3	-3.8	-1.4
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Renewable energy forms	320	493	649	758	1020	1460	2526	3424	3956	7.3	4.6	9.5	4.6
as % in Gross Inland Consumption													
Solids	5.2	3.3	1.7	2.5	3.0	2.5	1.5	1.4	1.4				
Oil	42.8	35.4	30.9	31.9	37.4	36.2	28.7	26.5	25.6				
Natural gas	29.1	23.3	29.1	28.8	45.8	45.1	22.7	18.8	17.6				
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	26.9	25.9	24.9				
Renewable energy forms	2.0	5.7	9.2	8.8	13.5	17.1	24.2	31.2	34.1				
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11361	14143	20866	22489	24607	-9.0	0.2	6.3	1.7
Self consumption and grid losses	3486	2241	1906	1788	849	1063	1707	1949	2136	-5.9	-7.8	7.2	2.3
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2201	2632	1564	1839	2070	-10.0	9.2	-3.4	2.8
Solids	0	0	0	0	53	53	1	1	12			-30.9	24.7
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.5	-34.4	
Gas (including derived gases)	1543	433	716	1044	2081	2339	698	381	409	-7.4	11.3	-10.4	-5.2
Biomass & Waste	0	0	0	5	65	240	865	1457	1649			29.5	6.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11408	4490	5755	9951	10270	11268	11345	11059	11187	-6.6	6.0	1.0	-0.1
Refineries	9561	3392	5086	9418	9894	10856	10747	10640	10860	-6.1	6.9	0.8	0.1
Biofuels and hydrogen production	0	0	0	3	14	56	163	180	187			27.7	1.4
District heating	1823	1079	657	522	359	354	433	238	140	-9.7	-5.9	1.9	-10.7
Derived gases, cokeries etc.	24	18	12	8	3	2	1	1	1	-7.0	-11.8	-10.3	-2.9
Energy Branch Consumption	991	601	655	915	767	851	939	981	1013	-4.1	1.6	2.0	0.8
Non-Energy Uses	852	540	648	775	964	1112	1239	1371	1509	-2.7	4.1	2.5	2.0
Final Energy Demand	9696	4728	3820	4527	5021	5518	5969	6334	6738	-8.9	2.8	1.7	1.2
by sector													
Industry	3334	1025	782	996	1127	1299	1459	1654	1872	-13.5	3.7	2.6	2.5
- energy intensive industries	1678	482	362	436	532	619	696	785	880	-14.2	3.9	2.7	2.4
- other industrial sectors	1656	543	420	560	595	680	763	869	992	-12.8	3.6	2.5	2.7
Residential	1854	1733	1402	1437	1480	1577	1767	1893	2049	-2.8	0.5	1.8	1.5
Tertiary	2518	933	589	697	746	799	861	879	896	-13.5	2.4	1.4	0.4
Transport	1990	1037	1048	1397	1668	1843	1882	1908	1922	-6.2	4.8	1.2	0.2
by fuel													
Solids	760	241	96	197	158	147	144	147	152	-18.7	5.1	-0.9	0.5
Oil	4055	1666	1348	1599	1913	2085	2047	2072	2096	-10.4	3.6	0.7	0.2
Gas	1483	510	363	503	545	529	418	444	490	-13.1	4.1	-2.6	1.6
Electricity	1048	670	606	749	855	976	1127	1247	1406	-5.3	3.5	2.8	2.2
Heat (from CHP and District Heating)	2078	1193	828	905	912	913	963	958	966	-8.8	1.0	0.6	0.0
Renewable energy forms	272	448	579	574	638	867	1269	1465	1628	7.9	1.0	7.1	2.5
Other	0	0	0	0	0	0	1	1	1			16.3	1.4
RES in Gross Final Energy Consumption ^(A)			671	726	985	1385	2355	2996	3355		3.9	9.1	3.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	21.3	21.6	17.5	14.6	13.5	-9.1	2.1	-1.9	-2.5
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	14.8	15.9	11.7	10.3	10.2	-10.8	3.6	-2.4	-1.3
Power generation/District heating	12.0	5.6	3.9	4.0	5.4	6.0	2.1	1.2	1.1	-10.5	3.2	-8.9	-6.1
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	1.9	1.4	1.1	-3.3	4.3	0.5	-5.3
Industry	6.1	1.7	1.1	1.3	1.6	1.6	1.3	1.4	1.5	-15.9	3.8	-1.8	1.3
Residential	2.3	0.8	0.6	0.7	0.6	0.6	0.7	0.8	0.9	-13.2	0.1	1.8	2.6
Tertiary	4.5	1.6	0.5	0.6	0.5	0.5	0.5	0.5	0.4	-19.8	0.6	-1.2	-0.7
Transport	5.8	3.0	3.1	4.1	4.9	5.3	5.1	5.1	5.1	-6.2	4.7	0.5	0.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	5.6	5.8	4.2	3.4	-5.7	-0.6	-1.0	-5.4
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	47.4	48.0	38.9	32.5	30.2				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	269.6	236.8	233.2	201.9	179.7	-5.1	-6.0	-1.4	-2.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	1.95	1.87	1.12	0.94	0.88	-3.2	2.9	-5.4	-2.4
Import Dependency %	72.2	63.8	60.3	58.3	83.4	79.9	53.6	51.4	50.4				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.6	5.7	6.8	7.9	8.7		5.4	4.1	2.4
as % of GDP			19.0	15.2	16.3	15.7	15.3	14.6	13.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.4	55.3	49.3	46.0	43.8	-9.4	-4.5	-2.5	-1.2
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	52.8	44.5	40.7	36.1	33.2	0.0	-6.2	-2.6	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	71.4	60.4	52.6	43.9	37.5	-13.8	-3.3	-3.0	-3.3
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.7	25.9	24.7	23.9	23.7	0.4	-2.6	-0.8	-0.4
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.2	16.6	15.3	14.5	14.0	-7.6	-2.3	-1.1	-0.9
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.22	0.22	0.06	0.03	0.03	-2.7	3.1	-11.8	-6.9
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.50	1.44	1.27	1.22	1.17	-3.5	1.0	-1.7	-0.8
Industry	1.83	1.70	1.38	1.35	1.40	1.22	0.90	0.83	0.80	-2.8	0.1	-4.3	-1.2
Residential	1.26	0.47	0.41	0.46	0.39	0.39	0.39	0.42	0.43	-10.8	-0.4	0.0	1.1
Tertiary	1.80	1.66	0.85	0.83	0.72	0.62	0.55	0.53	0.49	-7.2	-1.7	-2.6	-1.1
Transport	2.93	2.91	2.93	2.92	2.91	2.86	2.71	2.67	2.65	0.0	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	18.7	24.1	37.8	45.4	48.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.9	3.1	9.0	10.0	10.4				
Gross Electricity generation by source (in GWh)													
			11118	14410	11361	14143	20866	22489	24607		0.2	6.3	1.7
Nuclear energy			8417	10335	0	0	12399	12602	12808				0.3
Solids			0	0	255	255	6	2	57			-31.2	25.2
Oil (including refinery gas)			603	379	3	1	0	0	0		-40.3	-30.8	
Gas (including derived gases)			1759	3226	9714	11429	3026	1507	1877		18.6	-11.0	-4.7
Biomass-waste			0	19	304	1039	3796	6349	7208			28.7	6.6
Hydro (pumping excluded)			339	451	415	425	426	428	431		2.1	0.2	0.1
Wind			0	0	669	994	1214	1600	2225			6.1	6.2
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3983	4359	6494	6608	6720		-1.9	5.0	0.3
<u>Nuclear energy</u>			2291	1200	0	0	1515	1515	1515				0.0
<u>Renewable energy</u>			98	115	713	994	1136	1430	2056		22.0	4.8	6.1
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	597	874	988	1269	1888			5.2	6.7
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3270	3365	3842	3663	3149		2.9	1.6	-2.0
of which cogeneration units			2442	2498	2472	2137	2744	2884	2694		0.1	1.1	-0.2
Solids fired			0	0	29	29	29	29	29			0.0	0.0
Gas fired			1838	1877	2592	2583	2583	2268	1862		3.5	0.0	-3.2
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-64.8
Biomass-waste fired			0	5	44	165	641	1091	1258			30.8	7.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	31.6	35.8	34.9	36.9	39.8				
Efficiency of gross thermal power generation (%)			22.3	25.6	40.2	41.6	37.6	36.8	38.0				
% of gross electricity from CHP			18.5	22.7	71.0	61.2	32.6	34.9	36.7				
Carbon free gross electricity generation (%)			78.8	75.0	12.2	17.4	85.5	93.3	92.1				
- nuclear			75.7	71.7	0.0	0.0	59.4	56.0	52.1				
- renewable energy forms			3.0	3.3	12.2	17.4	26.1	37.3	40.1				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.6	42.1	44.4	46.4	48.1	-0.8	6.9	1.4	0.8
Public road transport	7.9	4.2	2.8	3.8	4.4	4.7	5.0	5.1	5.2	-10.0	4.8	1.3	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.2	36.2	38.1	39.6	40.9	5.6	7.5	1.4	0.7
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.8	0.9	-16.3	-2.9	3.2	3.8
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.9	5.4	5.2	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.1	1.9	0.9
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.2	45.5	51.3	55.3	56.0	-4.6	8.3	3.3	0.9
Trucks	7.3	5.2	7.8	15.9	20.8	25.5	28.5	30.7	31.0	0.6	10.4	3.2	0.8
Rail	19.3	7.2	8.9	12.5	16.3	20.0	22.8	24.6	25.0	-7.4	6.2	3.4	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
1990	1037	1048	1397	1668	1843	1882	1908	1922	-6.2	4.8	1.2	0.2	
Public road transport	164	50	25	30	34	35	32	32	-17.1	3.1	0.2	-0.9	
Private cars and motorcycles	396	485	630	823	929	975	968	971	993	4.8	4.0	0.4	0.3
Trucks	1159	374	288	414	540	635	664	684	679	-13.0	6.5	2.1	0.2
Rail	132	86	75	79	101	119	124	118	107	-5.5	3.0	2.0	-1.4
Aviation	135	41	27	46	60	73	85	96	104	-14.9	8.4	3.6	2.0
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.8	1.8	0.5

Source: PRIMES

Lithuania: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1755	4928	5865	444	604	783	33.9	14.0	15.4
Solids	42	35	39	6	4	2	-1	-1	-2	-16.4	-22.1	-52.9
Oil	12	347	239	253	251	253	-10	-29	-31	-3.8	-10.3	-11.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Renewable energy sources	321	656	777	1496	1874	2718	455	634	816	43.8	51.1	42.9
Hydro	36	29	39	37	37	37	1	1	0	2.7	2.4	0.0
Biomass & Waste	285	627	735	1369	1723	2468	389	548	655	39.8	46.6	36.2
Wind	0	0	0	86	104	191	61	78	144	252.9	290.8	304.5
Solar and others	0	0	0	5	10	21	3	7	16	317.5	301.4	337.7
Geothermal	0	0	3	0	0	0	0	0	0	109.3	299.6	292.3
Net Imports	11666	4327	5096	6966	5692	5965	-843	-1128	-1499	-10.8	-16.5	-20.1
Solids	758	84	190	203	148	165	-136	-159	-153	-40.0	-51.8	-48.1
Oil	7260	2299	2677	3023	2944	2932	-124	-388	-449	-3.9	-11.6	-13.3
- Crude oil and Feedstocks	9531	4827	9054	10641	10517	10612	-417	-1202	-1306	-3.8	-10.3	-11.0
- Oil products	-2271	-2528	-6377	-7618	-7573	-7680	293	814	857	-3.7	-9.7	-10.0
Natural gas	4678	2065	2492	3846	2365	2048	-573	-1263	-2183	-13.0	-34.8	-51.6
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8530	10416	11616	-399	-524	-716	-4.5	-4.8	-5.8
Solids	831	121	215	209	153	167	-137	-161	-155	-39.6	-51.3	-48.2
Oil	6878	2190	2746	3086	2990	2972	-134	-416	-480	-4.2	-12.2	-13.9
Natural gas	4678	2064	2476	3846	2365	2048	-573	-1263	-2183	-13.0	-34.8	-51.6
Nuclear	4394	2172	2666	0	2799	2892	0	0	0		0.0	0.0
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1460	2526	3956	445	1316	2102	43.9	108.8	113.3
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	2.5	1.5	1.4	-1.4	-1.4	-1.2			
Oil	42.8	30.9	31.9	36.2	28.7	25.6	0.1	-2.4	-2.4			
Natural gas	29.1	29.1	28.8	45.1	22.7	17.6	-4.4	-10.5	-16.7			
Nuclear	27.3	30.7	31.0	0.0	26.9	24.9	0.0	1.3	1.4			
Renewable energy forms	2.0	9.2	8.8	17.1	24.2	34.1	5.7	13.2	19.0			
Gross Electricity Generation in GWh_e	28400	11118	14410	14143	20866	24607	-985	-806	-651	-6.5	-3.7	-2.6
Self consumption and grid losses	3486	1906	1788	1063	1707	2136	-91	-15	32	-7.9	-0.9	1.5
Fuel Inputs to Thermal Power Generation	2610	911	1218	2632	1564	2070	-337	-251	-264	-11.3	-13.8	-11.3
Solids	0	0	0	53	1	12	-115	-136	-131	-68.3	-99.0	-91.6
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-10.6	183.6	36967.8
Gas (including derived gases)	1543	716	1044	2339	698	409	-424	-938	-1616	-15.4	-57.3	-79.8
Biomass & Waste	0	0	5	240	865	1649	202	823	1483	540.7	1988.9	897.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	11268	11345	11187	-426	-1349	-1581	-3.6	-10.6	-12.4
Refineries	9561	5086	9418	10856	10747	10860	-427	-1230	-1337	-3.8	-10.3	-11.0
Biofuels and hydrogen production	0	0	3	56	163	187	7	35	18	14.6	27.2	10.5
District heating	1823	657	522	354	433	140	-6	-153	-261	-1.6	-26.1	-65.2
Derived gases, cokeries etc.	24	12	8	2	1	1	-1	-1	-1	-25.1	-39.3	-48.4
Energy Branch Consumption	991	655	915	851	939	1013	-28	-34	-52	-3.2	-3.5	-4.8
Non-Energy Uses	852	648	775	1112	1239	1509	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5518	5969	6738	-287	-328	-476	-4.9	-5.2	-6.6
by sector												
Industry	3334	782	996	1299	1459	1872	-39	-49	-45	-2.9	-3.3	-2.4
- energy intensive industries	1678	362	436	619	696	880	-8	-7	0	-1.2	-1.0	0.0
- other industrial sectors	1656	420	560	680	763	992	-31	-42	-46	-4.4	-5.3	-4.4
Residential	1854	1402	1437	1577	1767	2049	-98	-53	-71	-5.9	-2.9	-3.4
Tertiary	2518	589	697	799	861	896	-73	-85	-163	-8.4	-9.0	-15.4
Transport	1990	1048	1397	1843	1882	1922	-77	-140	-197	-4.0	-6.9	-9.3
by fuel												
Solids	760	96	197	147	144	152	-20	-22	-20	-12.2	-13.5	-11.9
Oil	4055	1348	1599	2085	2047	2096	-89	-196	-249	-4.1	-8.8	-10.6
Gas	1483	363	503	529	418	490	-63	-269	-140	-10.6	-39.1	-22.2
Electricity	1048	606	749	976	1127	1406	-75	-64	-53	-7.1	-5.4	-3.6
Heat (from CHP and District Heating)	2078	828	905	913	963	966	-119	-103	-150	-11.5	-9.6	-13.5
Renewable energy forms	272	579	574	867	1269	1628	79	327	136	10.0	34.7	9.1
Other	0	0	0	0	1	1	0	0	0	5.2	1.0	-5.2
RES in Gross Final Energy Consumption ^(A)		671	726	1385	2355	3355	398	1189	1632	40.2	102.0	94.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	21.6	17.5	13.5	-3.1	-6.0	-8.0	-12.6	-25.5	-37.2
CO₂ Emissions (energy related)	32.5	10.4	12.6	15.9	11.7	10.2	-2.3	-4.8	-7.1	-12.4	-29.1	-41.2
Power generation/District heating	12.0	3.9	4.0	6.0	2.1	1.1	-1.7	-3.3	-5.1	-22.0	-60.4	-81.7
Energy Branch	1.7	1.2	2.0	2.0	1.9	1.1	-0.1	-0.2	-0.9	-3.5	-8.9	-43.5
Industry	6.1	1.1	1.3	1.6	1.3	1.5	-0.1	-0.6	-0.2	-5.7	-31.4	-12.0
Residential	2.3	0.6	0.7	0.6	0.7	0.9	-0.1	-0.1	-0.1	-9.0	-10.6	-13.4
Tertiary	4.5	0.5	0.6	0.5	0.5	0.4	-0.1	-0.1	-0.2	-15.4	-18.9	-25.7
Transport	5.8	3.1	4.1	5.3	5.1	5.1	-0.3	-0.5	-0.7	-4.5	-9.3	-11.7
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-2.5	-4.6
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	5.6	5.8	3.4	-0.9	-1.2	-0.9	-13.2	-17.3	-20.8
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	48.0	38.9	30.2	-6.9	-13.4	-17.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Lithuania: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	236.8	233.2	179.7	-11.1	-11.7	-11.1	-4.5	-4.8	-5.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.87	1.12	0.88	-0.17	-0.38	-0.53	-8.3	-25.5	-37.6
Import Dependency %	72.2	60.3	58.3	79.9	53.6	50.4	-5.8	-7.6	-9.1			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	5.7	6.8	8.7	0.1	0.4	0.6	2.6	5.6	7.7
as % of GDP		19.0	15.2	15.7	15.3	13.5	0.4	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.6						
as % of GDP				0.43	0.85	0.99						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	55.3	49.3	43.8	-1.6	-1.7	-1.1	-2.9	-3.3	-2.4
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	44.5	40.7	33.2	-2.8	-1.2	-1.2	-5.9	-2.9	-3.4
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	60.4	52.6	37.5	-5.6	-5.2	-6.8	-8.4	-9.0	-15.4
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	25.9	24.7	23.7	-0.4	-0.6	-0.8	-1.5	-2.3	-3.5
Freight transport (toe/Mtkm)	47.8	21.6	17.3	16.6	15.3	14.0	-0.8	-1.4	-1.9	-4.8	-8.5	-11.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.22	0.06	0.03	-0.04	-0.09	-0.12	-14.5	-57.9	-80.4
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.44	1.27	1.17	-0.01	-0.14	-0.08	-1.0	-10.1	-6.7
Industry	1.83	1.38	1.35	1.22	0.90	0.80	-0.04	-0.37	-0.09	-2.9	-29.1	-9.8
Residential	1.26	0.41	0.46	0.39	0.39	0.43	-0.01	-0.03	-0.05	-3.3	-7.9	-10.4
Tertiary	1.80	0.85	0.83	0.62	0.55	0.49	-0.05	-0.07	-0.07	-7.6	-10.9	-12.2
Transport	2.93	2.93	2.92	2.86	2.71	2.65	-0.02	-0.07	-0.07	-0.6	-2.5	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	24.1	37.8	48.0	7.8	20.1	24.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.1	9.0	10.4	0.5	2.5	2.0			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	14143	20866	24607	24607	-985	-806	-651	-6.5	-3.7	-2.6
Nuclear energy	8417	10335	0	12399	12808		0	0	0		0.0	0.0
Solids	0	0	255	6	57		-631	-735	-710	-71.2	-99.2	-92.5
Oil (including refinery gas)	603	379	1	0	0		0	0	0	-6.7	174.5	29808.1
Gas (including derived gases)	1759	3226	11429	3026	1877		-1944	-4588	-8009	-14.5	-60.3	-81.0
Biomass-waste	0	19	1039	3796	7208		866	3603	6394	500.1	1865.3	785.2
Hydro (pumping excluded)	339	451	425	426	431		11	10	0	2.7	2.4	0.0
Wind	0	0	994	1214	2225		713	903	1675	252.9	290.8	304.5
Solar	0	0	0	0	0		0	0	0			
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	4839	3827	4359	6494	6720		617	1183	2416	16.5	22.3	56.1
<u>Nuclear energy</u>	2291	1200	0	1515	1515		0	0	0		0.0	0.0
<u>Renewable energy</u>	98	115	994	1136	2056		670	763	1562	206.2	204.5	316.0
Hydro (pumping excluded)	98	108	117	141	152		0	0	0	0.0	0.0	0.0
Wind	0	6	874	988	1888		670	763	1562	328.0	339.5	478.6
Solar	0	0	4	7	16		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2451	2512	3365	3842	3149		-53	420	854	-1.6	12.3	37.2
of which cogeneration units	2442	2498	2137	2744	2694		-83	268	714	-3.7	10.8	36.1
Solids fired	0	0	29	29	29		-74	-74	-74	-71.7	-71.7	-71.7
Gas fired	1838	1877	2583	2583	1862		-119	-119	-216	-4.4	-4.4	-10.4
Oil fired	613	631	588	589	0		0	0	0	0.0	0.0	137.5
Biomass-waste fired	0	5	165	641	1258		140	613	1144	555.0	2158.1	1002.4
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	23.0	39.4	35.8	34.9	39.8		-8.8	-9.6	-24.4			
Efficiency of gross thermal power generation (%)	22.3	25.6	41.6	37.6	38.0		-0.2	-3.0	-4.3			
% of gross electricity from CHP	18.5	22.7	61.2	32.6	36.7		-5.4	-2.1	-1.7			
Carbon free gross electricity generation (%)	78.8	75.0	17.4	85.5	92.1		11.6	24.0	34.3			
- nuclear	75.7	71.7	0.0	59.4	52.1		0.0	2.2	1.3			
- renewable energy forms	3.0	3.3	17.4	26.1	40.1		11.6	21.8	33.0			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	42.1	44.4	48.1	-0.5	-0.9	-1.2	-1.1	-1.9	-2.3
Public road transport	7.9	2.8	3.8	4.7	5.0	5.2	0.1	0.1	0.2	1.9	3.0	3.5
Private cars and motorcycles	9.3	16.1	29.3	36.2	38.1	40.9	-0.5	-1.0	-1.3	-1.5	-2.6	-3.2
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	2.0	3.2	3.9
Aviation	0.2	0.2	0.3	0.5	0.7	1.0	0.0	0.0	0.0	-2.0	-2.8	-3.2
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.5	-0.1	0.1
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.5	51.3	56.0	-0.6	-1.1	-1.5	-1.3	-2.1	-2.6
Trucks	7.3	7.8	15.9	25.5	28.5	31.0	-1.1	-1.8	-2.4	-4.0	-6.1	-7.3
Rail	19.3	8.9	12.5	20.0	22.8	25.0	0.5	0.7	0.9	2.4	3.3	3.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-0.5	-0.6
Energy demand in transport (ktoe)												
	1990	1048	1397	1843	1882	1922	-77	-140	-197	-4.0	-6.9	-9.3
Public road transport	164	25	30	35	35	32	0	0	-3	-0.3	-1.4	-9.5
Private cars and motorcycles	396	630	823	975	968	993	-26	-44	-55	-2.6	-4.3	-5.3
Trucks	1159	288	414	635	664	679	-50	-94	-130	-7.2	-12.3	-16.1
Rail	132	75	79	119	124	107	1	2	2	0.9	1.4	2.1
Aviation	135	27	46	73	85	104	-2	-4	-10	-2.8	-4.6	-9.1
Inland navigation	5	3	5	6	6	7	0	0	0	-0.8	-0.9	-1.9

Source: PRIMES

Luxembourg: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
Annual % Change													
Primary Production	47	47	57	74	162	212	260	278	289	1.9	11.1	4.9	1.1
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	47	47	57	74	162	212	260	278	289	1.9	11.1	4.9	1.1
Hydro	6	7	10	8	9	9	10	10	10	5.8	-0.9	0.1	0.1
Biomass & Waste	41	39	44	59	89	111	139	154	167	0.7	7.3	4.6	1.9
Wind	0	0	2	5	14	14	21	21	17		19.6	4.0	-1.9
Solar and others	0	0	0	2	49	77	91	94	95			6.3	0.5
Geothermal	0	0	0	0	0	0	0	0	0			4.2	0.7
Net Imports	3520	3257	3620	4606	4820	4968	4899	4899	4979	0.3	2.9	0.2	0.2
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8
Oil	1620	1756	2332	3066	3268	3238	3027	2903	2861	3.7	3.4	-0.8	-0.6
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	1620	1756	2332	3066	3268	3238	3027	2903	2861	3.7	3.4	-0.8	-0.6
Natural gas	430	557	670	1179	1098	1206	1252	1329	1398	4.6	5.1	1.3	1.1
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9
Gross Inland Consumption	3556	3335	3628	4698	4982	5181	5159	5177	5268	0.2	3.2	0.3	0.2
Solids	1134	514	125	82	53	49	45	34	27	-19.8	-8.2	-1.7	-4.8
Oil	1609	1788	2283	3084	3268	3238	3027	2903	2861	3.6	3.7	-0.8	-0.6
Natural gas	430	557	670	1179	1098	1206	1252	1329	1398	4.6	5.1	1.3	1.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9
Renewable energy forms	47	47	57	74	209	345	504	548	582	1.9	14.0	9.2	1.5
as % in Gross Inland Consumption													
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.9	0.7	0.5				
Oil	45.2	53.6	62.9	65.6	65.6	62.5	58.7	56.1	54.3				
Natural gas	12.1	16.7	18.5	25.1	22.0	23.3	24.3	25.7	26.5				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.3	1.4	1.6	1.6	4.2	6.7	9.8	10.6	11.0				
Gross Electricity Generation in GWh_e	627	498	433	3344	2603	3187	3773	4584	5256	-3.6	19.6	3.8	3.4
Self consumption and grid losses	410	497	439	448	181	207	234	296	359	0.7	-8.5	2.6	4.4
Fuel Inputs to Thermal Power Generation	190	132	75	568	434	523	590	703	805	-8.8	19.1	3.1	3.2
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0				
Gas (including derived gases)	162	106	47	525	383	469	511	606	692	-11.6	23.3	2.9	3.1
Biomass & Waste	25	24	28	43	50	54	78	97	112	1.0	5.9	4.6	3.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	378	144	0	1	70	171	286	311	337			15.2	1.6
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	1	70	171	286	311	337			15.2	1.6
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0				
Energy Branch Consumption	31	30	26	30	6	7	9	10	12	-1.8	-13.2	3.3	3.2
Non-Energy Uses	20	23	14	20	25	28	31	33	35	-3.9	6.4	1.9	1.4
Final Energy Demand	3329	3165	3549	4424	4766	4905	4840	4806	4846	0.6	3.0	0.2	0.0
by sector													
Industry	1729	1196	958	937	980	1050	1098	1149	1201	-5.7	0.2	1.1	0.9
- energy intensive industries	1525	900	501	470	477	500	499	503	501	-10.5	-0.5	0.4	0.0
- other industrial sectors	204	296	457	467	502	551	599	646	700	8.4	1.0	1.8	1.6
Residential	519	563	596	649	673	672	668	649	618	1.4	1.2	-0.1	-0.8
Tertiary	74	99	118	130	133	140	127	130	131	4.7	1.2	-0.5	0.4
Transport	1007	1307	1877	2708	2980	3043	2948	2879	2896	6.4	4.7	-0.1	-0.2
by fuel													
Solids	756	369	125	82	53	49	45	34	27	-16.5	-8.1	-1.7	-4.8
Oil	1581	1752	2266	3065	3242	3210	2997	2871	2826	3.7	3.6	-0.8	-0.6
Gas	622	585	623	678	715	736	740	722	704	0.0	1.4	0.3	-0.5
Electricity	355	430	491	529	561	599	635	732	821	3.3	1.3	1.3	2.6
Heat (from CHP and District Heating)	0	14	27	55	72	77	81	85	86		10.4	1.1	0.7
Renewable energy forms	15	15	16	16	121	233	341	361	379	0.4	22.5	10.9	1.0
Other	0	0	0	0	0	1	1	2	3			14.9	7.2
RES in Gross Final Energy Consumption ^(A)			34	48	189	306	440	477	504		18.6	8.8	1.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.1	14.2	13.6	13.3	13.3	-2.1	3.1	-0.3	-0.2
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.6	12.7	12.2	11.9	11.9	-1.8	3.6	-0.3	-0.2
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.1	1.2	1.4	1.6	-17.0	23.3	2.9	3.1
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.6	-11.5	-1.1	0.7	0.1
Residential	1.3	1.3	1.4	1.4	1.3	1.2	1.2	1.0	0.8	1.1	-0.6	-1.4	-3.5
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.8	0.2	-1.2
Transport	3.0	3.9	5.6	8.1	8.8	8.7	8.1	7.8	7.8	6.5	4.7	-0.8	-0.4
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-7.6	-0.6	0.0	-0.3
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.8	0.8	0.8	2.4	0.6	-0.8	0.3
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	109.7	110.5	106.0	104.1	104.1				

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Luxembourg: Cost Efficiency with JI/CDM Scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9	
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6	
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.2	118.3	100.7	87.9	79.7	-5.9	-0.5	-3.0	-2.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.52	2.45	2.36	2.30	2.26	-2.0	0.3	-0.7	-0.4	
Import Dependency %	99.0	97.7	99.8	98.0	96.8	95.9	95.0	94.6	94.5					
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.2	4.7	5.2	5.4	5.8		4.9	2.0	1.2	
as % of GDP			10.4	11.4	11.6	10.8	10.1	9.3	8.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.8	79.1	71.7	65.9	62.0	-9.0	-1.4	-1.9	-1.4	
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.8	70.5	61.3	52.9	45.5	-2.2	-2.0	-2.8	-2.9	
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.4	68.3	52.7	47.0	42.5	-0.5	-2.5	-3.8	-2.1	
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	157.7	143.3	127.1	119.9	1.8	1.0	-1.5	-1.8	
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	142.0	132.6	121.6	115.1	110.5	0.0	4.3	-1.5	-1.0	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.25	0.26	0.25	0.25	0.26	-18.4	5.6	-0.2	0.3	
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.45	2.37	2.26	2.18	2.12	-1.9	-0.1	-0.8	-0.6	
Industry	3.28	2.58	1.74	1.63	1.52	1.50	1.45	1.39	1.35	-6.1	-1.4	-0.4	-0.8	
Residential	2.45	2.39	2.37	2.21	1.97	1.85	1.73	1.53	1.32	-0.3	-1.8	-1.3	-2.7	
Tertiary	0.21	0.34	0.65	0.48	0.48	0.47	0.51	0.46	0.44	12.0	-3.0	0.7	-1.6	
Transport	2.95	2.96	2.97	3.00	2.95	2.87	2.76	2.72	2.70	0.1	-0.1	-0.7	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	4.0	6.2	9.0	9.9	10.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	5.6	9.7	10.7	11.5					
Gross Electricity generation by source (in GWh)														
			433	3344	2603	3187	3773	4584	5256		19.6	3.8	3.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1	0	2	0	0	0	0		7.7			
Gas (including derived gases)			222	3083	2112	2667	3073	3802	4447		25.3	3.8	3.8	
Biomass-waste			63	97	198	220	326	402	474		12.1	5.1	3.8	
Hydro (pumping excluded)			120	93	110	110	111	111	112		-0.9	0.1	0.1	
Wind			27	53	162	168	240	243	198		19.6	4.0	-1.9	
Solar			0	18	20	21	23	25	26			1.7	1.0	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			275	722	895	963	1090	1259	1334		12.5	2.0	2.0	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			167	214	281	289	321	327	306		5.3	1.3	-0.5	
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0	
Wind			10	35	100	106	135	139	118		25.9	3.0	-1.4	
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			108	509	614	674	769	932	1028		19.0	2.3	2.9	
of which cogeneration units			61	112	226	236	246	235	244		13.9	0.9	-0.1	
Solids fired			0	0	0	0	0	0	0					
Gas fired			87	477	507	565	662	813	902		19.3	2.7	3.1	
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5	
Biomass-waste fired			15	25	100	103	103	115	122		21.1	0.2	1.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			16.8	52.5	32.4	36.8	38.5	40.5	43.8					
Efficiency of gross thermal power generation (%)			32.7	48.1	45.8	47.4	49.6	51.5	52.6					
% of gross electricity from CHP			53.7	11.8	30.3	27.6	28.2	23.9	20.2					
Carbon free gross electricity generation (%)			48.5	7.8	18.8	16.3	18.5	17.1	15.4					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			48.5	7.8	18.8	16.3	18.5	17.1	15.4					
Transport sector														
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.6	10.0	10.4	10.8	3.5	2.0	1.0	0.8	
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.7	0.9	
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.2	7.4	7.7	8.0	3.4	1.8	0.8	0.7	
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	0.8	1.9	
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.3	1.4	5.8	3.7	2.6	0.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.5	12.5	13.5	14.5	8.0	2.4	1.8	1.5	
Trucks	3.2	5.5	7.6	8.8	10.1	11.2	12.2	13.3	14.3	9.0	2.8	2.0	1.5	
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-2.8	-0.6	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1007	1307	1877	2708	2980	3043	2948	2879	2896	6.4	4.7	-0.1	-0.2	
Public road transport	18	18	24	29	32	30	28	27	26	2.9	2.9	-1.1	-0.8	
Private cars and motorcycles	500	609	760	916	968	951	870	806	786	4.3	2.4	-1.1	-1.0	
Trucks	345	482	757	1323	1474	1525	1516	1556	1600	8.2	6.9	0.3	0.5	
Rail	13	9	15	9	8	7	6	6	5	2.0	-5.9	-3.1	-1.6	
Aviation	131	189	320	431	498	529	528	484	478	9.3	4.5	0.6	-1.0	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Luxembourg: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	212	260	289	34	38	16	18.8	17.2	5.9
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	212	260	289	34	38	16	18.8	17.2	5.9
Hydro	6	10	8	9	10	10	0	0	0	2.3	1.6	0.0
Biomass & Waste	41	44	59	111	139	167	0	0	-16	0.0	0.0	-8.9
Wind	0	2	5	14	21	17	3	3	3	24.8	16.5	21.7
Solar and others	0	0	2	77	91	95	31	35	29	65.5	63.3	44.8
Geothermal	0	0	0	0	0	0	0	0	0	46.7	58.8	66.6
Net Imports	3520	3620	4606	4968	4899	4979	-313	-512	-527	-5.9	-9.5	-9.6
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1620	2332	3066	3238	3027	2861	-237	-449	-587	-6.8	-12.9	-17.0
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	3238	3027	2861	-237	-449	-587	-6.8	-12.9	-17.0
Natural gas	430	670	1179	1206	1252	1398	-107	-153	-30	-8.1	-10.9	-2.1
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	5181	5159	5268	-279	-474	-511	-5.1	-8.4	-8.8
Solids	1134	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1609	2283	3084	3238	3027	2861	-237	-449	-587	-6.8	-12.9	-17.0
Natural gas	430	670	1179	1206	1252	1398	-107	-153	-30	-8.1	-10.9	-2.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	345	504	582	65	129	108	23.2	34.6	22.8
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	0.9	0.9	0.5	0.0	0.0	0.0			
Oil	45.2	62.9	65.6	62.5	58.7	54.3	-1.1	-3.0	-5.3			
Natural gas	12.1	18.5	25.1	23.3	24.3	26.5	-0.8	-0.7	1.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	6.7	9.8	11.0	1.5	3.1	2.8			
Gross Electricity Generation in GWh_e	627	433	3344	3187	3773	5256	-377	-337	1319	-10.6	-8.2	33.5
Self consumption and grid losses	410	439	448	207	234	359	-31	-12	92	-12.9	-4.9	34.3
Fuel Inputs to Thermal Power Generation	190	75	568	523	590	805	-64	-63	177	-10.9	-9.7	28.2
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0	6106.3		
Gas (including derived gases)	162	47	525	469	511	692	-74	-97	127	-13.6	-15.9	22.5
Biomass & Waste	25	28	43	54	78	112	9	33	50	20.7	74.4	79.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	171	286	337	19	54	27	12.6	23.2	8.5
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	171	286	337	19	54	27	12.6	23.2	8.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	9	12	-2	0	3	-19.8	-2.6	36.9
Non-Energy Uses	20	14	20	28	31	35	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4905	4840	4846	-256	-459	-610	-5.0	-8.7	-11.2
by sector												
Industry	1729	958	937	1050	1098	1201	-20	-29	-44	-1.9	-2.6	-3.5
- energy intensive industries	1525	501	470	500	499	501	-5	-8	-7	-0.9	-1.5	-1.3
- other industrial sectors	204	457	467	551	599	700	-16	-22	-37	-2.8	-3.5	-5.1
Residential	519	596	649	672	668	618	-34	-45	-103	-4.8	-6.4	-14.3
Tertiary	74	118	130	140	127	131	-15	-38	-40	-9.4	-23.0	-23.4
Transport	1007	1877	2708	3043	2948	2896	-186	-346	-422	-5.8	-10.5	-12.7
by fuel												
Solids	756	125	82	49	45	27	-1	-2	-2	-2.2	-3.8	-8.0
Oil	1581	2266	3065	3210	2997	2826	-237	-449	-587	-6.9	-13.0	-17.2
Gas	622	623	678	736	740	704	-33	-56	-157	-4.3	-7.1	-18.2
Electricity	355	491	529	599	635	821	-30	-28	106	-4.7	-4.2	14.7
Heat (from CHP and District Heating)	0	27	55	77	81	86	-4	-7	-19	-4.9	-7.9	-18.4
Renewable energy forms	15	16	16	233	341	379	49	83	50	26.6	32.2	15.1
Other	0	0	0	1	1	3	0	0	0	13.7	6.6	1.2
RES in Gross Final Energy Consumption ^(A)	34	48	306	440	504	61	115	96	24.8	35.5	23.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	14.2	13.6	13.3	-1.0	-1.8	-2.0	-6.8	-11.8	-12.8
CO₂ Emissions (energy related)	10.6	8.8	12.4	12.7	12.2	11.9	-1.0	-1.7	-1.9	-7.1	-12.5	-13.5
Power generation/District heating	0.7	0.1	1.2	1.1	1.2	1.6	-0.2	-0.2	0.3	-13.6	-15.9	22.5
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.6	1.6	1.6	0.0	0.0	-0.1	-1.1	-2.4	-7.7
Residential	1.3	1.4	1.4	1.2	1.2	0.8	-0.2	-0.2	-0.6	-11.1	-16.5	-40.8
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-8.3	-21.5	-30.7
Transport	3.0	5.6	8.1	8.7	8.1	7.8	-0.6	-1.2	-1.4	-6.7	-13.0	-15.6
CO₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	-0.4	-1.3	-1.9
Non-CO₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.8	0.8	-0.1	-0.1	-0.1	-6.3	-8.7	-8.5
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	110.5	106.0	104.1	-8.0	-14.1	-15.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Luxembourg: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	118.3	100.7	79.7	-6.4	-9.2	-7.7	-5.1	-8.4	-8.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.45	2.36	2.26	-0.05	-0.11	-0.12	-2.1	-4.4	-5.2
Import Dependency %	99.0	99.8	98.0	95.9	95.0	94.5	-0.8	-1.1	-0.8			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	4.7	5.2	5.8	0.2	0.2	0.4	4.6	4.8	6.8
as % of GDP		10.4	11.4	10.8	10.1	8.8	0.5	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.2	0.4						
as % of GDP				0.48	0.47	0.56						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	79.1	71.7	62.0	-1.5	-1.9	-2.3	-1.9	-2.6	-3.5
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	70.5	61.3	45.5	-3.6	-4.2	-7.6	-4.8	-6.4	-14.3
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	68.3	52.7	42.5	-7.1	-15.8	-13.0	-9.4	-23.0	-23.4
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	157.7	143.3	119.9	-3.5	-9.2	-9.7	-2.1	-6.0	-7.5
Freight transport (toe/Mtkm)	93.1	93.3	144.6	132.6	121.6	110.5	-8.6	-13.1	-14.0	-6.1	-9.7	-11.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.25	0.26	-0.01	-0.02	0.00	-4.8	-8.4	1.5
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.37	2.26	2.12	-0.04	-0.09	-0.16	-1.6	-3.7	-7.0
Industry	3.28	1.74	1.63	1.50	1.45	1.35	0.01	0.00	-0.06	0.8	0.2	-4.3
Residential	2.45	2.37	2.21	1.85	1.73	1.32	-0.13	-0.21	-0.59	-6.5	-10.8	-30.9
Tertiary	0.21	0.65	0.48	0.47	0.51	0.44	0.01	0.01	-0.05	1.3	2.0	-9.5
Transport	2.95	2.97	3.00	2.87	2.76	2.70	-0.03	-0.08	-0.09	-1.0	-2.8	-3.3
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	6.2	9.0	10.3	1.5	2.9	2.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	9.7	11.5	0.9	2.8	2.4			
Gross Electricity generation by source (in GWh_e)												
	433	3344	3187	3773	5256	5256	-377	-337	1319	-10.6	-8.2	33.5
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2667	3073	4447	4447	-447	-511	1070	-14.3	-14.3	31.7
Biomass-waste	63	97	220	326	474	474	33	139	213	17.8	74.1	81.9
Hydro (pumping excluded)	120	93	110	111	112	112	3	2	0	2.3	1.6	0.0
Wind	27	53	168	240	198	198	33	34	35	24.8	16.5	21.7
Solar	0	18	21	23	26	26	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	963	1090	1334	1334	-2	5	241	-0.2	0.5	22.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	289	321	306	306	31	31	33	12.0	10.8	12.1
Hydro (pumping excluded)	155	155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind	10	35	106	135	118	118	31	31	33	41.6	30.2	39.0
Solar	2	23	28	30	33	33	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	674	769	1028	1028	-33	-26	208	-4.6	-3.3	25.4
of which cogeneration units	61	112	236	246	244	244	-19	-42	-50	-7.3	-14.7	-17.1
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	565	662	902	902	-51	-61	160	-8.3	-8.4	21.5
Oil fired	6	7	6	4	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	103	103	122	122	18	35	48	21.7	51.0	65.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	36.8	38.5	43.8	43.8	-4.3	-3.7	3.7			
Efficiency of gross thermal power generation (%)	32.7	48.1	47.4	49.6	52.6	52.6	-0.9	-0.1	2.8			
% of gross electricity from CHP	53.7	11.8	27.6	28.2	20.2	20.2	-2.0	-0.7	-14.9			
Carbon free gross electricity generation (%)	48.5	7.8	16.3	18.5	15.4	15.4	3.7	5.8	1.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	16.3	18.5	15.4	15.4	3.7	5.8	1.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	5.2	7.4	8.3	9.6	10.0	10.8	-0.1	-0.2	-0.3	-1.4	-2.3	-2.8
Private cars and motorcycles	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.3	2.1	2.4
Rail	4.2	5.8	6.4	7.2	7.4	8.0	-0.1	-0.2	-0.3	-1.8	-3.0	-3.7
Aviation	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	1.8	2.7	3.7
Inland navigation	0.4	0.7	0.8	1.1	1.3	1.4	0.0	0.0	0.0	-2.1	-2.9	-3.1
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	3.8	8.2	9.2	11.5	12.5	14.5	-0.2	-0.4	-0.6	-1.9	-3.1	-3.9
Rail	3.2	7.6	8.8	11.2	12.2	14.3	-0.2	-0.4	-0.6	-2.1	-3.3	-4.1
Inland navigation	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	5.4	7.4	8.9
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1007	1877	2708	3043	2948	2896	-186	-346	-422	-5.8	-10.5	-12.7
Private cars and motorcycles	18	24	29	30	28	26	-1	-2	-2	-1.9	-6.0	-7.8
Trucks	500	760	916	951	870	786	-35	-83	-76	-3.5	-8.7	-8.8
Rail	345	757	1323	1525	1516	1600	-131	-218	-277	-7.9	-12.6	-14.8
Aviation	13	15	9	7	6	5	0	0	0	1.1	4.0	10.4
Inland navigation	131	320	431	529	528	478	-20	-43	-67	-3.7	-7.6	-12.3
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	0	0	0	0	4	22	37	45	50			23.6	3.1
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	0	0	0	0	4	22	37	45	50			23.6	3.1
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	0	0	0	0	0	0	0	0	0				
Wind	0	0	0	0	0	3	10	15	17				6.1
Solar and others	0	0	0	0	4	19	27	30	32			19.9	1.8
Geothermal	0	0	0	0	0	0	0	0	0			5.3	-1.0
Net Imports	611	890	818	953	926	795	810	747	758	3.0	1.3	-1.3	-0.7
Solids	0	0	0	0	0	0	0	0	0				
Oil	611	890	818	953	868	661	654	455	444	3.0	0.6	-2.8	-3.8
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	611	890	818	953	868	661	654	455	444	3.0	0.6	-2.8	-3.8
Natural gas	0	0	0	0	57	57	64	188	195			1.2	11.8
Electricity	0	0	0	0	0	73	85	95	108				2.4
Gross Inland Consumption	581	808	769	953	930	817	847	792	808	2.8	1.9	-0.9	-0.5
Solids	0	0	0	0	0	0	0	0	0				
Oil	581	808	769	953	868	661	654	455	444	2.8	1.2	-2.8	-3.8
Natural gas	0	0	0	0	57	57	64	188	195			1.2	11.8
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	73	85	95	108				2.4
Renewable energy forms	0	0	0	0	5	26	44	54	61			24.1	3.2
as % in Gross Inland Consumption													
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Oil	100.0	100.0	100.0	100.0	93.4	80.9	77.2	57.5	55.0				
Natural gas	0.0	0.0	0.0	0.0	6.1	7.0	7.6	23.7	24.2				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.0	0.0	0.0	0.0	0.5	3.2	5.2	6.9	7.5				
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	1997	1271	1362	1577	1652	5.7	0.4	-3.8	2.0
Self consumption and grid losses	190	373	350	438	167	116	128	139	151	6.3	-7.1	-2.7	1.7
Fuel Inputs to Thermal Power Generation	321	463	494	580	496	272	268	211	217	4.4	0.0	-6.0	-2.1
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	321	463	494	580	439	215	202	20	19	4.4	-1.2	-7.5	-21.1
Gas (including derived gases)	0	0	0	0	57	57	64	188	195			1.2	11.8
Biomass & Waste	0	0	0	0	0	0	2	3	3				5.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	0	0	0	0	1	3	5	6	7			24.6	3.5
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	0	1	3	5	6	7			26.2	3.6
District heating	0	0	0	0	0	0	0	0	0			-7.9	0.6
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	8	19	10	12	8	3	3	2	2	2.5	-2.1	-9.7	-1.6
Non-Energy Uses	6	0	0	0	0	0	0	0	0				
Final Energy Demand	332	451	408	528	592	641	674	688	701	2.1	3.8	1.3	0.4
by sector													
Industry	0	42	43	46	49	53	59	66	72		1.3	1.8	2.0
- energy intensive industries	0	0	0	0	0	0	0	0	0				
- other industrial sectors	0	42	43	46	49	53	59	66	72		1.3	1.8	2.0
Residential	55	73	76	89	101	112	118	119	122	3.2	2.9	1.5	0.3
Tertiary	56	32	52	66	68	76	79	83	85	-0.7	2.7	1.5	0.7
Transport	221	304	237	328	374	399	419	420	422	0.7	4.6	1.2	0.1
by fuel													
Solids	0	0	0	0	0	0	0	0	0				
Oil	254	342	274	373	430	446	452	435	426	0.8	4.6	0.5	-0.6
Gas	0	0	0	0	0	0	0	0	0			2.1	2.4
Electricity	78	108	135	155	157	172	191	218	237	5.6	1.6	1.9	2.2
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-7.9	0.5
Renewable energy forms	0	0	0	0	5	22	31	35	38			20.5	2.0
Other	0	0	0	0	0	0	0	0	0			14.8	1.9
RES in Gross Final Energy Consumption ^(A)			0	0	5	25	42	51	57			23.9	3.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.3	2.6	2.6	2.3	2.3	2.9	1.7	-2.3	-1.2
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.8	2.2	2.1	1.8	1.8	3.0	1.7	-2.7	-1.8
Power generation/District heating	1.0	1.5	1.6	1.9	1.5	0.8	0.8	0.5	0.5	4.4	-0.2	-6.4	-4.3
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-1.8	4.2	-3.3	-10.5
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		5.9	-5.0	
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.2	1.2	1.2	0.7	4.7	1.0	0.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.4	0.5	0.5	2.2	1.5	-0.3	1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	156.4	125.2	123.6	108.9	109.1				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: Cost Efficiency with JI/CDM Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479		0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8		4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	180.4	133.9	114.3	91.7	82.8		-1.9	0.5	-4.5	-3.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.03	2.64	2.54	2.27	2.21		0.1	-0.2	-1.8	-1.4
Import Dependency %	100.0	104.5	100.8	100.0	99.5	97.3	95.6	94.3	93.8					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.7	0.7	0.8	0.9	1.0		6.3	2.0	1.5	
as % of GDP			8.3	12.2	13.3	12.0	11.3	10.6	10.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.3	81.6	76.5	72.9	70.6		-1.4	-1.3	-0.8	
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	114.2	106.6	91.6	79.4	71.6		-1.6	1.3	-2.2	-2.4
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	119.9	111.5	93.9	84.6	76.4		-5.9	1.8	-2.4	-2.0
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.0	56.8	55.6	52.1	49.8		-3.8	2.2	-0.4	-1.1
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	166.9	160.9	150.1	141.8	135.7		2.5	4.8	-1.1	-1.0
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.77	0.65	0.59	0.32	0.31		-1.3	-0.6	-2.7	-6.1
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.16	2.08	2.00	1.89	1.82		-1.3	0.9	-0.8	-1.0
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.14	0.93	0.70	0.40	0.22		-4.9	1.3	-4.8	-10.8
Tertiary	0.00	0.00	0.50	0.49	0.68	0.51	0.35	0.18	0.10			3.1	-6.4	-11.5
Transport	2.97	2.96	2.98	3.00	2.99	2.97	2.96	2.95	2.93		0.0	0.1	-0.1	-0.1
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.8	3.8	6.1	7.3	8.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.4	1.6	2.1					
Gross Electricity generation by source (in GWh)														
			1917	2240	1997	1271	1362	1577	1652		0.4	-3.8	2.0	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1623	859	806	112	105		-1.6	-6.8	-18.4	
Gas (including derived gases)			0	0	374	374	432	1271	1327			1.4	11.9	
Biomass-waste			0	0	0	2	11	17	17				5.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	36	113	176	203				6.1	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	538	558	531	630	690		1.3	-0.1	2.7	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	15	46	71	82				6.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	15	46	71	82				6.1	
Solar			0	0	0	0	0	0	0					
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	538	543	485	558	608		1.3	-1.0	2.3	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	50	50	218	265	315				15.9	3.7
Oil fired			472	483	488	493	266	291	291		0.3	-5.9	0.9	
Biomass-waste fired			0	0	0	0	1	2	2				5.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	40.4	25.3	28.6	28.1	26.9					
Efficiency of gross thermal power generation (%)			33.4	33.2	34.7	39.0	40.1	57.0	57.3					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	3.0	9.1	12.3	13.3					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	3.0	9.1	12.3	13.3					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.2	6.7	7.1		5.2	2.3	2.1	1.4
Public road transport	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7		5.9	1.8	1.6	1.3
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.2		4.4	2.4	1.1	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.5	3.9	4.2		5.6	2.4	2.8	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	-0.1	0.2	0.0
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	-0.1	0.2	0.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	374	399	419	420	422		0.7	4.6	1.2	0.1
Public road transport	5	11	10	12	14	15	16	16	15		5.8	4.0	1.1	-0.3
Private cars and motorcycles	87	160	89	142	174	187	202	204	206		0.2	6.9	1.5	0.2
Trucks	57	59	52	84	83	81	76	72	68		-0.8	4.7	-0.9	-1.0
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	103	117	126	130	132		1.8	1.8	2.0	0.5
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	22	37	50	15	21	25	196.8	126.3	99.5
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	22	37	50	15	21	25	196.8	126.3	99.5
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	3	10	17	3	7	13		328.6	272.1
Solar and others	0	0	0	19	27	32	12	13	12	155.6	93.7	59.7
Geothermal	0	0	0	0	0	0	0	0	0	171.8	140.2	158.0
Net Imports	611	818	953	795	810	758	-115	-95	-101	-12.7	-10.5	-11.7
Solids	0	0	0	0	0	0	0	0	0	-16.3	-41.3	-78.4
Oil	611	818	953	661	654	444	-115	-49	-69	-14.8	-7.0	-13.4
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	661	654	444	-115	-49	-69	-14.8	-7.0	-13.4
Natural gas	0	0	0	57	64	195	0	-42	-25	-0.1	-39.6	-11.3
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	817	847	808	-100	-74	-76	-10.9	-8.1	-8.6
Solids	0	0	0	0	0	0	0	0	0	-16.3	-41.3	-78.4
Oil	581	769	953	661	654	444	-115	-49	-69	-14.8	-7.0	-13.4
Natural gas	0	0	0	57	64	195	0	-42	-25	-0.1	-39.6	-11.3
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	26	44	61	14	17	18	127.2	61.9	41.5
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	80.9	77.2	55.0	-3.7	0.9	-3.0			
Natural gas	0.0	0.0	0.0	7.0	7.6	24.2	0.8	-4.0	-0.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	3.2	5.2	7.5	1.9	2.2	2.7			
Gross Electricity Generation in GWh_e	1100	1917	2240	1271	1362	1652	-302	-277	-62	-19.2	-16.9	-3.6
Self consumption and grid losses	190	350	438	116	128	151	-32	-21	-9	-21.6	-14.2	-5.7
Fuel Inputs to Thermal Power Generation	321	494	580	272	268	217	-101	-60	-34	-27.0	-18.3	-13.4
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	215	202	19	-100	-13	-1	-31.7	-6.1	-3.3
Gas (including derived gases)	0	0	0	57	64	195	0	-42	-25	-0.1	-39.6	-11.3
Biomass & Waste	0	0	0	0	2	3	-1	-5	-8	-66.4	-71.9	-71.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	3	5	7	0	1	1	15.7	30.5	14.8
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	3	5	7	0	1	1	15.8	30.8	14.7
District heating	0	0	0	0	0	0	0	0	0	10.0	-11.6	27.4
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	3	2	-2	-1	-1	-37.8	-22.7	-20.4
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	641	674	701	-26	-44	-59	-3.9	-6.1	-7.8
by sector												
Industry	0	43	46	53	59	72	-2	-3	-2	-3.1	-4.3	-3.3
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	53	59	72	-2	-3	-2	-3.1	-4.3	-3.3
Residential	55	76	89	112	118	122	-2	-7	-12	-1.9	-5.4	-9.0
Tertiary	56	52	66	76	79	85	-12	-15	-16	-13.2	-15.7	-15.7
Transport	221	237	328	399	419	422	-11	-20	-29	-2.6	-4.5	-6.5
by fuel												
Solids	0	0	0	0	0	0	0	0	0	-16.3	-41.3	-78.4
Oil	254	274	373	446	452	426	-15	-36	-68	-3.2	-7.3	-13.8
Gas	0	0	0	0	0	0	0	0	0	14.9	-2.2	-4.8
Electricity	78	135	155	172	191	237	-23	-22	-5	-11.9	-10.3	-1.9
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	10.0	-11.6	27.3
Renewable energy forms	0	0	0	22	31	38	12	14	13	123.1	82.2	50.5
Other	0	0	0	0	0	0	0	0	0	5.5	6.7	-5.0
RES in Gross Final Energy Consumption ^(A)	0	0	0	25	42	57	15	19	22	144.6	86.7	63.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.6	2.6	2.3	-0.4	-0.3	-0.3	-12.8	-9.6	-11.5
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.2	2.1	1.8	-0.4	-0.2	-0.3	-14.5	-10.3	-12.8
Power generation/District heating	1.0	1.6	1.9	0.8	0.8	0.5	-0.3	-0.1	-0.1	-28.1	-15.0	-10.5
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-22.0	-22.3	-18.2
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	-6.3	-26.4	-71.9
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-8.1	-29.4	-78.0
Transport	0.7	0.7	1.0	1.2	1.2	1.2	0.0	-0.1	-0.1	-2.8	-5.0	-7.5
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.4	0.5	0.0	0.0	0.0	-4.2	-6.1	-6.6
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	125.2	123.6	109.1	-18.4	-13.2	-14.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Malta: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	133.9	114.3	82.8	-16.5	-10.0	-7.8	-10.9	-8.1	-8.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.64	2.54	2.21	-0.11	-0.06	-0.11	-4.0	-2.5	-4.6
Import Dependency %	100.0	100.8	100.0	97.3	95.6	93.8	-1.9	-2.6	-3.4			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.7	0.8	1.0	0.0	0.0	0.0	1.5	1.5	1.2
as % of GDP		8.3	12.2	12.0	11.3	10.0	0.2	0.2	0.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.18	0.17	0.13						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	81.6	76.5	70.6	-2.6	-3.5	-2.4	-3.1	-4.3	-3.3
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	106.6	91.6	71.6	-2.1	-5.2	-7.0	-1.9	-5.4	-9.0
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	111.5	93.9	76.4	-17.0	-17.5	-14.3	-13.2	-15.7	-15.7
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	56.8	55.6	49.8	-0.6	-1.1	-1.8	-1.1	-2.0	-3.5
Freight transport (toe/Mtkm)	81.8	104.3	167.6	160.9	150.1	135.7	-5.4	-10.9	-15.3	-3.2	-6.7	-10.1
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.65	0.59	0.31	-0.08	0.01	-0.02	-11.0	2.3	-7.1
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.08	2.00	1.82	0.01	-0.03	-0.12	0.7	-1.3	-6.3
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-19.5	-18.8	-15.4
Residential	1.66	1.01	1.10	0.93	0.70	0.22	-0.04	-0.20	-0.50	-4.4	-22.2	-69.2
Tertiary	0.00	0.50	0.49	0.51	0.35	0.10	0.03	-0.07	-0.29	6.0	-16.2	-73.9
Transport	2.97	2.98	3.00	2.97	2.96	2.93	-0.01	-0.02	-0.03	-0.2	-0.6	-1.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		0.0	0.0	3.8	6.1	8.0	2.3	3.0	3.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	0.9	1.4	2.1	0.2	0.4	0.4			
Gross Electricity generation by source (in GWh_e)												
Gross Electricity generation by source (in GWh_e)	1917	2240	1271	1362	1652	1652	-302	-277	-62	-19.2	-16.9	-3.6
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	859	806	105	105	-334	-52	-4	-28.0	-6.1	-3.3
Gas (including derived gases)	0	0	374	432	1327	1327	0	-284	-163	-0.1	-39.6	-10.9
Biomass-waste	0	0	2	11	17	17	-4	-27	-44	-66.4	-71.9	-71.7
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	36	113	203	203	36	86	148		328.6	272.1
Solar	0	0	0	0	0	0	0	0	0			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	472	483	558	531	690	690	15	-24	51	2.7	-4.3	8.0
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	0	0	15	46	82	82	15	36	62		355.6	296.9
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	15	46	82	82	15	36	62		355.6	296.9
Solar	0	0	0	0	0	0	0	0	0			
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	472	483	543	485	608	608	-1	-59	-11	-0.1	-10.9	-1.7
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	50	218	315	315	-1	-56	-3	-2.7	-20.5	-1.0
Oil fired	472	483	493	266	291	291	1	0	-2	0.3	0.0	-0.7
Biomass-waste fired	0	0	0	1	2	2	0	-3	-5	-66.4	-71.9	-71.7
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	43.6	49.5	25.3	28.6	26.9	26.9	-6.6	-4.3	-3.1			
Efficiency of gross thermal power generation (%)	33.4	33.2	39.0	40.1	57.3	57.3	2.7	-2.2	0.5			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.0	9.1	13.3	13.3	2.6	5.1	6.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.0	9.1	13.3	13.3	2.6	5.1	6.6			
Transport sector												
Passenger transport activity (Gpkm)	2.4	4.0	4.4	5.6	6.2	7.1	0.0	-0.1	-0.1	-0.8	-1.3	-1.7
Public road transport	0.3	0.5	0.5	0.6	0.6	0.7	0.0	0.0	0.0	2.5	3.3	3.8
Private cars and motorcycles	0.9	1.4	1.6	1.9	2.0	2.2	0.0	0.0	0.0	-0.8	-1.2	-1.4
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Aviation	1.2	2.1	2.3	3.1	3.5	4.2	0.0	-0.1	-0.1	-1.5	-2.3	-2.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-2.1	-2.8	-3.3
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-2.1	-2.8	-3.3
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)	221	237	328	399	419	422	-11	-20	-29	-2.6	-4.5	-6.5
Public road transport	5	10	12	15	16	15	0	-1	-1	-0.7	-3.2	-6.6
Private cars and motorcycles	87	89	142	187	202	206	-4	-7	-11	-2.2	-3.4	-5.3
Trucks	57	52	84	81	76	68	-4	-8	-10	-5.3	-9.4	-13.0
Rail	0	0	0	0	0	0	0	0	0			
Aviation	72	86	90	117	126	132	-2	-4	-6	-1.5	-3.1	-4.6
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
											Annual % Change		
Primary Production	60478	65988	57172	61834	57102	57518	56297	48908	42375	-0.6	0.0	-0.1	-2.8
Solids	0	0	0	0	0	0	0	0	0				
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0			
Natural gas	54613	60456	51904	56265	53300	51973	48685	40100	32670	-0.5	0.3	-0.9	-3.9
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Renewable energy sources	956	933	1831	2242	2780	4521	6587	7774	8660	6.7	4.3	9.0	2.8
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0
Biomass & Waste	942	894	1739	2035	2200	3144	4453	5114	5588	6.3	2.4	7.3	2.3
Wind	5	27	71	178	440	706	1012	1447	1687	30.9	20.0	8.7	5.2
Solar and others	2	4	9	22	132	663	1114	1203	1378	15.5	30.8	23.8	2.1
Geothermal	0	0	0	0	0	0	0	0	0			4.7	2.0
Net Imports	17443	16359	34331	36912	40019	42895	44273	52217	59688	7.0	1.5	1.0	3.0
Solids	9574	8921	8222	8313	4775	7154	7112	5636	5548	-1.5	-5.3	4.1	-2.5
Oil	30876	32829	41673	47392	49912	50326	50496	51045	51694	3.0	1.8	0.1	0.2
- Crude oil and Feedstocks	47956	59277	60955	61302	65878	66315	66634	67224	67909	2.4	0.8	0.1	0.2
- Oil products	-17080	-26448	-19282	-13910	-15966	-15989	-16138	-16179	-16216				
Natural gas	-23799	-26370	-17191	-20941	-16627	-16213	-15187	-6665	291				
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Gross Inland Consumption	67059	73374	75712	80963	79516	82085	81517	81389	81779	1.2	0.5	0.2	0.0
Solids	9206	9098	8035	8190	4775	7154	7112	5636	5548	-1.4	-5.1	4.1	-2.5
Oil	24415	27242	28496	32027	32307	31999	31442	31309	31409	1.6	1.3	-0.3	0.0
Natural gas	30810	34085	34711	35324	36673	35760	33498	33435	32961	1.2	0.6	-0.9	-0.2
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Renewable energy forms	956	933	1831	2817	3402	5410	7845	9219	10239	6.7	6.4	8.7	2.7
as % in Gross Inland Consumption													
Solids	13.7	12.4	10.6	10.1	6.0	8.7	8.7	6.9	6.8				
Oil	36.4	37.1	37.6	39.6	40.6	39.0	38.6	38.5	38.4				
Natural gas	45.9	46.5	45.8	43.6	46.1	43.6	41.1	41.1	40.3				
Nuclear	1.3	1.4	1.3	1.3	1.3	1.2	1.3	1.3	1.3				
Renewable energy forms	1.4	1.3	2.4	3.5	4.3	6.6	9.6	11.3	12.5				
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	105963	121149	121711	129721	139816	2.2	1.7	1.4	1.4
Self consumption and grid losses	5554	6853	7752	8521	8579	10125	10011	10786	11408	3.4	1.0	1.6	1.3
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16557	18606	18192	17891	18675	2.2	-1.0	0.9	0.3
Solids	5698	5900	5114	4958	1509	3888	3990	2640	2639	-1.1	-11.5	10.2	-4.0
Oil (including refinery gas)	702	876	618	640	0	1	0	2	0	-1.3			-0.7
Gas (including derived gases)	7651	9466	11071	11913	13228	12168	10591	10905	11190	3.8	1.8	-2.2	0.6
Biomass & Waste	570	601	1430	2052	1820	2549	3612	4343	4847	9.6	2.4	7.1	3.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	72281	83698	85058	89914	88105	88637	88786	88998	89262	1.6	0.4	0.1	0.1
Refineries	68767	80009	82188	86416	84181	84336	84092	84361	84609	1.8	0.2	0.0	0.1
Biofuels and hydrogen production	0	0	0	0	327	805	1413	1528	1639			15.8	1.5
District heating	0	0	0	436	545	488	458	429	401			-1.7	-1.3
Derived gases, cokeries etc.	3514	3689	2870	3062	3052	3008	2824	2679	2613	-2.0	0.6	-0.8	-0.8
Energy Branch Consumption	5410	6247	5484	6580	6450	6529	6466	6434	6442	0.1	1.6	0.0	0.0
Non-Energy Uses	9495	9406	9579	12301	13233	13705	13786	13830	13805	0.1	3.3	0.4	0.0
Final Energy Demand	42924	47670	50125	51588	52181	53286	53125	53408	53960	1.6	0.4	0.2	0.2
by sector													
Industry	12643	12714	13812	14597	15382	16066	16196	16348	16478	0.9	1.1	0.5	0.2
- energy intensive industries	9577	8701	9885	10367	10965	11528	11616	11722	11774	0.3	1.0	0.6	0.1
- other industrial sectors	3066	4012	3927	4231	4417	4538	4580	4627	4704	2.5	1.2	0.4	0.3
Residential	9932	11124	10286	10335	9920	10049	9734	9827	10039	0.4	-0.4	-0.2	0.3
Tertiary	9993	11429	12207	11587	11094	10905	10744	10551	10296	2.0	-1.0	-0.3	-0.4
Transport	10356	12404	13820	15068	15786	16266	16451	16682	17147	2.9	1.3	0.4	0.4
by fuel													
Solids	1755	1461	1352	1515	1516	1556	1536	1500	1448	-2.6	1.1	0.1	-0.6
Oil	12790	14685	16469	17366	17860	17898	17549	17613	17874	2.6	0.8	-0.2	0.2
Gas	21244	22515	21008	20335	19919	19288	18296	17667	16761	-0.1	-0.5	-0.8	-0.9
Electricity	6322	7143	8421	8986	9233	9802	9713	10496	11133	2.9	0.9	0.5	1.4
Heat (from CHP and District Heating)	439	1568	2558	2981	2847	3040	3384	3313	3689	19.3	1.1	1.7	0.9
Renewable energy forms	374	298	317	405	804	1700	2643	2814	3050	-1.6	9.7	12.6	1.4
Other	0	0	0	0	1	2	4	5	5			13.6	2.4
RES in Gross Final Energy Consumption (A)			940	1828	2968	4907	7125	8381	9311		12.2	9.2	2.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.2	207.7	200.6	190.4	187.3	0.1	-0.2	-0.6	-0.7
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.7	165.1	158.0	151.8	150.8	0.9	-0.4	-0.1	-0.5
Power generation/District heating	43.3	49.1	48.9	51.1	38.9	45.6	42.3	37.7	38.2	1.2	-2.3	0.8	-1.0
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.3	14.1	14.0	14.0	-0.4	1.0	-0.2	-0.1
Industry	27.0	25.1	24.8	25.4	26.9	27.5	26.4	26.0	24.8	-0.8	0.8	-0.2	-0.6
Residential	19.2	20.6	18.9	17.8	16.4	15.6	15.0	14.8	14.5	-0.2	-1.4	-0.9	-0.3
Tertiary	18.9	20.7	19.5	18.1	17.3	16.0	15.3	14.1	13.0	0.3	-1.2	-1.3	-1.6
Transport	30.1	36.2	40.5	44.4	45.7	46.0	45.0	45.3	46.3	3.0	1.2	-0.2	0.3
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.3	11.8	11.9	12.1	12.2	-1.5	2.1	0.5	0.3
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	30.8	30.7	26.5	24.3	-2.2	-0.2	-3.1	-2.3
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.5	95.9	92.7	87.9	86.5				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	137.1	127.4	116.0	107.0	100.8	-2.0	-1.4	-1.7	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	2.01	1.94	1.86	1.84	-0.4	-0.9	-0.4	-0.5
Import Dependency %	22.4	19.3	38.6	37.8	41.2	42.7	44.0	51.6	58.5				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	60.9	67.0	72.9	77.4	81.3		3.3	1.8	1.1
as % of GDP			9.2	10.4	10.5	10.4	10.4	10.2	10.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.5	96.5	91.5	87.0	83.6	-1.1	0.1	-0.9	-0.9
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	81.4	74.7	66.8	62.8	60.6	-2.9	-2.0	-2.0	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.1	63.6	57.6	52.3	47.8	-1.5	-3.2	-2.2	-1.8
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.4	45.7	43.0	40.3	38.8	1.7	0.3	-1.2	-1.0
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	36.2	34.0	32.7	31.5	0.8	-0.3	-1.2	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.26	0.28	0.25	0.22	0.20	-3.4	-3.9	-0.5	-2.1
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.04	1.97	1.91	1.87	1.83	-0.7	-0.2	-0.6	-0.5
Industry	2.14	1.97	1.80	1.74	1.75	1.71	1.63	1.59	1.51	-1.7	-0.3	-0.7	-0.8
Residential	1.93	1.85	1.84	1.72	1.66	1.56	1.54	1.50	1.44	-0.5	-1.0	-0.7	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.47	1.42	1.34	1.26	-1.7	-0.2	-0.9	-1.2
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.70	0.1	-0.1	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.6	9.0	13.1	15.3	16.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.8	10.2	11.0	11.7				
Gross Electricity generation by source (in GWh)													
			89599	100202	105963	121149	121711	129721	139816		1.7	1.4	1.4
Nuclear energy			3925	3996	3961	3967	3971	4686	4733		0.1	0.0	1.8
Solids			22115	20959	5266	19074	19523	15123	15120		-13.4	14.0	-2.5
Oil (including refinery gas)			3769	1651	1231	380	375	167	110		-10.6	-11.2	-11.6
Gas (including derived gases)			55039	64687	83210	77775	69053	72568	77402		4.2	-1.8	1.1
Biomass-waste			3772	6720	6907	11116	16208	19362	21631		6.2	8.9	2.9
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8209	11767	16830	19611		20.0	8.7	5.2
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	77	334	374	374	374			17.1	0.0
Net Generation Capacity in MW_e			20113	19871	25598	27527	27981	31863	34683		2.4	0.9	2.2
<u>Nuclear energy</u>			501	501	507	512	514	541	547		0.1	0.2	0.6
<u>Renewable energy</u>			495	1653	3354	3644	5126	7259	8525		21.1	4.3	5.2
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3134	4372	6240	7163		21.5	3.4	5.1
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	40	173	194	194	194			17.1	0.0
<u>Thermal power</u>			19116	17718	21737	23370	22341	24064	25612		1.3	0.3	1.4
of which cogeneration units			9089	9231	9605	10268	10780	11196	12037		0.6	1.2	1.1
Solids fired			4171	4171	4174	5926	5327	4565	3194		0.0	2.5	-5.0
Gas fired			13574	11700	15285	14502	13335	15457	17954		1.2	-1.4	3.0
Oil fired			839	825	809	636	622	475	453		-0.4	-2.6	-3.1
Biomass-waste fired			533	1022	1469	2307	3057	3567	4010		10.7	7.6	2.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.5	48.2	47.7	44.7	44.3				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.2	50.1	49.7	51.5	52.6				
% of gross electricity from CHP			32.0	37.6	43.3	40.2	44.9	44.4	47.8				
Carbon free gross electricity generation (%)			9.7	12.9	15.3	19.7	26.9	32.3	33.7				
- nuclear			4.4	4.0	3.7	3.3	3.3	3.6	3.4				
- renewable energy forms			5.3	8.9	11.6	16.5	23.7	28.7	30.4				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	175.3	177.6	189.5	198.2	213.9	232.4	249.6	268.9	288.7	0.8	1.2	1.6	1.5
Private cars and motorcycles	13.0	12.0	11.3	11.7	12.3	12.6	13.0	13.2	13.4	-1.4	0.9	0.6	0.3
Rail	138.7	133.2	143.4	149.5	160.2	171.7	181.9	193.1	204.1	0.3	1.1	1.3	1.2
Aviation	12.3	17.7	16.1	16.3	17.5	19.4	21.7	24.2	26.9	2.7	0.8	2.2	2.2
Inland navigation	9.8	13.5	17.8	19.7	23.1	27.7	32.0	37.2	43.2	6.2	2.6	3.3	3.0
Freight transport activity (Gtkm)	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.1	1.1
Trucks	94.8	105.7	125.4	131.6	142.1	155.6	168.0	178.7	188.7	2.8	1.3	1.7	1.2
Rail	56.1	67.1	79.6	84.2	90.8	99.0	106.7	114.7	121.3	3.6	1.3	1.6	1.3
Inland navigation	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.2	8.7	3.9	3.0	2.2	1.4
Energy demand in transport (ktoe)	35.7	35.5	41.3	42.2	45.2	49.7	53.7	55.9	58.7	1.5	0.9	1.7	0.9
Public road transport	10356	12404	13820	15068	15786	16266	16451	16682	17147	2.9	1.3	0.4	0.4
Private cars and motorcycles	104	105	95	91	90	87	84	82	80	-0.9	-0.5	-0.7	-0.5
Trucks	5043	5525	5286	5999	6179	6178	6110	6009	6089	0.5	1.6	-0.1	0.0
Rail	2899	3325	4254	4933	5140	5308	5380	5515	5619	3.9	1.9	0.5	0.4
Aviation	147	162	176	172	183	190	183	166	149	1.8	0.4	0.0	-2.0
Inland navigation	1608	2589	3343	3670	3976	4268	4444	4653	4944	7.6	1.8	1.1	1.1
	556	697	667	204	217	235	249	256	266	1.8	-10.6	1.4	0.6

Source: PRIMES

Netherlands: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	57518	56297	42375	1312	2330	3713	2.3	4.3	9.6
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	51973	48685	32670	-7	-495	0	0.0	-1.0	0.0
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4521	6587	8660	1319	2824	3713	41.2	75.1	75.0
Hydro	7	12	8	9	9	9	0	0	0	0.2	0.1	0.0
Biomass & Waste	942	1739	2035	3144	4453	5588	759	1607	1848	31.8	56.5	49.4
Wind	5	71	178	706	1012	1687	80	371	874	12.9	57.8	107.6
Solar and others	2	9	22	663	1114	1378	479	846	990	260.6	315.7	255.8
Geothermal	0	0	0	0	0	0	0	0	0	42.5	84.9	124.2
Net Imports	17443	34331	36912	42895	44273	59688	-6586	-10379	-13628	-13.3	-19.0	-18.6
Solids	9574	8222	8313	7154	7112	5548	-3101	-4518	-7088	-30.2	-38.8	-56.1
Oil	30876	41673	47392	50326	50496	51694	-892	-1680	-2334	-1.7	-3.2	-4.3
- Crude oil and Feedstocks	47956	60955	61302	66315	66634	67909	-850	-1556	-2317	-1.3	-2.3	-3.3
- Oil products	-17080	-19282	-13910	-15989	-16138	-16216	-42	-124	-17	0.3	0.8	0.1
Natural gas	-23799	-17191	-20941	-16213	-15187	291	-2808	-4635	-4728	20.9	43.9	-94.2
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	82085	81517	81779	-5266	-8024	-9872	-6.0	-9.0	-10.8
Solids	9206	8035	8190	7154	7112	5548	-3101	-4518	-7088	-30.2	-38.8	-56.1
Oil	24415	28496	32027	31999	31442	31409	-884	-1654	-2291	-2.7	-5.0	-6.8
Natural gas	30810	34711	35324	35760	33498	32961	-2815	-5130	-4728	-7.3	-13.3	-12.5
Nuclear	881	1013	1031	1023	1024	1045	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5410	7845	10239	1533	3278	4235	39.6	71.8	70.5
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	8.7	8.7	6.8	-3.0	-4.3	-7.0			
Oil	36.4	37.6	39.6	39.0	38.6	38.4	1.3	1.6	1.6			
Natural gas	45.9	45.8	43.6	43.6	41.1	40.3	-0.6	-2.0	-0.8			
Nuclear	1.3	1.3	1.3	1.2	1.3	1.3	0.1	0.1	0.1			
Renewable energy forms	1.4	2.4	3.5	6.6	9.6	12.5	2.2	4.5	6.0			
Gross Electricity Generation in GWh_e	71824	89599	100202	121149	121711	139816	-17322	-29824	-28294	-12.5	-19.7	-16.8
Self consumption and grid losses	5554	7752	8521	10125	10011	11408	-1425	-2518	-4027	-12.3	-20.1	-26.1
Fuel Inputs to Thermal Power Generation	14621	18233	19563	18606	18192	18675	-3578	-6217	-6642	-16.1	-25.5	-26.2
Solids	5698	5114	4958	3888	3990	2639	-3134	-4517	-7087	-44.6	-53.1	-72.9
Oil (including refinery gas)	702	618	640	1	0	0	1	0	0	11839.8	102.3	107.3
Gas (including derived gases)	7651	11071	11913	12168	10591	11190	-1314	-3309	-1632	-9.7	-23.8	-12.7
Biomass & Waste	570	1430	2052	2549	3612	4847	868	1610	2077	51.6	80.4	75.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	88637	88786	89262	-761	-1241	-2149	-0.9	-1.4	-2.4
Refineries	68767	82188	86416	84336	84092	84609	-867	-1575	-2336	-1.0	-1.8	-2.7
Biofuels and hydrogen production	0	0	0	805	1413	1639	90	284	159	12.5	25.1	10.8
District heating	0	0	436	488	458	401	-31	-4	-33	-5.9	-0.8	-7.7
Derived gases, cokeries etc.	3514	2870	3062	3008	2824	2613	47	55	61	1.6	2.0	2.4
Energy Branch Consumption	5410	5484	6580	6529	6466	6442	-172	-296	-459	-2.6	-4.4	-6.6
Non-Energy Uses	9495	9579	12301	13705	13786	13805	-11	-13	-14	-0.1	-0.1	-0.1
Final Energy Demand	42924	50125	51588	53286	53125	53960	-3004	-4497	-5702	-5.3	-7.8	-9.6
by sector												
Industry	12643	13812	14597	16066	16196	16478	-349	-521	-793	-2.1	-3.1	-4.6
- energy intensive industries	9577	9885	10367	11528	11616	11774	-194	-331	-514	-1.7	-2.8	-4.2
- other industrial sectors	3066	3927	4231	4538	4580	4704	-155	-190	-279	-3.3	-4.0	-5.6
Residential	9932	10286	10335	10049	9734	10039	-574	-1061	-1022	-5.4	-9.8	-9.2
Tertiary	9993	12207	11587	10905	10744	10296	-1389	-1685	-2225	-11.3	-13.6	-17.8
Transport	10356	13820	15068	16266	16451	17147	-692	-1229	-1661	-4.1	-7.0	-8.8
by fuel												
Solids	1755	1352	1515	1556	1536	1448	5	-44	-47	0.3	-2.8	-3.2
Oil	12790	16469	17366	17898	17549	17874	-842	-1546	-2162	-4.5	-8.1	-10.8
Gas	21244	21008	20335	19288	18296	16761	-1355	-1516	-2789	-6.6	-7.7	-14.3
Electricity	6322	8421	8986	9802	9713	11133	-1364	-2340	-2075	-12.2	-19.4	-15.7
Heat (from CHP and District Heating)	439	2558	2981	3040	3384	3689	19	-121	256	0.6	-3.5	7.5
Renewable energy forms	374	317	405	1700	2643	3050	534	1069	1117	45.8	67.9	57.8
Other	0	0	0	2	4	5	0	0	-2	7.0	5.9	-30.5
RES in Gross Final Energy Consumption ^(A)		940	1828	4907	7125	9311	1456	3024	3940	42.2	73.7	73.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	207.7	200.6	187.3	-25.7	-40.8	-51.6	-11.0	-16.9	-21.6
CO₂ Emissions (energy related)	152.2	165.8	171.6	165.1	158.0	150.8	-21.4	-34.7	-45.8	-11.5	-18.0	-23.3
Power generation/District heating	43.3	48.9	51.1	45.6	42.3	38.2	-15.5	-25.9	-32.1	-25.4	-38.0	-45.6
Energy Branch	13.7	13.1	14.8	14.3	14.1	14.0	-0.3	-0.5	-0.6	-1.9	-3.5	-3.9
Industry	27.0	24.8	25.4	27.5	26.4	24.8	0.0	0.1	-1.7	0.0	0.4	-6.3
Residential	19.2	18.9	17.8	15.6	15.0	14.5	-1.6	-1.9	-2.1	-9.3	-11.3	-12.5
Tertiary	18.9	19.5	18.1	16.0	15.3	13.0	-1.7	-2.0	-3.7	-9.7	-11.8	-22.2
Transport	30.1	40.5	44.4	46.0	45.0	46.3	-2.3	-4.5	-5.7	-4.8	-9.1	-11.0
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.8	11.9	12.2	0.1	0.0	-0.1	0.6	-0.2	-1.1
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	30.8	30.7	24.3	-4.3	-6.1	-5.6	-12.2	-16.5	-18.9
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	95.9	92.7	86.5	-11.9	-18.9	-23.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Netherlands: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	127.4	116.0	100.8	-8.2	-11.4	-12.2	-6.0	-9.0	-10.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.01	1.94	1.84	-0.12	-0.21	-0.30	-5.8	-9.9	-14.0
Import Dependency %	22.4	38.6	37.8	42.7	44.0	58.5	-4.1	-6.3	-7.0			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	67.0	72.9	81.3	1.3	1.1	1.6	2.0	1.5	2.0
as % of GDP		9.2	10.4	10.4	10.4	10.0	0.2	0.2	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				1.4	1.2	1.7						
as % of GDP				0.21	0.17	0.21						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	96.5	91.5	83.6	-2.1	-2.9	-4.0	-2.1	-3.1	-4.6
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	74.7	66.8	60.6	-4.3	-7.3	-6.2	-5.4	-9.8	-9.2
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	63.6	57.6	47.8	-8.1	-9.0	-10.3	-11.3	-13.6	-17.8
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.7	43.0	38.8	-0.9	-1.6	-2.3	-2.0	-3.5	-5.5
Freight transport (toe/Mtkm)	36.4	39.5	39.6	36.2	34.0	31.5	-1.5	-2.7	-2.7	-4.1	-7.3	-7.9
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.28	0.25	0.20	-0.06	-0.09	-0.13	-17.8	-26.4	-38.4
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	1.97	1.91	1.83	0.00	0.00	-0.05	0.3	0.2	-2.4
Industry	2.14	1.80	1.74	1.71	1.63	1.51	0.04	0.06	-0.03	2.2	3.6	-1.8
Residential	1.93	1.84	1.72	1.56	1.54	1.44	-0.07	-0.03	-0.05	-4.1	-1.6	-3.6
Tertiary	1.89	1.60	1.56	1.47	1.42	1.26	0.03	0.03	-0.07	1.8	2.0	-5.4
Transport	2.91	2.93	2.95	2.83	2.73	2.70	-0.02	-0.06	-0.07	-0.8	-2.3	-2.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	9.0	13.1	16.9	3.0	6.2	8.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.8	10.2	11.7	0.9	2.7	2.2			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	121149	121711	139816	159816	-17322	-29824	-28294	-12.5	-19.7	-16.8
Nuclear energy	3925	3996	3967	3971	4733	0	0	0	0	0.0	0.0	0.0
Solids	22115	20959	19074	19523	15120	-13849	-19961	-40832	-42.1	-50.6	-73.0	
Oil (including refinery gas)	3769	1651	380	375	110	-8	0	-1	-2.0	0.0	-1.2	
Gas (including derived gases)	55039	64687	77775	69053	77402	-8909	-21872	-7704	-10.3	-24.1	-9.1	
Biomass-waste	3772	6720	11116	16208	21631	4174	7323	9702	60.1	82.4	81.3	
Hydro (pumping excluded)	142	88	99	99	99	0	0	0	0.2	0.1	0.0	
Wind	829	2067	8209	11767	19611	935	4310	10166	12.9	57.8	107.6	
Solar	8	34	195	340	735	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	334	374	374	334	374	374				
Net Generation Capacity in MW_e												
	20113	19871	27527	27981	34683	34683	-2107	-4052	-1244	-7.1	-12.6	-3.5
<u>Nuclear energy</u>	501	501	512	514	547	11	13	0	2.2	2.7	0.0	
<u>Renewable energy</u>	495	1653	3644	5126	8525	447	1694	3918	14.0	49.4	85.1	
Hydro (pumping excluded)	37	37	37	37	37	0	0	0	0.0	0.0	0.0	
Wind	446	1565	3134	4372	7163	274	1500	3724	9.6	52.2	108.3	
Solar	12	51	300	523	1131	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	173	194	194	173	194	194				
<u>Thermal power</u>	19116	17718	23370	22341	25612	-2565	-5759	-5163	-9.9	-20.5	-16.8	
of which cogeneration units	9089	9231	10268	10780	12037	-530	-1371	199	-4.9	-11.3	1.7	
Solids fired	4171	4171	5926	5327	3194	3	3	-4279	0.1	0.0	-57.3	
Gas fired	13574	11700	14502	13335	17954	-3312	-6970	-2661	-18.6	-34.3	-12.9	
Oil fired	839	825	636	622	453	-58	-41	-228	-8.4	-6.2	-33.5	
Biomass-waste fired	533	1022	2307	3057	4010	803	1249	2005	53.4	69.1	100.0	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	48.8	55.2	48.2	47.7	44.3	-3.0	-4.3	-6.6				
Efficiency of gross thermal power generation (%)	39.9	41.3	50.1	49.7	52.6	0.9	0.5	0.6				
% of gross electricity from CHP	32.0	37.6	40.2	44.9	47.8	4.0	4.4	10.0				
Carbon free gross electricity generation (%)	9.7	12.9	19.7	26.9	33.7	6.4	13.2	17.7				
- nuclear	4.4	4.0	3.3	3.3	3.4	0.4	0.6	0.6				
- renewable energy forms	5.3	8.9	16.5	23.7	30.4	6.0	12.6	17.2				
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	232.4	249.6	288.7	-3.0	-5.3	-7.5	-1.3	-2.1	-2.5
Public road transport	13.0	11.3	11.7	12.6	13.0	13.4	0.2	0.3	0.4	1.7	2.6	3.1
Private cars and motorcycles	138.7	143.4	149.5	171.7	181.9	204.1	-2.8	-4.9	-6.7	-1.6	-2.6	-3.2
Rail	12.3	16.1	16.3	19.4	21.7	26.9	0.2	0.2	0.4	1.1	1.1	1.4
Aviation	9.8	17.8	19.7	27.7	32.0	43.2	-0.6	-1.0	-1.5	-2.1	-3.0	-3.4
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.6	-0.3	-0.2
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	155.6	168.0	188.7	-2.6	-4.1	-5.7	-1.7	-2.4	-2.9
Trucks	56.1	79.6	84.2	99.0	106.7	121.3	-3.2	-5.0	-6.7	-3.1	-4.4	-5.2
Rail	3.1	4.5	5.2	6.9	7.6	8.7	0.2	0.2	0.3	2.8	3.3	3.8
Inland navigation	35.7	41.3	42.2	49.7	53.7	58.7	0.3	0.6	0.7	0.7	1.1	1.3
Energy demand in transport (ktoe)												
	10356	13820	15068	16266	16451	17147	-692	-1229	-1661	-4.1	-7.0	-8.8
Public road transport	104	95	91	87	84	80	-1	-1	-4	-0.6	-1.7	-4.9
Private cars and motorcycles	5043	5286	5999	6178	6110	6089	-192	-299	-423	-3.0	-4.7	-6.5
Trucks	2899	4254	4933	5308	5380	5619	-339	-606	-698	-6.0	-10.1	-11.1
Rail	147	176	172	190	183	149	-2	-6	-9	-1.1	-2.9	-5.9
Aviation	1608	3343	3670	4268	4444	4944	-158	-317	-524	-3.6	-6.6	-9.6
Inland navigation	556	667	204	235	249	266	0	-1	-3	-0.1	-0.3	-1.1

Source: PRIMES

Poland: Cost Efficiency with JI/CDM Scenario					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68521	67354	67941	68570	71434	-2.1	-1.6	-0.1	0.5	
Solids	94459	91104	71298	68876	56949	53594	50678	45002	41589	-2.8	-2.2	-1.2	-2.0	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	3918	8367					
Renewable energy sources	2369	4763	4256	5016	7622	9960	13563	16199	18177	6.0	6.0	5.9	3.0	
Hydro	139	162	181	189	267	276	285	291	299	2.7	4.0	0.6	0.5	
Biomass & Waste	2230	4600	4072	4806	6831	9011	11264	13148	14320	6.2	5.3	5.1	2.4	
Wind	0	0	0	12	499	537	1460	2038	2625		102.5	11.3	6.0	
Solar and others	0	0	0	0	9	111	524	691	902			50.1	5.6	
Geothermal	0	0	3	9	15	24	29	32	31		17.4	7.1	0.6	
Net Imports	2238	-152	10131	16954	26844	33757	37648	42883	45749	16.3	10.2	3.4	2.0	
Solids	-18913	-21202	-16309	-12482	-9287	-8977	-9826	-8049	-7832					
Oil	14468	15481	20381	21929	25933	29145	30379	31947	32707	3.5	2.4	1.6	0.7	
- Crude oil and Feedstocks	13085	13984	18827	18169	21522	24032	24960	26157	26717	3.7	1.3	1.5	0.7	
- Oil products	1383	1498	1554	3760	4411	5112	5419	5790	5989	1.2	11.0	2.1	1.0	
Natural gas	6773	5810	6607	8531	11145	12904	14933	16657	18339	-0.2	5.4	3.0	2.1	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	94995	100700	105149	110989	116704	-1.0	0.5	1.0	1.0	
Solids	75405	70500	56358	55184	47661	44618	40852	36953	33758	-2.9	-1.7	-1.5	-1.9	
Oil	13399	16003	20759	22525	26315	29434	30639	32133	32828	4.5	2.4	1.5	0.7	
Natural gas	8938	8995	9960	12235	14345	16004	17933	19457	21039	1.1	3.7	2.3	1.6	
Nuclear	0	0	0	0	0	0	0	3918	8367					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7533	11212	16234	19318	21574	6.0	5.9	8.0	2.9	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	50.2	44.3	38.9	33.3	28.9					
Oil	13.4	16.0	22.9	24.0	27.7	29.2	29.1	29.0	28.1					
Natural gas	8.9	9.0	11.0	13.0	15.1	15.9	17.1	17.5	18.0					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	7.2					
Renewable energy forms	2.4	4.8	4.7	5.3	7.9	11.1	15.4	17.4	18.5					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	149859	157935	166945	183781	203908	0.6	0.5	1.1	2.0	
Self consumption and grid losses	21063	28189	27977	28574	25496	26862	26877	27596	29347	2.9	-0.9	0.5	0.9	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	32678	32085	31345	28977	28091	-1.9	-1.0	-0.4	-1.1	
Solids	41138	35842	34793	35942	30931	28463	25660	22117	19799	-1.7	-1.2	-1.9	-2.6	
Oil (including refinery gas)	1236	405	228	179	23	19	27	134	64	-15.6	-20.5	1.7	8.8	
Gas (including derived gases)	673	488	783	1483	1023	1083	1274	1138	1663	1.5	2.7	2.2	2.7	
Biomass & Waste	372	114	157	546	701	2521	4383	5588	6565	-8.3	16.2	20.1	4.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32516	34870	36006	37565	37872	-1.1	-0.4	1.0	0.5	
Refineries	13160	14929	19949	19591	22533	25033	25981	27139	27649	4.2	1.2	1.4	0.6	
Biofuels and hydrogen production	0	0	0	55	453	953	1776	2074	2164			14.6	2.0	
District heating	9949	5985	4320	3639	3225	3225	3206	3555	3715	-8.0	-2.9	-0.1	1.5	
Derived gases, cokeries etc.	14746	12045	9635	8541	6305	5658	5043	4797	4345	-4.2	-4.2	-2.2	-1.5	
Energy Branch Consumption	6809	7655	7401	7680	9299	9770	9875	10152	10174	0.8	2.3	0.6	0.3	
Non-Energy Uses	4193	3646	4218	4354	5145	6272	7257	8186	8945	0.1	2.0	3.5	2.1	
Final Energy Demand	59583	63489	55720	57169	62028	68143	72671	76878	79723	-0.7	1.1	1.6	0.9	
by sector														
Industry	25252	22720	18883	16373	17646	19783	21766	23512	24869	-2.9	-0.7	2.1	1.3	
- energy intensive industries	16252	15428	13374	11149	11571	12692	13673	14593	15390	-1.9	-1.4	1.7	1.2	
- other industrial sectors	9000	7292	5509	5225	6074	7090	8094	8918	9480	-4.8	1.0	2.9	1.6	
Residential	18126	23284	17516	18375	18889	19536	20149	20788	21245	-0.3	0.8	0.6	0.5	
Tertiary	8867	9229	10136	10334	10883	11931	12603	13380	14089	1.3	0.7	1.5	1.1	
Transport	7338	8256	9185	12087	14611	16894	18152	19198	19519	2.3	4.8	2.2	0.7	
by fuel														
Solids	17066	23299	13728	11262	10340	10179	9394	8964	8971	-2.2	-2.8	-1.0	-0.5	
Oil	9104	11582	15452	17798	20691	23257	24080	25127	25013	5.4	3.0	1.5	0.4	
Gas	7987	7735	7447	8400	11012	12008	13131	14210	14795	-0.7	4.0	1.8	1.2	
Electricity	8233	7703	8317	8498	8467	9372	10262	11395	12939	0.1	0.2	1.9	2.3	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6246	6766	7158	7558	7872	-7.8	-1.0	1.4	1.0	
Renewable energy forms	1631	4408	3889	4156	5271	6558	8640	9617	10126	9.1	3.1	5.1	1.6	
Other	0	0	0	0	1	3	5	6	7			16.5	2.4	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6918	9936	14110	17224	19493		5.2	7.4	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	358.0	354.8	347.9	334.4	297.8	-1.4	-0.5	-0.3	-1.5	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	280.5	279.2	270.4	260.6	225.4	-1.3	-0.3	-0.4	-1.8	
Power generation/District heating	209.3	169.9	158.8	162.1	139.9	129.7	119.3	105.9	69.8	-2.7	-1.3	-1.6	-5.2	
Energy Branch	5.8	12.7	11.4	10.6	11.7	11.4	11.3	11.0	10.9	6.9	0.3	-0.4	-0.3	
Industry	44.0	59.9	46.3	33.2	36.6	40.8	42.9	45.0	46.9	0.5	-2.3	1.6	0.9	
Residential	33.1	44.4	27.9	30.2	29.9	28.6	27.3	26.7	25.7	-1.7	0.7	-0.9	-0.6	
Tertiary	19.4	20.7	20.1	20.4	21.7	22.7	22.4	22.6	22.2	0.4	0.8	0.3	-0.1	
Transport	20.5	23.1	25.8	34.3	40.6	46.0	47.4	49.5	49.8	2.3	4.7	1.6	0.5	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.5	17.7	20.3	22.7	4.2	-1.0	4.4	2.5	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	61.1	59.8	53.5	49.8	-2.2	-0.8	-1.0	-1.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	83.3	82.5	80.9	77.8	69.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1	
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3	
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	315.3	261.3	222.7	196.2	178.4	-4.6	-3.1	-3.4	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.95	2.77	2.57	2.35	1.93	-0.4	-0.8	-1.4	-2.8	
Import Dependency %	2.2	-0.2	11.1	18.0	28.1	33.4	35.7	38.5	39.0					
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	50.6	62.9	75.0	85.4	93.2		4.1	4.0	2.2	
as % of GDP			16.1	15.8	16.8	16.3	15.9	15.1	14.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.4	50.5	44.6	40.8	38.7	-6.9	-5.1	-2.8	-1.4	
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	62.5	51.7	43.9	38.0	33.4	-5.8	-4.6	-3.5	-2.7	
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	77.1	66.8	57.8	50.7	45.4	-2.1	-2.6	-2.8	-2.4	
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.0	24.6	23.4	22.1	20.2	2.9	-0.3	-0.7	-1.5	
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	39.8	38.4	35.6	33.6	31.8	0.3	3.7	-1.1	-1.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.57	0.49	0.43	0.35	0.22	0.8	-1.6	-2.8	-6.7	
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.08	2.03	1.93	1.87	1.81	0.9	-0.4	-0.8	-0.6	
Industry	1.74	2.64	2.45	2.02	2.07	2.06	1.97	1.91	1.88	3.5	-1.7	-0.5	-0.4	
Residential	1.83	1.90	1.59	1.64	1.58	1.46	1.35	1.29	1.21	-1.4	-0.1	-1.6	-1.1	
Tertiary	2.19	2.25	1.98	1.97	2.00	1.90	1.77	1.69	1.58	-1.0	0.1	-1.2	-1.2	
Transport	2.80	2.80	2.81	2.84	2.78	2.72	2.61	2.58	2.55	0.0	-0.1	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.8	14.1	18.8	21.8	23.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.2	5.9	10.3	11.6	12.0					
Gross Electricity generation by source (in GWh)														
			143147	155331	149859	157935	166945	183781	203908		0.5	1.1	2.0	
Nuclear energy			0	0	0	0	0	17743	37996					
Solids			134042	141361	126549	122978	109462	94660	80129		-0.6	-1.4	-3.1	
Oil (including refinery gas)			2936	2964	1076	856	580	1177	1179		-9.5	-6.0	7.4	
Gas (including derived gases)			2979	5603	7691	8444	9834	10026	14315		9.9	2.5	3.8	
Biomass-waste			1080	3068	5630	16204	26775	33080	36255		18.0	16.9	3.1	
Hydro (pumping excluded)			2105	2201	3110	3208	3318	3380	3478		4.0	0.6	0.5	
Wind			5	135	5802	6243	16973	23702	30519		102.5	11.3	6.0	
Solar			0	0	0	0	3	14	37			25.7	29.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			30194	31711	34988	40344	44325	48816	53290		1.5	2.4	1.9	
<u>Nuclear energy</u>			0	0	0	0	0	2048	4386					
<u>Renewable energy</u>			640	1038	3895	4188	9198	12001	14820		19.8	9.0	4.9	
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7	
Wind			5	124	2917	3115	8039	10750	13545		88.3	10.7	5.4	
Solar			0	0	0	0	3	15	40			25.7	29.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			29554	30673	31093	36156	35127	34767	34085		0.5	1.2	-0.3	
of which cogeneration units			6632	6800	6856	8271	8825	9989	10889		0.3	2.6	2.1	
Solids fired			28139	28775	28755	29745	26850	22346	16341		0.2	-0.7	-4.8	
Gas fired			820	1263	1664	1527	1541	1753	3114		7.3	-0.8	7.3	
Oil fired			472	474	461	459	459	221	165		-0.2	0.0	-9.7	
Biomass-waste fired			122	160	213	4425	6276	10448	14464		5.8	40.2	8.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.2	51.1	45.3	41.3	40.0	40.1	40.9					
Efficiency of gross thermal power generation (%)			33.7	34.5	37.1	39.8	40.2	41.2	40.4					
% of gross electricity from CHP			12.2	12.9	26.0	31.1	29.9	29.5	29.6					
Carbon free gross electricity generation (%)			2.2	3.5	9.7	16.2	28.2	42.4	53.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	9.7	18.6					
- renewable energy forms			2.2	3.5	9.7	16.2	28.2	32.7	34.5					
Transport sector														
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	279.6	327.1	376.1	429.9	481.2	0.5	2.6	3.0	2.5	
Public road transport	46.3	34.0	31.7	29.9	29.3	29.6	32.6	35.3	37.5	-3.7	-0.8	1.1	1.4	
Private cars and motorcycles	102.8	115.0	153.1	188.3	225.2	268.4	309.3	353.1	394.7	4.1	3.9	3.2	2.5	
Rail	55.4	31.6	28.8	22.3	20.9	23.0	26.2	31.0	35.8	-6.3	-3.2	2.3	3.2	
Aviation	2.0	2.3	2.6	3.1	4.0	5.8	7.8	10.2	12.8	3.1	4.3	6.8	5.1	
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.6	2.2	
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	191.3	230.7	262.2	289.1	308.2	0.6	3.9	3.2	1.6	
Trucks	40.3	51.2	75.0	111.8	139.8	168.3	189.6	208.5	221.7	6.4	6.4	3.1	1.6	
Rail	81.6	68.2	54.0	43.8	51.1	62.0	72.1	80.1	86.0	-4.0	-0.5	3.5	1.8	
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.6	1.3	-11.8	2.4	2.7	
Energy demand in transport (ktoe)	7338	8256	9185	12087	14611	16894	18152	19198	19519	2.3	4.8	2.2	0.7	
Public road transport	314	229	217	190	185	179	185	178	168	-3.6	-1.6	0.0	-0.9	
Private cars and motorcycles	3299	4112	4876	5324	6354	7307	7964	8520	8636	4.0	2.7	2.3	0.8	
Trucks	2335	2847	3178	5748	7155	8307	8771	9137	9344	3.1	8.5	2.1	0.6	
Rail	1095	667	539	502	541	621	642	645	542	-6.8	0.0	1.7	-1.7	
Aviation	196	371	369	319	374	477	588	715	826	6.5	0.1	4.6	3.5	
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.4	2.2	2.2	

Source: PRIMES

Poland: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	67354	67941	71434	730	2325	2705	1.1	3.5	3.9
Solids	94459	71298	68876	53594	50678	41589	-284	-849	-2327	-0.5	-1.6	-5.3
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	8367	0	0	0	0.0	0.0	0.0
Renewable energy sources	2369	4256	5016	9960	13563	18177	1014	3174	5033	11.3	30.6	38.3
Hydro	139	181	189	276	285	299	42	25	0	17.7	9.4	0.0
Biomass & Waste	2230	4072	4806	9011	11264	14320	571	1560	2078	6.8	16.1	17.0
Wind	0	0	12	537	1460	2625	300	1160	2233	126.8	386.9	569.6
Solar and others	0	0	0	111	524	902	87	412	704	365.7	365.8	355.3
Geothermal	0	3	9	24	29	31	14	18	18	133.7	156.8	138.5
Net Imports	2238	10131	16954	33757	37648	45749	-11123	-14285	-13551	-24.8	-27.5	-22.9
Solids	-18913	-16309	-12482	-8977	-9826	-7832	-10824	-13529	-11725	-585.9	-365.3	-301.2
Oil	14468	20381	21929	29145	30379	32707	-926	-2392	-3113	-3.1	-7.3	-8.7
- Crude oil and Feedstocks	13085	18827	18169	24032	24960	26717	-731	-1879	-2426	-3.0	-7.0	-8.3
- Oil products	1383	1554	3760	5112	5419	5989	-195	-514	-687	-3.7	-8.7	-10.3
Natural gas	6773	6607	8531	12904	14933	18339	-734	-1160	-2267	-5.4	-7.2	-11.0
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	100700	105149	116704	-10392	-11959	-10844	-9.4	-10.2	-8.5
Solids	75405	56358	55184	44618	40852	33758	-11108	-14378	-14052	-19.9	-26.0	-29.4
Oil	13399	20759	22525	29434	30639	32828	-926	-2391	-3111	-3.0	-7.2	-8.7
Natural gas	8938	9960	12235	16004	17933	21039	-734	-1160	-2267	-4.4	-6.1	-9.7
Nuclear	0	0	0	0	0	8367	0	0	0	0.0	0.0	0.0
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	11212	16234	21574	2375	5971	8587	26.9	58.2	66.1
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	44.3	38.9	28.9	-5.9	-8.3	-8.6			
Oil	13.4	22.9	24.0	29.2	29.1	28.1	1.9	0.9	0.0			
Natural gas	8.9	11.0	13.0	15.9	17.1	18.0	0.8	0.8	-0.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.6			
Renewable energy forms	2.4	4.7	5.3	11.1	15.4	18.5	3.2	6.7	8.3			
Gross Electricity Generation in GWh_e	134591	143147	155331	157935	166945	203908	-27147	-37247	-32559	-14.7	-18.2	-13.8
Self consumption and grid losses	21063	27977	28574	26862	26877	29347	-5538	-7695	-8206	-17.1	-22.3	-21.9
Fuel Inputs to Thermal Power Generation	43419	35960	38149	32085	31345	28091	-9595	-10707	-8694	-23.0	-25.5	-23.6
Solids	41138	34793	35942	28463	25660	19799	-10356	-13479	-13203	-26.7	-34.4	-40.0
Oil (including refinery gas)	1236	228	179	19	27	64	-13	-4	39	-39.9	-11.6	156.7
Gas (including derived gases)	673	783	1483	1083	1274	1663	-484	-367	-548	-30.9	-22.4	-24.8
Biomass & Waste	372	157	546	2521	4383	6565	1258	3143	5018	99.5	253.3	324.5
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Fuel Input to other conversion processes	37855	33903	31826	34870	36006	37872	-330	-1437	-2300	-0.9	-3.8	-5.7
Refineries	13160	19949	19591	25033	25981	27649	-732	-1880	-2427	-2.8	-6.7	-8.1
Biofuels and hydrogen production	0	0	55	953	1776	2164	112	365	182	13.4	25.9	9.2
District heating	9949	4320	3639	3225	3206	3715	-192	-368	-490	-5.6	-10.3	-11.7
Derived gases, cokeries etc.	14746	9635	8541	5658	5043	4345	481	446	435	9.3	9.7	11.1
Energy Branch Consumption	6809	7401	7680	9770	9875	10174	-433	-754	-1113	-4.2	-7.1	-9.9
Non-Energy Uses	4193	4218	4354	6272	7257	8945	-16	-22	-19	-0.3	-0.3	-0.2
Final Energy Demand	59583	55720	57169	68143	72671	79723	-3103	-4777	-5744	-4.4	-6.2	-6.7
by sector												
Industry	25252	18883	16373	19783	21766	24869	-336	-621	-617	-1.7	-2.8	-2.4
- energy intensive industries	16252	13374	11149	12692	13673	15390	-129	-323	-352	-1.0	-2.3	-2.2
- other industrial sectors	9000	5509	5225	7090	8094	9480	-206	-297	-265	-2.8	-3.5	-2.7
Residential	18126	17516	18375	19536	20149	21245	-976	-1167	-941	-4.8	-5.5	-4.2
Tertiary	8867	10136	10334	11931	12603	14089	-1037	-1564	-2059	-8.0	-11.0	-12.7
Transport	7338	9185	12087	16894	18152	19519	-755	-1426	-2128	-4.3	-7.3	-9.8
by fuel												
Solids	17066	13728	11262	10179	9394	8971	-1202	-1470	-1457	-10.6	-13.5	-14.0
Oil	9104	15452	17798	23257	24080	25013	-230	-1519	-2321	-1.0	-5.9	-8.5
Gas	7987	7447	8400	12008	13131	14795	-424	-911	-1598	-3.4	-6.5	-9.8
Electricity	8233	8317	8498	9372	10262	12939	-1796	-2457	-2007	-16.1	-19.3	-13.4
Heat (from CHP and District Heating)	15563	6886	7056	6766	7158	7872	-438	-452	-209	-6.1	-5.9	-2.6
Renewable energy forms	1631	3889	4156	6558	8640	10126	986	2032	1849	17.7	30.8	22.3
Other	0	0	0	3	5	7	0	0	-1	7.8	-1.8	-8.0
RES in Gross Final Energy Consumption ^(A)		4153	4481	9936	14110	19493	2337	5196	7458	30.8	58.3	62.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	354.8	347.9	297.8	-54.5	-75.3	-105.3	-13.3	-17.8	-26.1
CO₂ Emissions (energy related)	332.2	290.3	290.7	279.2	270.4	225.4	-48.7	-67.0	-97.9	-14.8	-19.9	-30.3
Power generation/District heating	209.3	158.8	162.1	129.7	119.3	69.8	-41.2	-52.9	-80.3	-24.1	-30.7	-53.5
Energy Branch	5.8	11.4	10.6	11.4	11.3	10.9	-1.3	-1.7	-1.3	-9.9	-13.3	-10.9
Industry	44.0	46.3	33.2	40.8	42.9	46.9	0.5	-0.7	-0.9	1.3	-1.5	-1.8
Residential	33.1	27.9	30.2	28.6	27.3	25.7	-3.2	-4.1	-4.4	-10.0	-13.2	-14.6
Tertiary	19.4	20.1	20.4	22.7	22.4	22.2	-1.0	-2.2	-3.8	-4.3	-9.0	-14.5
Transport	20.5	25.8	34.3	46.0	47.4	49.8	-2.5	-5.3	-7.2	-5.2	-10.1	-12.7
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.5	17.7	22.7	-0.1	-0.2	-0.2	-0.6	-1.2	-1.0
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	61.1	59.8	49.8	-5.7	-8.1	-7.1	-8.6	-11.9	-12.5
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	82.5	80.9	69.3	-12.7	-17.5	-24.5			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Poland: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	261.3	222.7	178.4	-27.0	-25.3	-16.6	-9.4	-10.2	-8.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.77	2.57	1.93	-0.18	-0.31	-0.60	-6.1	-10.7	-23.8
Import Dependency %	2.2	11.1	18.0	33.4	35.7	39.0	-6.9	-8.5	-7.3			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	62.9	75.0	93.2	3.3	4.4	6.8	5.5	6.3	7.9
as % of GDP		16.1	15.8	16.3	15.9	14.2	0.8	0.9	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				3.3	4.6	6.9						
as % of GDP				0.87	0.97	1.06						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	50.5	44.6	38.7	-0.9	-1.3	-1.0	-1.7	-2.8	-2.4
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	51.7	43.9	33.4	-2.6	-2.5	-1.5	-4.8	-5.5	-4.2
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	66.8	57.8	45.4	-5.8	-7.2	-6.6	-8.0	-11.0	-12.7
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	24.6	23.4	20.2	-0.4	-0.6	-0.8	-1.6	-2.4	-3.7
Freight transport (toe/Mtkm)	26.9	27.6	39.4	38.4	35.6	31.8	-1.7	-3.0	-4.0	-4.3	-7.9	-11.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.49	0.43	0.22	-0.08	-0.11	-0.20	-14.6	-19.8	-48.1
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.03	1.93	1.81	0.00	-0.04	-0.07	0.0	-2.1	-3.6
Industry	1.74	2.45	2.02	2.06	1.97	1.88	0.06	0.02	0.01	3.0	1.3	0.6
Residential	1.83	1.59	1.64	1.46	1.35	1.21	-0.09	-0.12	-0.15	-5.5	-8.2	-10.8
Tertiary	2.19	1.98	1.97	1.90	1.77	1.58	0.07	0.04	-0.03	4.0	2.3	-2.1
Transport	2.80	2.81	2.84	2.72	2.61	2.55	-0.03	-0.08	-0.08	-1.0	-3.0	-3.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	14.1	18.8	23.7	3.8	7.7	10.1			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.9	10.3	12.0	0.9	2.9	2.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy		0	0	0	0	37996	0	0	2			0.0
Solids	134042	141361	122978	109462	80129	80129	-35316	-66067	-81789	-22.3	-37.6	-50.5
Oil (including refinery gas)	2936	2964	856	580	1179	1179	-1128	-1588	-493	-56.8	-73.3	-29.5
Gas (including derived gases)	2979	5603	8444	9834	14315	14315	-1971	-1105	-1793	-18.9	-10.1	-11.1
Biomass-waste	1080	3068	16204	26775	36255	36255	7294	17739	25554	81.9	196.3	238.8
Hydro (pumping excluded)	2105	2201	3208	3318	3478	3478	483	286	0	17.7	9.4	0.0
Wind	5	135	6243	16973	30519	30519	3491	13487	25961	126.8	386.9	569.6
Solar	0	0	0	3	37	37	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
<u>Nuclear energy</u>		0	0	0	0	4386	0	0	0			0.0
<u>Renewable energy</u>	640	1038	4188	9198	14820	14820	1803	6410	11468	75.6	229.9	342.0
Hydro (pumping excluded)	635	914	1072	1156	1235	1235	0	0	0	0.0	0.0	0.0
Wind	5	124	3115	8039	13545	13545	1803	6410	11468	137.3	393.6	552.1
Solar	0	0	0	3	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	29554	30673	36156	35127	34085	34085	3822	-1158	-1541	11.8	-3.2	-4.3
of which cogeneration units	6632	6800	8271	8825	10889	10889	961	831	1793	13.2	10.4	19.7
Solids fired	28139	28775	29745	26850	16341	16341	0	-6846	-11960	0.0	-20.3	-42.3
Gas fired	820	1263	1527	1541	3114	3114	-280	-266	-263	-15.5	-14.7	-7.8
Oil fired	472	474	459	459	165	165	-12	-12	-131	-2.6	-2.6	-44.2
Biomass-waste fired	122	160	4425	6276	14464	14464	4115	5966	10813	1327.5	1924.6	296.2
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.2	51.1	41.3	40.0	40.9	40.9	-14.8	-15.2	-16.6			
Efficiency of gross thermal power generation (%)	33.7	34.5	39.8	40.2	40.4	40.4	2.7	-0.2	-4.1			
% of gross electricity from CHP	12.2	12.9	31.1	29.9	29.6	29.6	12.7	10.5	12.3			
Carbon free gross electricity generation (%)	2.2	3.5	16.2	28.2	53.1	8.5	20.6	29.1				
- nuclear	0.0	0.0	0.0	0.0	18.6	0.0	0.0	2.6				
- renewable energy forms	2.2	3.5	16.2	28.2	34.5	8.5	20.6	26.5				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	46.3	31.7	29.9	29.6	32.6	37.5	0.5	0.9	1.2	1.9	2.8	3.2
Private cars and motorcycles	102.8	153.1	188.3	268.4	309.3	394.7	-4.4	-8.4	-13.2	-1.6	-2.6	-3.2
Rail	55.4	28.8	22.3	23.0	26.2	35.8	0.4	0.6	1.4	1.7	2.2	4.0
Aviation	2.0	2.6	3.1	5.8	7.8	12.8	-0.1	-0.2	-0.5	-2.0	-3.0	-3.4
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	-0.4	0.0	0.1
Freight transport activity (Gtkm)												
Trucks	40.3	75.0	111.8	168.3	189.6	221.7	-5.6	-9.3	-13.1	-3.2	-4.7	-5.6
Rail	81.6	54.0	43.8	62.0	72.1	86.0	2.0	3.1	4.6	3.4	4.5	5.6
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.6	0.0	0.0	0.0	0.7	1.3	1.5
Energy demand in transport (ktoe)												
Public road transport	314	217	190	179	185	168	0	-2	-15	-0.3	-1.2	-8.2
Private cars and motorcycles	3299	4876	5324	7307	7964	8636	-202	-355	-529	-2.7	-4.3	-5.8
Trucks	2335	3178	5748	8307	8771	9344	-553	-1038	-1517	-6.2	-10.6	-14.0
Rail	1095	539	502	621	642	542	12	-8	-11	2.0	-1.2	-2.0
Aviation	196	369	319	477	588	826	-12	-24	-56	-2.4	-3.9	-6.3
Inland navigation	99	6	2	2	3	3	0	0	0	-0.3	-0.4	-1.2

Source: PRIMES

Portugal: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2808	2602	3109	3583	5456	6342	8080	9281	10616	1.0	5.8	4.0	2.8
Solids	115	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	2692	2602	3109	3583	5456	6342	8080	9281	10616	1.4	5.8	4.0	2.8
Hydro	787	717	974	407	871	872	872	872	872	2.1	-1.1	0.0	0.0
Biomass & Waste	1891	1831	2053	2936	3418	3923	5025	5705	6092	0.8	5.2	3.9	1.9
Wind	0	1	14	152	976	1060	1373	1569	1778	66.9	52.4	3.5	2.6
Solar and others	11	15	18	23	105	357	665	978	1694	5.4	19.0	20.2	9.8
Geothermal	3	37	49	66	85	130	145	157	180	31.4	5.6	5.5	2.2
Net Imports	15160	17876	21588	24040	22543	23140	22239	21179	19522	3.6	0.4	-0.1	-1.3
Solids	2789	3797	3913	3223	3395	3307	3303	1853	5	3.4	-1.4	-0.3	-47.6
Oil	12367	14001	15556	16338	15585	15898	14917	15029	15160	2.3	0.0	-0.4	0.2
- Crude oil and Feedstocks	11360	13547	12022	13459	13194	13447	13025	13119	13229	0.6	0.9	-0.1	0.2
- Oil products	1007	454	3534	2878	2391	2451	1892	1909	1931	13.4	-3.8	-2.3	0.2
Natural gas	0	0	2039	3893	3458	3784	3934	4221	4288		5.4	1.3	0.9
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Gross Inland Consumption	16890	19611	24108	26677	27393	28841	29649	29761	29415	3.6	1.3	0.8	-0.1
Solids	2580	3493	3803	3347	3395	3307	3303	1853	5	4.0	-1.1	-0.3	-47.6
Oil	11614	13437	15083	15410	14980	15257	14246	14330	14437	2.6	-0.1	-0.5	0.1
Natural gas	0	0	2034	3751	3458	3784	3934	4221	4288		5.5	1.3	0.9
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Renewable energy forms	2692	2602	3109	3583	5456	6342	8080	9281	10616	1.4	5.8	4.0	2.8
as % in Gross Inland Consumption													
Solids	15.3	17.8	15.8	12.5	12.4	11.5	11.1	6.2	0.0				
Oil	68.8	68.5	62.6	57.8	54.7	52.9	48.0	48.1	49.1				
Natural gas	0.0	0.0	8.4	14.1	12.6	13.1	13.3	14.2	14.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	15.9	13.3	12.9	13.4	19.9	22.0	27.3	31.2	36.1				
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	55897	60790	66972	70097	76412	4.3	2.6	1.8	1.3
Self consumption and grid losses	4441	4776	5435	6125	6105	6688	7379	8244	8345	2.0	1.2	1.9	1.2
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	6994	7345	7082	6236	4926	4.2	0.7	0.1	-3.6
Solids	2027	2919	3198	3319	3390	3302	3299	1847	0	4.7	0.6	-0.3	-60.9
Oil (including refinery gas)	2105	2371	1670	1884	994	1040	141	54	232	-2.3	-5.1	-17.8	5.1
Gas (including derived gases)	19	18	1234	2309	1658	1904	1991	2199	2305	51.6	3.0	1.8	1.5
Biomass & Waste	149	148	356	430	870	973	1512	1984	2215	9.1	9.4	5.7	3.9
Geothermal heat	3	37	49	65	82	126	140	151	174	31.4	5.2	5.5	2.2
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11484	14055	12700	13608	13669	14095	13914	14131	14289	1.0	0.7	0.2	0.3
Refineries	11152	13579	12251	13608	13480	13731	13305	13392	13497	0.9	1.0	-0.1	0.1
Biofuels and hydrogen production	0	0	0	0	189	365	609	739	792			12.4	2.7
District heating	0	16	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1			
Energy Branch Consumption	658	870	881	900	818	819	768	808	738	3.0	-0.7	-0.6	-0.4
Non-Energy Uses	2103	1875	2330	2405	2575	2684	2840	2986	3112	1.0	1.0	1.0	0.9
Final Energy Demand	11208	13042	16937	16654	19722	20892	21778	22346	22860	4.2	1.5	1.0	0.5
by sector													
Industry	4139	4247	5518	5656	5865	6087	6337	6601	6801	2.9	0.6	0.8	0.7
- energy intensive industries	2497	2646	3437	3757	3849	3979	4118	4270	4390	3.2	1.1	0.7	0.6
- other industrial sectors	1642	1601	2081	1899	2016	2108	2219	2330	2411	2.4	-0.3	1.0	0.8
Residential	2290	2569	2804	3206	3567	3983	4358	4357	4570	2.0	2.4	2.0	0.5
Tertiary	1052	1373	2098	2766	2818	2957	2973	3039	3106	7.2	3.0	0.5	0.4
Transport	3728	4853	6517	7026	7471	7865	8110	8349	8402	5.7	1.4	0.8	0.4
by fuel													
Solids	617	546	465	16	5	5	5	5	5	-2.8	-35.9	-1.3	0.2
Oil	6683	8187	10469	10492	10695	10824	10626	10673	10497	4.6	0.2	-0.1	-0.1
Gas	103	97	853	1307	1749	1827	1891	1968	1932	23.6	7.4	0.8	0.2
Electricity	2024	2477	3299	3983	4338	4753	5159	5344	5871	5.0	2.8	1.7	1.3
Heat (from CHP and District Heating)	28	36	134	328	322	313	348	399	444	16.8	9.1	0.8	2.5
Renewable energy forms	1752	1698	1716	2529	2612	3169	3748	3954	4128	-0.2	4.3	3.7	1.0
Other	0	0	0	0	1	1	2	3	3			15.1	1.9
RES in Gross Final Energy Consumption ^(A)			2907	3266	5189	6002	7607	8707	9983		6.0	3.9	2.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	82.3	81.7	78.4	73.0	65.9	3.5	-0.3	-0.5	-1.7
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	59.1	59.9	56.5	51.3	44.1	4.1	0.1	-0.4	-2.5
Power generation/District heating	14.8	19.2	20.9	24.5	20.4	20.8	18.1	12.6	6.1	3.5	-0.2	-1.2	-10.3
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.2	2.0	1.9	1.8	4.3	-0.2	-1.3	-0.8
Industry	8.2	8.4	10.8	7.3	8.2	8.2	7.9	7.7	7.7	2.8	-2.7	-0.5	-0.2
Residential	1.6	1.9	2.0	2.3	2.3	2.4	2.5	2.6	2.6	2.0	1.4	1.0	0.2
Tertiary	1.9	2.2	3.2	4.2	4.0	3.7	3.4	3.2	2.9	5.4	2.4	-1.6	-1.4
Transport	11.0	14.4	19.4	21.0	21.8	22.5	22.6	23.0	22.9	5.8	1.2	0.4	0.1
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.3	6.6	6.8	7.0	4.7	-1.5	0.6	0.6
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	15.4	15.3	14.9	14.8	1.3	-1.1	-1.1	-0.3
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	136.5	135.4	130.0	121.0	109.2				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: Cost Efficiency with JI/CDM Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	9.966	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	168.3	155.8	139.3	122.1	107.8	0.2	0.0	-1.9	-2.5	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.16	2.08	1.91	1.72	1.50	0.5	-1.2	-1.2	-2.4	
Import Dependency %	86.7	89.0	87.2	88.2	80.5	78.5	73.3	69.5	64.8					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	21.9	25.0	29.3	33.0	35.2		3.6	2.9	1.9	
as % of GDP			10.8	12.3	13.4	13.5	13.8	13.5	12.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.1	96.4	89.2	83.0	79.7	1.7	0.3	-1.4	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	107.8	106.9	103.0	90.9	85.8	-2.0	0.8	-0.5	-1.8	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	112.0	102.5	90.1	80.9	74.2	3.9	1.1	-2.2	-1.9	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.2	37.3	35.1	33.0	30.4	0.2	-1.1	-1.1	-1.5	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.4	57.2	54.6	52.6	50.9	1.3	-0.4	-1.0	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.32	0.25	0.17	0.08	-1.0	-3.0	-2.9	-11.5	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.84	1.77	1.67	1.64	1.58	0.3	-1.2	-1.0	-0.6	
Industry	1.99	1.97	1.96	1.30	1.40	1.35	1.24	1.20	1.13	-0.1	-3.3	-1.2	-0.9	
Residential	0.71	0.74	0.71	0.70	0.65	0.61	0.58	0.60	0.57	0.0	-1.0	-1.0	-0.2	
Tertiary	1.77	1.61	1.50	1.53	1.43	1.25	1.15	1.07	0.95	-1.6	-0.5	-2.2	-1.9	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.79	2.75	2.73	0.1	-0.2	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.6	28.0	33.9	37.8	42.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.5	7.4	8.8	9.5					
Gross Electricity generation by source (in GWh)														
			43364	46180	55897	60790	66972	70097	76412		2.6	1.8	1.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15472	15072	15056	8432	1		0.5	-0.3	-60.9	
Oil (including refinery gas)			9483	9244	6262	6229	1408	1117	2144		-4.1	-13.9	4.3	
Gas (including derived gases)			5745	11580	9358	11187	11446	13145	14759		5.0	2.0	2.6	
Biomass-waste			1802	3434	3076	4770	8973	11649	13290		5.5	11.3	4.0	
Hydro (pumping excluded)			11321	4730	10131	10135	10138	10138	10142		-1.1	0.0	0.0	
Wind			168	1773	11351	12330	15966	18240	20669		52.4	3.5	2.6	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	892	1123	1335	1408		5.2	23.8	2.3	
Net Generation Capacity in MW_e			10643	13440	21809	22322	25851	29202	36648		7.4	1.7	3.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10238	11235	15039	18533	26068		9.7	3.9	5.7	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5849	6295	8180	9307	10988		50.2	3.4	3.0	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	368	472	576	600				2.4	
<u>Thermal power</u>			6585	8156	11571	11087	10812	10669	10580		5.8	-0.7	-0.2	
of which cogeneration units			1372	1373	1947	2070	2289	2628	3031		3.6	1.6	2.8	
Solids fired			1903	1914	1866	1818	1818	1421	568		-0.2	-0.3	-11.0	
Gas fired			1868	3724	5989	5505	5184	5070	5704		12.4	-1.4	1.0	
Oil fired			2338	2008	1981	1919	1318	1117	1030		-1.6	-4.0	-2.4	
Biomass-waste fired			463	493	1719	1816	2459	3027	3237		14.0	3.6	2.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	29	34	34	41		2.1	7.8	1.8	
Avg. Load factor of net power capacity (%)			44.8	37.8	28.5	30.3	28.8	26.5	23.3					
Efficiency of gross thermal power generation (%)			42.1	42.6	42.2	43.8	45.0	47.7	53.2					
% of gross electricity from CHP			11.3	10.1	10.4	12.8	17.7	20.2	21.9					
Carbon free gross electricity generation (%)			30.8	21.8	44.4	46.6	58.3	67.6	77.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	44.4	46.6	58.3	67.6	77.9					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.1	123.7	134.5	146.0	156.5	5.3	2.4	1.8	1.5	
Public road transport	10.3	11.3	11.8	11.1	11.4	11.7	12.2	12.5	12.8	1.4	-0.4	0.7	0.5	
Private cars and motorcycles	28.6	42.5	60.0	71.4	80.2	88.2	94.8	101.7	107.8	7.7	2.9	1.7	1.3	
Rail	6.3	5.3	4.6	4.6	4.8	5.2	5.7	6.4	7.2	-3.2	0.6	1.6	2.4	
Aviation	7.1	9.1	11.7	13.2	15.3	18.1	21.4	25.0	28.2	5.1	2.7	3.4	2.8	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.4	1.0	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	50.9	56.9	62.0	67.1	71.7	4.7	2.0	2.0	1.5	
Trucks	23.1	27.3	38.9	42.6	46.9	52.4	57.1	61.9	66.1	5.4	1.9	2.0	1.5	
Rail	1.5	2.0	2.2	2.4	2.8	3.2	3.5	3.7	4.0	4.1	2.6	2.2	1.3	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.6	-7.9	3.0	2.5	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7471	7865	8110	8349	8402	5.7	1.4	0.8	0.4	
Public road transport	67	90	100	108	104	100	99	92	85	4.2	0.3	-0.5	-1.4	
Private cars and motorcycles	1575	2299	2945	3058	3246	3328	3340	3323	3180	6.5	1.0	0.3	-0.5	
Trucks	1387	1717	2551	2872	3001	3178	3302	3451	3577	6.3	1.6	1.0	0.8	
Rail	82	80	88	66	68	66	63	61	54	0.6	-2.4	-0.9	-1.5	
Aviation	574	620	790	881	1005	1141	1251	1363	1446	3.2	2.4	2.2	1.5	
Inland navigation	43	46	43	41	47	52	56	59	60	0.0	0.8	1.8	0.6	

Source: PRIMES

Portugal: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6342	8080	10616	854	2020	3073	15.6	33.3	40.7
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	74.0	20.4	-288.2
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6342	8080	10616	854	2020	3073	15.6	33.3	40.7
Hydro	787	974	407	872	872	872	1	1	0	0.1	0.1	0.0
Biomass & Waste	1891	2053	2936	3923	5025	6092	335	1108	1215	9.3	28.3	24.9
Wind	0	14	152	1060	1373	1778	217	365	377	25.8	36.2	26.9
Solar and others	11	18	23	357	665	1694	255	492	1477	251.7	285.9	681.9
Geothermal	3	49	66	130	145	180	45	54	4	53.9	59.1	2.4
Net Imports	15160	21588	24040	23140	22239	19522	-2711	-5224	-8652	-10.5	-19.0	-30.7
Solids	2789	3913	3223	3307	3303	5	-989	-1842	-4742	-23.0	-35.8	-99.9
Oil	12367	15556	16338	15898	14917	15160	-1025	-2566	-2449	-6.1	-14.7	-13.9
- Crude oil and Feedstocks	11360	12022	13459	13447	13025	13229	-690	-1558	-1510	-4.9	-10.7	-10.2
- Oil products	1007	3534	2878	2451	1892	1931	-335	-1008	-939	-12.0	-34.8	-32.7
Natural gas	0	2039	3893	3784	3934	4288	-697	-816	-1461	-15.6	-17.2	-25.4
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	28841	29649	29415	-1856	-3202	-5577	-6.0	-9.7	-15.9
Solids	2580	3803	3347	3307	3303	5	-989	-1842	-4742	-23.0	-35.8	-99.9
Oil	11614	15083	15410	15257	14246	14437	-1024	-2565	-2447	-6.3	-15.3	-14.5
Natural gas	0	2034	3751	3784	3934	4288	-697	-816	-1461	-15.6	-17.2	-25.4
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6342	8080	10616	854	2020	3073	15.6	33.3	40.7
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	11.5	11.1	0.0	-2.5	-4.5	-13.5			
Oil	68.8	62.6	57.8	52.9	48.0	49.1	-0.1	-3.1	0.8			
Natural gas	0.0	8.4	14.1	13.1	13.3	14.6	-1.5	-1.2	-1.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	22.0	27.3	36.1	4.1	8.8	14.5			
Gross Electricity Generation in GWh_e	28350	43364	46180	60790	66972	76412	-7582	-10308	-17015	-11.1	-13.3	-18.2
Self consumption and grid losses	4441	5435	6125	6688	7379	8345	-1220	-1716	-3553	-15.4	-18.9	-29.9
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7345	7082	4926	-1771	-2964	-5805	-19.4	-29.5	-54.1
Solids	2027	3198	3319	3302	3299	0	-990	-1843	-4745	-23.1	-35.8	-100.0
Oil (including refinery gas)	2105	1670	1884	1040	141	232	-315	-1130	-769	-23.2	-88.9	-76.8
Gas (including derived gases)	19	1234	2309	1904	1991	2305	-608	-627	-1030	-24.2	-23.9	-30.9
Biomass & Waste	149	356	430	973	1512	2215	97	584	738	11.1	63.0	50.0
Geothermal heat	3	49	65	126	140	174	44	51	0	53.8	57.0	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	14095	13914	14289	-644	-1424	-1429	-4.4	-9.3	-9.1
Refineries	11152	12251	13608	13731	13305	13497	-690	-1558	-1510	-4.8	-10.5	-10.1
Biofuels and hydrogen production	0	0	0	365	609	792	46	134	82	14.6	28.2	11.5
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	819	768	738	-92	-183	-270	-10.1	-19.2	-26.8
Non-Energy Uses	2103	2330	2405	2684	2840	3112	-2	-3	-4	-0.1	-0.1	-0.1
Final Energy Demand	11208	16937	18654	20892	21778	22880	-866	-1454	-2409	-4.0	-6.3	-9.5
by sector												
Industry	4139	5518	5656	6087	6337	6801	-135	-283	-343	-2.2	-4.3	-4.8
- energy intensive industries	2497	3437	3757	3979	4118	4390	-64	-153	-185	-1.6	-3.6	-4.0
- other industrial sectors	1642	2081	1899	2108	2219	2411	-71	-130	-158	-3.2	-5.5	-6.2
Residential	2290	2804	3206	3983	4358	4570	-30	-35	-399	-0.7	-0.8	-8.0
Tertiary	1052	2098	2766	2957	2973	3106	-414	-613	-881	-12.3	-17.1	-22.1
Transport	3728	6517	7026	7865	8110	8402	-288	-523	-786	-3.5	-6.1	-8.6
by fuel												
Solids	617	465	16	5	5	5	1	1	2	27.7	40.9	81.4
Oil	6683	10469	10492	10824	10626	10497	-659	-1309	-1564	-5.7	-11.0	-13.0
Gas	103	853	1307	1827	1891	1932	-80	-179	-414	-4.2	-8.7	-17.7
Electricity	2024	3299	3983	4753	5159	5871	-546	-737	-1154	-10.3	-12.5	-16.4
Heat (from CHP and District Heating)	28	134	328	313	348	444	-8	35	4	-2.4	11.2	0.9
Renewable energy forms	1752	1716	2529	3169	3748	4128	425	735	717	15.5	24.4	21.0
Other	0	0	0	1	2	3	0	0	0	8.2	4.6	-3.4
RES in Gross Final Energy Consumption ^(A)		2907	3266	6002	7607	9983	792	1866	2952	15.2	32.5	42.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	81.7	78.4	65.9	-9.9	-19.0	-31.6	-10.8	-19.5	-32.4
CO₂ Emissions (energy related)	39.0	58.5	61.6	59.9	56.5	44.1	-8.7	-17.2	-29.6	-12.6	-23.3	-40.2
Power generation/District heating	14.8	20.9	24.5	20.8	18.1	6.1	-6.3	-12.4	-23.6	-23.3	-40.6	-79.4
Energy Branch	1.5	2.3	2.3	2.2	2.0	1.8	-0.2	-0.4	-0.4	-6.5	-16.6	-16.3
Industry	8.2	10.8	7.3	8.2	7.9	7.7	-0.5	-1.5	-1.5	-5.7	-15.7	-16.1
Residential	1.6	2.0	2.3	2.4	2.5	2.6	-0.2	-0.4	-0.6	-9.0	-12.6	-18.2
Tertiary	1.9	3.2	4.2	3.7	3.4	2.9	-0.4	-0.6	-0.8	-10.5	-15.0	-22.0
Transport	11.0	19.4	21.0	22.5	22.6	22.9	-1.0	-2.0	-2.8	-4.3	-8.1	-11.0
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.3	6.6	7.0	0.0	-0.1	-0.2	-0.7	-1.3	-2.1
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	15.4	15.3	14.8	-1.2	-1.7	-1.8	-7.2	-10.1	-10.7
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	135.4	130.0	109.2	-16.4	-31.5	-52.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Portugal: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	155.8	139.3	107.8	-10.0	-15.1	-20.4	-6.0	-9.7	-15.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.08	1.91	1.50	-0.16	-0.34	-0.61	-7.0	-15.0	-28.8
Import Dependency %	86.7	87.2	88.2	78.5	73.3	64.8	-4.0	-8.6	-14.1			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	25.0	29.3	35.2	0.6	1.5	2.4	2.4	5.3	7.3
as % of GDP		10.8	12.3	13.5	13.8	12.9	0.3	0.7	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	1.5	2.4						
as % of GDP				0.33	0.71	0.89						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	96.4	89.2	79.7	-2.1	-4.0	-4.0	-2.2	-4.3	-4.8
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	106.9	103.0	85.8	-0.8	-0.8	-7.5	-0.7	-0.8	-8.0
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	102.5	90.1	74.2	-14.3	-18.6	-21.1	-12.3	-17.1	-22.1
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.3	35.1	30.4	-0.6	-0.9	-1.0	-1.6	-2.5	-3.1
Freight transport (toe/Mtkm)	55.4	62.9	63.8	57.2	54.6	50.9	-1.7	-3.4	-5.2	-2.9	-5.9	-9.3
Carbon Intensity Indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.32	0.25	0.08	-0.05	-0.12	-0.23	-14.2	-32.3	-75.1
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.77	1.67	1.58	-0.03	-0.09	-0.08	-1.7	-4.9	-4.5
Industry	1.99	1.96	1.30	1.35	1.24	1.13	-0.05	-0.17	-0.15	-3.6	-11.9	-11.8
Residential	0.71	0.71	0.70	0.61	0.58	0.57	-0.06	-0.08	-0.07	-8.3	-11.9	-11.0
Tertiary	1.77	1.50	1.53	1.25	1.15	0.95	0.02	0.03	0.00	2.0	2.6	0.1
Transport	2.95	2.97	2.98	2.87	2.79	2.73	-0.02	-0.06	-0.07	-0.8	-2.2	-2.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	28.0	33.9	42.3	42.3	4.7	10.0	15.6			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.5	7.4	9.5	9.5	0.7	2.0	1.9			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15072	15056	1	1	-5572	-10546	-28016	-27.0	-41.2	-100.0
Oil (including refinery gas)	9483	9244	6229	1408	2144	2144	-2249	-6337	-4200	-26.5	-81.8	-66.2
Gas (including derived gases)	5745	11580	11187	11446	14759	14759	-3074	-4205	-6828	-21.6	-26.9	-31.6
Biomass-waste	1802	3434	4770	8973	13290	12	3438	3401	0.3	62.1	34.4	
Hydro (pumping excluded)	11321	4730	10135	10138	10142	13	6	0	0.1	0.1	0.0	
Wind	168	1773	12330	15966	20669	2528	4243	4379	25.8	36.2	26.9	
Solar	1	3	176	2861	14000	0	2643	13738	0.0	1211.1	5246.5	
Geothermal and other renewables	80	105	892	1123	1408	760	450	511	571.4	66.8	57.0	
Net Generation Capacity in MW_e	10643	13440	22322	25851	36648	321	2220	8661	1.5	9.4	30.9	
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0				
<u>Renewable energy</u>	4058	5284	11235	15039	26068	1410	4011	12496	14.4	36.4	92.1	
Hydro (pumping excluded)	3958	4234	4435	4490	4490	0	0	0	0.0	0.0	0.0	
Wind	100	1047	6295	8180	10988	1043	2089	2474	19.9	34.3	29.1	
Solar	1	3	138	1896	9990	0	1724	9757	0.0	1001.6	4184.4	
Other renewables (tidal etc.)	0	0	368	472	600	368	198	265		72.4	79.2	
<u>Thermal power</u>	6585	8156	11087	10812	10580	-1089	-1791	-3835	-8.9	-14.2	-26.6	
of which cogeneration units	1372	1373	2070	2289	3031	-135	67	-131	-6.1	3.0	-4.1	
Solids fired	1903	1914	1818	1818	568	-647	-1222	-2677	-26.3	-40.2	-82.5	
Gas fired	1868	3724	5505	5184	5704	-412	-736	-1392	-7.0	-12.4	-19.6	
Oil fired	2338	2008	1919	1318	1030	-228	-623	-517	-10.6	-32.1	-33.4	
Biomass-waste fired	463	493	1816	2459	3237	185	777	752	11.3	46.2	30.2	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	13	16	29	34	41	13	13	0	81.1	61.8	0.0	
Avg. Load factor of net power capacity (%)	44.8	37.8	30.3	28.8	23.3	-4.1	-7.3	-13.3				
Efficiency of gross thermal power generation (%)	42.1	42.6	43.8	45.0	53.2	-1.7	-1.8	0.2				
% of gross electricity from CHP	11.3	10.1	12.8	17.7	21.9	0.1	4.6	4.1				
Carbon free gross electricity generation (%)	30.8	21.8	46.6	58.3	77.9	10.0	21.7	37.8				
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms	30.8	21.8	46.6	58.3	77.9	10.0	21.7	37.8				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	10.3	11.8	11.1	11.7	12.2	12.8	0.2	0.3	0.4	1.9	2.8	3.3
Private cars and motorcycles	28.6	60.0	71.4	88.2	94.8	107.8	-1.3	-2.2	-3.2	-1.5	-2.3	-2.9
Rail	6.3	4.6	4.6	5.2	5.7	7.2	0.1	0.1	0.0	1.8	1.2	0.5
Aviation	7.1	11.7	13.2	18.1	21.4	28.2	-0.4	-0.6	-0.9	-1.9	-2.8	-3.2
Inland navigation	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-0.5	-0.2	-0.1
Freight transport activity (Gtkm)												
Trucks	23.1	38.9	42.6	52.4	57.1	66.1	-1.2	-2.0	-2.8	-2.3	-3.3	-4.0
Rail	1.5	2.2	2.4	3.2	3.5	4.0	0.1	0.2	0.2	4.7	5.4	5.8
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.6	0.0	0.0	0.0	1.6	2.3	2.8
Energy demand in transport (ktoe)												
Public road transport	67	100	108	100	99	85	0	-1	-5	-0.2	-1.1	-5.9
Private cars and motorcycles	1575	2945	3058	3328	3340	3180	-97	-154	-179	-2.8	-4.4	-5.3
Trucks	1387	2551	2872	3178	3302	3577	-162	-317	-523	-4.9	-8.8	-12.7
Rail	82	88	66	66	63	54	0	2	4	0.3	3.0	8.1
Aviation	574	790	881	1141	1251	1446	-28	-53	-83	-2.4	-4.1	-5.4
Inland navigation	43	43	41	52	56	60	0	0	0	0.2	0.2	-0.4

Source: PRIMES

Romania: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	41400	32600	28774	28181	28996	30510	33002	36015	38404	-3.6	0.1	1.3	1.5
Solids	7935	7889	5879	5793	6231	3916	3213	4197	5112	-3.0	0.6	-6.4	4.8
Oil	7947	7104	6389	6120	5564	6042	6172	6167	6164	-2.2	-1.4	1.0	0.0
Natural gas	22911	14446	10968	9701	9449	10108	10906	10383	9822	-7.1	-1.5	1.4	-1.0
Nuclear	0	0	1407	1433	1474	2869	2869	3681	3755		0.5	6.9	2.7
Renewable energy sources	2607	3162	4131	5134	6277	7575	9843	11587	13551	4.7	4.3	4.6	3.2
Hydro	1460	1435	1271	1737	1720	1733	1740	1754	1788	-1.4	3.1	0.1	0.3
Biomass & Waste	1147	1726	2854	3314	4363	5412	7431	8977	10766	9.5	4.3	5.5	3.8
Wind	0	0	0	0	50	59	98	157	208			6.9	7.9
Solar and others	0	0	0	0	14	141	249	355	429			33.2	5.6
Geothermal	0	0	7	82	129	231	325	344	359		34.4	9.7	1.0
Net Imports	20360	14542	8099	10719	11834	14120	15527	17549	19433	-8.8	3.9	2.8	2.3
Solids	2423	2870	1905	2904	3040	4705	5131	4946	4637	-2.4	4.8	5.4	-1.0
Oil	11194	6852	3542	3874	4969	5410	6078	6765	7393	-10.9	3.4	2.0	2.0
- Crude oil and Feedstocks	16094	8735	4836	8751	9682	10466	11427	12362	13215	-11.3	7.2	1.7	1.5
- Oil products	-4900	-1883	-1294	-4877	-4713	-5056	-5349	-5597	-5822				
Natural gas	5928	4794	2712	4190	4131	4418	4767	6313	7907	-7.5	4.3	1.4	5.2
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	61492	47109	37069	39147	40830	44630	48529	53564	57837	-4.9	1.0	1.7	1.8
Solids	10126	10796	7757	8769	9272	8621	8343	9143	9750	-2.6	1.8	-1.0	1.6
Oil	19106	13886	10148	10162	10533	11452	12250	12932	13557	-6.1	0.4	1.5	1.0
Natural gas	28838	19240	13680	13942	13580	14526	15673	16696	17729	-7.2	-0.1	1.4	1.2
Nuclear	0	0	1407	1433	1474	2869	2869	3681	3755		0.5	6.9	2.7
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	6219	7503	9744	11468	13409	4.7	4.2	4.6	3.2
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	22.7	19.3	17.2	17.1	16.9				
Oil	31.1	29.5	27.4	26.0	25.8	25.7	25.2	24.1	23.4				
Natural gas	46.9	40.8	36.9	35.6	33.3	32.5	32.3	31.2	30.7				
Nuclear	0.0	0.0	3.8	3.7	3.6	6.4	5.9	6.9	6.5				
Renewable energy forms	4.2	6.7	11.2	13.0	15.2	16.8	20.1	21.4	23.2				
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	63299	72045	81457	95443	109974	-2.0	2.0	2.6	3.0
Self consumption and grid losses	14388	11292	8909	10341	9069	8760	9387	11066	13246	-4.7	0.2	0.3	3.5
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8198	7770	9286	11451	13722	-7.6	-2.6	1.3	4.0
Solids	8166	7352	5442	5982	6128	5177	4957	5973	6986	-4.0	1.2	-2.1	3.5
Oil (including refinery gas)	6202	2997	1684	775	54	54	0	0	13	-12.2	-29.1		
Gas (including derived gases)	8984	6090	3507	3343	2017	2257	2681	2768	2778	-9.0	-5.4	2.9	0.4
Biomass & Waste	36	37	4	3	0	282	1648	2710	3945	-19.0			9.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	25764	21571	14558	17946	19234	20648	21577	22504	23274	-5.5	2.8	1.2	0.8
Refineries	23718	15646	11318	14978	15246	16508	17599	18528	19379	-7.1	3.0	1.4	1.0
Biofuels and hydrogen production	0	0	0	0	83	187	303	549	930			13.9	11.9
District heating	496	1901	1737	823	1231	1018	906	888	821	13.4	-3.4	-3.0	-1.0
Derived gases, cokeries etc.	1551	4024	1503	2144	2674	2936	2769	2540	2143	-0.3	5.9	0.3	-2.5
Energy Branch Consumption	3594	5270	4137	4184	4277	4417	4568	4791	5058	1.4	0.3	0.7	1.0
Non-Energy Uses	908	1326	2291	2448	2425	2633	2921	3227	3524	9.7	0.6	1.9	1.9
Final Energy Demand	36548	26449	22374	24625	27642	31149	34383	37599	40816	-4.8	2.1	2.2	1.7
by sector													
Industry	25106	14528	8788	9751	10871	12473	13869	15389	17067	-10.0	2.1	2.5	2.1
- energy intensive industries	15699	10582	5962	6928	7600	8568	9325	10167	11004	-9.2	2.5	2.1	1.7
- other industrial sectors	9407	3946	2826	2823	3271	3905	4544	5222	6063	-11.3	1.5	3.3	2.9
Residential	4190	6461	8557	8093	8312	8909	9653	10419	11024	7.4	-0.3	1.5	1.3
Tertiary	2845	2401	1646	2576	3148	3511	3697	3708	3667	-5.3	6.7	1.6	-0.1
Transport	4407	3058	3384	4204	5311	6256	7164	8083	9058	-2.6	4.6	3.0	2.4
by fuel													
Solids	2678	1529	703	1429	1823	2019	1995	1851	1587	-12.5	10.0	0.9	-2.3
Oil	8030	5234	5292	6547	7599	8558	9374	10005	10589	-4.1	3.7	2.1	1.2
Gas	20495	10249	6885	7721	8458	9093	9567	10120	10755	-10.3	2.1	1.2	1.2
Electricity	4355	3282	3122	3481	3883	4514	5243	6273	7327	-3.3	2.2	3.0	3.4
Heat (from CHP and District Heating)	377	4679	3570	2135	1525	1651	2085	2694	3366	25.2	-8.2	3.2	4.9
Renewable energy forms	612	1476	2802	3312	4353	5313	6118	6652	7187	16.4	4.5	3.5	1.6
Other	0	0	0	0	1	1	2	4	5			13.4	9.7
RES in Gross Final Energy Consumption ^(A)			4197	5132	6191	7415	9435	10962	12655		4.0	4.3	3.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	154.1	152.3	156.5	160.6	163.3	-6.4	1.2	0.2	0.4
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	92.9	94.4	97.5	104.6	107.9	-6.7	1.1	0.5	1.0
Power generation/District heating	75.9	59.2	40.6	37.2	33.3	29.1	28.8	33.2	34.4	-6.1	-2.0	-1.4	1.8
Energy Branch	6.2	7.5	7.4	8.0	8.3	8.6	8.8	9.0	9.2	1.8	1.1	0.6	0.4
Industry	58.1	30.2	17.6	20.9	23.2	25.7	26.7	27.1	27.0	-11.3	2.8	1.4	0.1
Residential	7.5	5.2	6.5	7.2	7.5	7.6	7.8	8.5	9.2	-1.4	1.5	0.3	1.7
Tertiary	6.7	3.1	1.8	4.4	5.4	5.6	5.4	4.7	4.1	-12.1	11.3	-0.1	-2.6
Transport	12.3	8.6	9.6	12.1	15.2	17.7	20.1	22.1	23.9	-2.4	4.7	2.8	1.8
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.8	21.7	24.8	27.6	30.1	-5.6	3.4	3.3	2.0
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	36.2	34.2	28.4	25.3	25.3	-6.0	0.6	-2.3	-3.0
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	58.0	57.3	58.9	60.4	61.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6	
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0	
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	389.3	316.3	262.1	224.6	191.6	-3.3	-4.5	-3.9	-3.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.28	2.11	2.01	1.95	1.86	-1.8	0.1	-1.2	-0.7	
Import Dependency %	33.1	30.9	21.8	27.4	29.0	31.6	32.0	32.8	33.6					
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	21.3	26.9	33.5	39.3	45.9		4.3	4.6	3.2	
as % of GDP			23.4	18.7	20.3	19.1	18.1	16.5	15.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	74.9	65.3	57.1	50.7	45.5	-7.5	-2.8	-2.7	-2.2	
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	47.9	38.1	31.4	26.3	21.9	8.2	-7.1	-4.1	-3.5	
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	105.8	87.1	68.9	52.8	40.8	-4.0	0.6	-4.2	-5.1	
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.5	28.0	26.5	25.2	25.1	7.6	-2.7	-1.1	-0.6	
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	29.9	28.6	27.2	26.2	25.1	0.5	-3.2	-0.9	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.37	0.29	0.25	0.25	0.22	-10.1	-0.5	-3.7	-1.4	
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.86	1.82	1.74	1.66	1.57	-3.7	1.6	-0.6	-1.0	
Industry	2.31	2.08	2.00	2.14	2.13	2.06	1.93	1.76	1.58	-1.4	0.6	-1.0	-2.0	
Residential	1.78	0.81	0.76	0.89	0.91	0.86	0.81	0.82	0.84	-8.2	1.8	-1.2	0.4	
Tertiary	2.37	1.30	1.12	1.69	1.72	1.59	1.45	1.26	1.12	-7.2	4.3	-1.7	-2.5	
Transport	2.79	2.81	2.85	2.89	2.86	2.83	2.80	2.73	2.64	0.2	0.0	-0.2	-0.6	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	21.5	23.0	26.6	28.3	30.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.6	3.7	5.9	9.1					
Gross Electricity generation by source (in GWh)														
			51925	59402	63299	72045	81457	95443	109974		2.0	2.6	3.0	
Nuclear energy			5455	5554	6207	11614	11614	15292	15628		1.3	6.5	3.0	
Solids			16409	19761	22560	22855	23246	27309	34649		3.2	0.3	4.1	
Oil (including refinery gas)			4145	3256	243	243	0	0	59		-24.7			
Gas (including derived gases)			11002	10316	13120	14625	17564	18141	18326		1.8	3.0	0.4	
Biomass-waste			138	311	582	1869	7656	12450	18036		15.5	29.4	8.9	
Hydro (pumping excluded)			14775	20203	20000	20146	20231	20398	20795		3.1	0.1	0.3	
Wind			0	0	583	686	1135	1822	2424			6.9	7.9	
Solar			0	0	4	7	12	31	58			12.0	17.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			19962	19838	23098	22372	22830	20404	20988		1.5	-0.1	-0.8	
<u>Nuclear energy</u>			654	650	1330	1342	1347	1772	1811		7.4	0.1	3.0	
<u>Renewable energy</u>			5935	6215	6790	7214	7845	8407	9014		1.4	1.5	1.4	
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1	
Wind			0	0	422	495	843	1336	1922			7.2	8.6	
Solar			0	3	3	6	9	25	46			12.0	17.4	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			13373	12972	14977	13816	13638	10225	10163		1.1	-0.9	-2.9	
of which cogeneration units			5378	5459	1656	2136	3264	4187	5432		-11.1	7.0	5.2	
Solids fired			7285	7139	7122	7250	7345	4629	4001		-0.2	0.3	-5.9	
Gas fired			3692	3459	5317	4547	3693	2908	2652		3.7	-3.6	-3.3	
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0	
Biomass-waste fired			20	20	96	318	1395	2247	3212		16.7	30.7	8.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			27.0	30.8	29.2	35.0	38.8	50.7	56.2					
Efficiency of gross thermal power generation (%)			25.6	28.6	38.3	43.8	44.9	43.5	44.5					
% of gross electricity from CHP			30.2	25.8	17.5	20.0	24.2	26.7	29.5					
Carbon free gross electricity generation (%)			39.2	43.9	43.2	47.6	49.9	52.4	51.8					
- nuclear			10.5	9.3	9.8	16.1	14.3	16.0	14.2					
- renewable energy forms			28.7	34.5	33.4	31.5	35.6	36.4	37.6					
Transport sector														
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.8	121.1	147.6	177.2	-2.7	4.1	4.6	3.9	
Public road transport	24.0	12.3	7.7	9.4	11.9	14.7	17.2	19.3	21.4	-10.7	4.4	3.7	2.2	
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.1	70.7	87.9	107.7	130.0	9.6	5.7	4.8	4.0	
Rail	30.6	18.9	11.6	8.0	8.2	9.9	12.0	14.4	16.7	-9.2	-3.4	3.8	3.4	
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.2	9.1	1.6	7.3	9.3	8.4	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.9	
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.6	122.9	145.0	166.6	183.6	-8.4	11.8	3.6	2.4	
Trucks	29.0	19.7	14.3	51.5	71.1	87.0	102.5	117.5	128.1	-6.8	17.4	3.7	2.3	
Rail	48.9	17.9	16.4	16.6	18.8	21.4	25.0	28.8	32.9	-10.4	1.4	2.9	2.8	
Inland navigation	2.1	3.1	2.6	8.4	11.7	14.5	17.5	20.3	22.6	2.3	16.1	4.1	2.6	
Energy demand in transport (ktoe)	4407	3058	3384	4204	5311	6256	7164	8083	9058	-2.6	4.6	3.0	2.4	
Public road transport	329	176	117	93	111	129	143	145	148	-9.9	-0.5	2.6	0.3	
Private cars and motorcycles	591	845	1681	1609	1977	2381	2771	3187	3791	11.0	1.6	3.4	3.2	
Trucks	2617	1272	893	2130	2785	3226	3630	4016	4258	-10.2	12.0	2.7	1.6	
Rail	282	470	449	208	221	240	238	248	250	4.8	-6.8	0.7	0.5	
Aviation	275	192	128	113	147	194	281	371	484	-7.3	1.3	6.7	5.6	
Inland navigation	312	103	115	51	70	85	102	117	128	-9.5	-4.8	3.7	2.4	

Source: PRIMES

Romania: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	30510	33002	38404	-1687	-1971	1689	-5.2	-5.6	4.6
Solids	7935	5879	5793	3916	3213	5112	-1775	-3742	-2354	-31.2	-53.8	-31.5
Oil	7947	6389	6120	6042	6172	6164	-141	0	0	-2.3	0.0	0.0
Natural gas	22911	10968	9701	10108	10906	9822	-817	-102	0	-7.5	-0.9	0.0
Nuclear	0	1407	1433	2869	2869	3755	0	-740	0	0.0	-20.5	0.0
Renewable energy sources	2607	4131	5134	7575	9843	13551	1046	2613	4043	16.0	36.2	42.5
Hydro	1460	1271	1737	1733	1740	1788	100	87	0	6.1	5.3	0.0
Biomass & Waste	1147	2854	3314	5412	7431	10766	682	2082	3353	14.4	38.9	45.2
Wind	0	0	0	59	98	208	51	83	183	636.0	591.3	704.3
Solar and others	0	0	0	141	249	429	105	178	303	296.9	252.5	240.1
Geothermal	0	7	82	231	325	359	108	183	204	87.6	129.0	131.8
Net Imports	20360	8099	10719	14120	15527	19433	-629	-2492	-6085	-4.3	-13.8	-23.8
Solids	2423	1905	2904	4705	5131	4637	59	-446	-3025	1.3	-8.0	-39.5
Oil	11194	3542	3874	5410	6078	7393	-322	-940	-1392	-5.6	-13.4	-15.8
- Crude oil and Feedstocks	16094	4836	8751	10466	11427	13215	-493	-1281	-1886	-4.5	-10.1	-12.5
- Oil products	-4900	-1294	-4877	-5056	-5349	-5822	171	341	494	-3.3	-6.0	-7.8
Natural gas	5928	2712	4190	4418	4767	7907	-357	-1078	-1623	-7.5	-18.4	-17.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	44630	48529	57837	-2316	-4462	-4395	-4.9	-8.4	-7.1
Solids	10126	7757	8769	8621	8343	9750	-1716	-4188	-5379	-16.6	-33.4	-35.6
Oil	19106	10148	10162	11452	12250	13557	-463	-940	-1392	-3.9	-7.1	-9.3
Natural gas	28838	13680	13942	14526	15673	17729	-1174	-1180	-1623	-7.5	-7.0	-8.4
Nuclear	0	1407	1433	2869	2869	3755	0	-740	0	0.0	-20.5	0.0
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7503	9744	13409	1037	2586	3999	16.0	36.1	42.5
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	19.3	17.2	16.9	-2.7	-6.5	-7.5			
Oil	31.1	27.4	26.0	25.7	25.2	23.4	0.3	0.4	-0.6			
Natural gas	46.9	36.9	35.6	32.5	32.3	30.7	-0.9	0.5	-0.4			
Nuclear	0.0	3.8	3.7	6.4	5.9	6.5	0.3	-0.9	0.5			
Renewable energy forms	4.2	11.2	13.0	16.8	20.1	23.2	3.0	6.6	8.1			
Gross Electricity Generation in GWh_e	63398	51925	59402	72045	81457	109974	-7639	-11481	-9750	-9.6	-12.4	-8.1
Self consumption and grid losses	14388	8909	10341	8760	9387	13246	-1487	-2319	-1621	-14.5	-19.8	-10.9
Fuel Inputs to Thermal Power Generation	23389	10638	10103	7770	9286	13722	-2080	-2933	-2168	-21.1	-24.0	-13.6
Solids	8166	5442	5982	5177	4957	6986	-1895	-4092	-4856	-26.8	-45.2	-41.0
Oil (including refinery gas)	6202	1684	775	54	0	13	54	0	13			
Gas (including derived gases)	8984	3507	3343	2257	2681	2778	-496	-135	206	-18.0	-4.8	8.0
Biomass & Waste	36	4	3	282	1648	3945	256	1294	2469	983.7	365.0	167.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	20648	21577	23274	-379	-1175	-1896	-1.8	-5.2	-7.5
Refineries	23718	11318	14978	16508	17599	19379	-634	-1281	-1886	-3.7	-6.8	-8.9
Biofuels and hydrogen production	0	0	0	187	303	930	25	69	130	15.7	29.3	16.3
District heating	496	1737	823	1018	906	821	-31	-160	-230	-3.0	-15.0	-21.9
Derived gases, cokeries etc.	1551	1503	2144	2936	2769	2143	261	197	90	9.7	7.7	4.4
Energy Branch Consumption	3594	4137	4184	4417	4568	5058	-237	-410	-473	-5.1	-8.2	-8.6
Non-Energy Uses	908	2291	2448	2633	2921	3524	-2	-4	-4	-0.1	-0.1	-0.1
Final Energy Demand	36548	22374	24625	31149	34383	40816	-870	-1522	-2336	-2.7	-4.2	-5.4
by sector												
Industry	25106	8788	9751	12473	13869	17067	-35	-248	-509	-0.3	-1.8	-2.9
- energy intensive industries	15699	5962	6928	8568	9325	11004	78	-84	-228	0.9	-0.9	-2.0
- other industrial sectors	9407	2826	2823	3905	4544	6063	-113	-163	-281	-2.8	-3.5	-4.4
Residential	4190	8557	8093	8909	9653	11024	-317	-341	-402	-3.4	-3.4	-3.5
Tertiary	2845	1646	2576	3511	3697	3667	-300	-466	-850	-7.9	-11.2	-18.8
Transport	4407	3384	4204	6256	7164	9058	-218	-468	-575	-3.4	-6.1	-6.0
by fuel												
Solids	2678	703	1429	2019	1995	1587	168	103	15	9.1	5.4	1.0
Oil	8030	5292	6547	8558	9374	10589	-399	-825	-1266	-4.4	-8.1	-10.7
Gas	20495	6885	7721	9093	9567	10755	-549	-851	-1816	-5.7	-8.2	-14.4
Electricity	4355	3122	3481	4514	5243	7327	-529	-760	-670	-10.5	-12.7	-8.4
Heat (from CHP and District Heating)	377	3570	2135	1651	2085	3366	-166	-232	137	-9.1	-10.0	4.3
Renewable energy forms	612	2802	3312	5313	6118	7187	604	1043	1263	12.8	20.6	21.3
Other	0	0	0	1	2	5	0	0	0	8.9	-0.2	0.2
RES in Gross Final Energy Consumption ^(A)		4197	5132	7415	9435	12655	1005	2384	3610	15.7	33.8	39.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	152.3	156.5	163.3	-18.4	-33.4	-41.2	-10.8	-17.6	-20.1
CO₂ Emissions (energy related)	166.7	83.6	89.7	94.4	97.5	107.9	-11.2	-22.8	-32.5	-10.6	-19.0	-23.1
Power generation/District heating	75.9	40.6	37.2	29.1	28.8	34.4	-8.9	-18.0	-23.3	-23.4	-38.5	-40.4
Energy Branch	6.2	7.4	8.0	8.6	8.8	9.2	-0.7	-0.9	-1.2	-7.2	-9.5	-11.2
Industry	58.1	17.6	20.9	25.7	26.7	27.0	0.8	0.3	-1.6	3.3	1.1	-5.7
Residential	7.5	6.5	7.2	7.6	7.8	9.2	-1.0	-1.3	-1.8	-11.3	-14.7	-16.0
Tertiary	6.7	1.8	4.4	5.6	5.4	4.1	-0.7	-1.2	-2.3	-11.5	-18.2	-35.8
Transport	12.3	9.6	12.1	17.7	20.1	23.9	-0.7	-1.7	-2.3	-4.0	-7.7	-8.8
CO₂ Emissions (non energy related)	22.9	12.8	15.3	21.7	24.8	30.1	0.6	0.0	-0.5	2.8	0.0	-1.6
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	36.2	34.2	25.3	-7.8	-10.5	-8.2	-17.7	-23.5	-24.6
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	57.3	58.9	61.5	-6.9	-12.6	-15.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Romania: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	316.3	262.1	191.6	-16.4	-24.1	-14.6	-4.9	-8.4	-7.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.11	2.01	1.86	-0.13	-0.26	-0.39	-6.0	-11.5	-17.3
Import Dependency %	33.1	21.8	27.4	31.6	32.0	33.6	0.2	-2.0	-7.4			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	26.9	33.5	45.9	0.7	1.2	2.8	2.5	3.7	6.5
as % of GDP		23.4	18.7	19.1	18.1	15.2	0.5	0.6	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.4	3.0						
as % of GDP				0.54	0.74	0.98						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	65.3	57.1	45.5	-0.2	-1.0	-1.4	-0.3	-1.8	-2.9
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	38.1	31.4	21.9	-1.4	-1.1	-0.8	-3.4	-3.4	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	87.1	68.9	40.8	-7.4	-8.7	-9.5	-7.9	-11.2	-18.8
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.0	26.5	25.1	-0.5	-0.8	0.6	-1.9	-3.1	2.4
Freight transport (toe/Mtkm)	39.2	41.4	30.7	28.6	27.2	25.1	-1.1	-2.1	-2.9	-3.8	-7.1	-10.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.29	0.25	0.22	-0.05	-0.11	-0.13	-15.4	-30.1	-36.9
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.82	1.74	1.57	0.00	-0.04	-0.10	-0.1	-2.0	-6.0
Industry	2.31	2.00	2.14	2.06	1.93	1.58	0.07	0.05	-0.05	3.5	2.9	-2.9
Residential	1.78	0.76	0.89	0.86	0.81	0.84	-0.08	-0.11	-0.12	-8.2	-11.6	-13.0
Tertiary	2.37	1.12	1.69	1.59	1.45	1.12	-0.07	-0.13	-0.30	-3.9	-7.9	-20.9
Transport	2.79	2.85	2.89	2.83	2.80	2.64	-0.02	-0.05	-0.08	-0.7	-1.7	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	23.0	26.6	30.0	3.8	7.7	9.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.6	3.7	9.1	0.4	1.0	1.8			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	72045	81457	109974	109974	-7639	-11481	-9750	-9.6	-12.4	-8.1
Nuclear energy	5455	5554	11614	11614	15628	15628	0	-3278	74	0.0	-22.0	0.5
Solids	16409	19761	22855	23246	34649	34649	-7087	-15443	-24608	-23.7	-39.9	-41.5
Oil (including refinery gas)	4145	3256	243	0	59	59	243	0	59			
Gas (including derived gases)	11002	10316	14625	17564	18326	18326	-4207	-1218	476	-22.3	-6.5	2.7
Biomass-waste	138	311	1869	7656	18036	18036	1655	6477	12125	773.8	549.2	205.2
Hydro (pumping excluded)	14775	20203	20146	20231	20795	20795	1164	1011	0	6.1	5.3	0.0
Wind	0	0	686	1135	2424	2424	593	971	2123	636.0	591.3	704.3
Solar	0	0	7	12	58	58	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	19962	19838	22372	22830	20988	20988	-272	736	566	-1.2	3.3	2.8
<u>Nuclear energy</u>		654	650	1342	1347	1811	0	-379	9	0.0	-21.9	0.5
<u>Renewable energy</u>		5935	6215	7214	7845	9014	425	723	1704	6.3	10.1	23.3
Hydro (pumping excluded)		5935	6212	6713	6993	7046	0	0	0	0.0	0.0	0.0
Wind		0	0	495	843	1922	425	723	1704	605.7	599.4	781.8
Solar		0	3	6	9	46	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)		0	0	0	0	0	0	0	0			
<u>Thermal power</u>		13373	12972	13816	13638	10163	-697	392	-1147	-4.8	3.0	-10.1
of which cogeneration units		5378	5459	2136	3264	5432	-79	120	1076	-3.6	3.8	24.7
Solids fired		7285	7139	7250	7345	4001	-425	-521	-3164	-5.5	-6.6	-44.2
Gas fired		3692	3459	4547	3693	2652	-569	-172	-58	-11.1	-4.4	-2.1
Oil fired		2375	2354	1702	1204	298	0	0	0	0.0	0.0	0.0
Biomass-waste fired		20	20	318	1395	3212	296	1085	2075	1359.3	349.2	182.6
Fuel Cells		0	0	0	0	0	0	0	0			
Geothermal heat		0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)		27.0	30.8	35.0	38.8	56.2	-3.0	-6.5	-6.6			
Efficiency of gross thermal power generation (%)		25.6	28.6	43.8	44.9	44.5	1.1	3.6	-0.4			
% of gross electricity from CHP		30.2	25.8	20.0	24.2	29.5	1.6	3.6	6.0			
Carbon free gross electricity generation (%)		39.2	43.9	47.6	49.9	51.8	8.8	11.7	16.2			
- nuclear		10.5	9.3	16.1	14.3	14.2	1.5	-1.8	1.2			
- renewable energy forms		28.7	34.5	31.5	35.6	37.6	7.3	13.5	15.0			
Transport sector												
Passenger transport activity (Gpkm)												
	68.0	51.7	60.9	97.8	121.1	177.2	-0.3	-0.9	-2.7	-0.3	-0.7	-1.5
Public road transport	24.0	7.7	9.4	14.7	17.2	21.4	0.3	0.5	0.8	2.3	3.1	4.0
Private cars and motorcycles	12.6	31.5	42.4	70.7	87.9	130.0	-0.8	-1.6	-3.9	-1.1	-1.8	-2.9
Rail	30.6	11.6	8.0	9.9	12.0	16.7	0.2	0.3	0.6	2.3	2.9	3.5
Aviation	0.7	0.8	1.2	2.4	4.0	9.1	0.0	-0.1	-0.2	-1.6	-2.1	-2.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.4
Freight transport activity (Gtkm)												
	80.0	33.3	76.5	122.9	145.0	183.6	-0.6	-1.3	-2.7	-0.5	-0.9	-1.5
Trucks	29.0	14.3	51.5	87.0	102.5	128.1	-1.9	-3.2	-5.7	-2.1	-3.1	-4.2
Rail	48.9	16.4	16.6	21.4	25.0	32.9	1.0	1.5	2.3	5.0	6.3	7.4
Inland navigation	2.1	2.6	8.4	14.5	17.5	22.6	0.3	0.4	0.7	1.8	2.4	3.0
Energy demand in transport (ktoe)												
	4407	3384	4204	6256	7164	9058	-218	-468	-575	-3.4	-6.1	-6.0
Public road transport	329	117	93	129	143	148	0	-1	-14	0.3	-0.7	-8.5
Private cars and motorcycles	591	1681	1609	2381	2771	3791	-59	-117	64	-2.4	-4.1	1.7
Trucks	2617	893	2130	3226	3630	4258	-165	-339	-614	-4.9	-8.5	-12.6
Rail	282	449	208	240	238	250	7	-5	1	3.2	-2.2	0.6
Aviation	275	128	113	194	281	484	-3	-7	-14	-1.6	-2.4	-2.8
Inland navigation	312	115	51	85	102	128	1	1	1	1.1	1.1	0.7

Source: PRIMES

Slovak Republic: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	5248	4808	5970	6305	5362	5501	6589	7235	7797	1.3	-1.1	2.1	1.7
Solids	1397	1017	1018	637	846	676	562	556	716	-3.1	-1.8	-4.0	2.5
Oil	81	74	59	55	36	36	36	37	37	-3.1	-4.7	0.0	0.2
Natural gas	338	264	133	126	115	139	125	130	128	-8.9	-1.4	0.8	0.2
Nuclear	3105	2950	4255	4573	3191	3191	4051	4311	4449	3.2	-2.8	2.4	0.9
Renewable energy sources	328	503	506	914	1173	1459	1815	2201	2468	4.4	8.8	4.5	3.1
Hydro	162	427	406	399	406	433	436	437	438	9.7	0.0	0.7	0.1
Biomass & Waste	166	76	100	507	740	950	1188	1484	1678	-5.0	22.2	4.8	3.5
Wind	0	0	0	1	17	20	87	123	133			17.9	4.3
Solar and others	0	0	0	0	8	51	95	141	201			28.4	7.8
Geothermal	0	0	0	8	3	5	10	16	18			14.0	6.4
Net Imports	16086	12482	11623	13163	12672	13697	13907	14316	14886	-3.2	0.9	0.9	0.7
Solids	6055	4131	3437	3794	3582	3469	3482	3358	3815	-5.5	0.4	-0.3	0.9
Oil	4231	3704	2711	3935	3913	3774	3792	3797	3802	-4.4	3.7	-0.3	0.0
- Crude oil and Feedstocks	5892	5405	5283	5768	5826	5723	5773	5800	5813	-1.1	1.0	-0.1	0.1
- Oil products	-1661	-1701	-2573	-1833	-1913	-1950	-1981	-2003	-2011				
Natural gas	5353	4528	5707	5757	5281	6402	5728	5957	5862	0.6	-0.8	0.8	0.2
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Gross Inland Consumption	20967	17692	17483	19407	18034	19198	20496	21551	22683	-1.8	0.3	1.3	1.0
Solids	7771	5414	4261	4288	4428	4145	4044	3914	4531	-5.8	0.4	-0.9	1.1
Oil	4229	3487	2925	4045	3949	3809	3829	3834	3839	-3.6	3.0	-0.3	0.0
Natural gas	5088	5217	5776	5925	5396	6541	5853	6087	5990	1.3	-0.7	0.8	0.2
Nuclear	3105	2950	4255	4573	3191	3191	4051	4311	4449	3.2	-2.8	2.4	0.9
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Renewable energy forms	328	504	498	858	1091	1565	2762	3662	4119	4.3	8.2	9.7	4.1
as % in Gross Inland Consumption													
Solids	37.1	30.6	24.4	22.1	24.6	21.6	19.7	18.2	20.0				
Oil	20.2	19.7	16.7	20.8	21.9	19.8	18.7	17.8	16.9				
Natural gas	24.3	29.5	33.0	30.5	29.9	34.1	28.6	28.2	26.4				
Nuclear	14.8	16.7	24.3	23.6	17.7	16.6	19.8	20.0	19.6				
Renewable energy forms	1.6	2.8	2.8	4.4	6.1	8.2	13.5	17.0	18.2				
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30395	34979	39886	48810	55000	2.6	0.0	2.8	3.3
Self consumption and grid losses	4853	5351	5235	4704	3327	3611	4322	5286	7110	0.8	-4.4	2.6	5.1
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2641	3060	3300	4269	5228	-1.9	-0.1	2.3	4.7
Solids	2054	1835	1617	1638	1467	1079	991	879	1756	-2.4	-1.0	-3.8	5.9
Oil (including refinery gas)	243	119	37	99	4	27	0	3	0	-17.1	-20.3		
Gas (including derived gases)	936	1216	1002	845	1048	1736	1032	1321	1112	0.7	0.4	-0.1	0.8
Biomass & Waste	0	0	0	40	123	218	1277	2065	2359			26.4	6.3
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9009	7973	8020	9335	9815	9890	10036	10076	9930	-1.2	2.0	0.2	-0.1
Refineries	6314	5182	5410	6374	6627	6537	6656	6742	6772	-1.5	2.0	0.0	0.2
Biofuels and hydrogen production	0	0	0	11	52	121	223	259	294			15.8	2.8
District heating	237	731	584	717	735	775	630	591	527	9.4	2.3	-1.5	-1.8
Derived gases, cokeries etc.	2458	2060	2026	2233	2401	2458	2527	2484	2337	-1.9	1.7	0.5	-0.8
Energy Branch Consumption	1154	990	905	2482	1992	2075	2036	2055	2110	-2.4	8.2	0.2	0.4
Non-Energy Uses	1203	651	1109	1239	1252	1329	1498	1664	1771	-0.8	1.2	1.8	1.7
Final Energy Demand	14893	11085	10822	10560	11366	12097	12770	13328	13726	-3.1	0.5	1.2	0.7
by sector													
Industry	6706	4339	3953	4413	4914	5280	5501	5646	5694	-5.1	2.2	1.1	0.3
- energy intensive industries	4081	3091	3145	3590	4021	4335	4474	4575	4588	-2.6	2.5	1.1	0.3
- other industrial sectors	2626	1248	808	823	892	945	1027	1106	1106	-11.1	1.0	1.4	0.7
Residential	2275	2158	2822	2533	2509	2588	2842	3069	3293	2.2	-1.2	1.3	1.5
Tertiary	4473	3078	2498	1809	1836	1987	2124	2258	2363	-5.7	-3.0	1.5	1.1
Transport	1440	1509	1549	1805	2107	2242	2303	2354	2376	0.7	3.1	0.9	0.3
by fuel													
Solids	4319	2322	1511	1455	1890	1999	1933	1933	1732	-10.0	2.3	0.2	-1.1
Oil	3294	1873	1870	2195	2417	2480	2440	2454	2452	-5.5	2.6	0.1	0.0
Gas	4319	3907	4537	3651	3468	3636	3688	3745	3868	0.5	-2.7	0.6	0.5
Electricity	2013	1868	1893	1965	2239	2575	2936	3400	3787	-0.6	1.7	2.7	2.6
Heat (from CHP and District Heating)	781	1111	1011	951	1191	1063	1178	1204	1165	2.6	1.6	-0.1	-0.1
Renewable energy forms	166	4	1	344	160	345	594	591	722	-42.8	74.3	14.0	2.0
Other	0	0	0	0	0	0	1	1	1			15.7	2.3
RES in Gross Final Energy Consumption ^(A)			407	761	899	1202	2388	3273	3685		8.2	10.3	4.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	51.7	52.9	51.3	50.7	47.4	-3.7	0.9	-0.1	-0.8
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	37.7	38.7	36.3	35.9	32.7	-4.1	0.7	-0.4	-1.0
Power generation/District heating	12.1	12.9	10.6	10.5	9.7	9.9	7.8	7.6	5.2	-1.3	-0.8	-2.2	-3.9
Energy Branch	2.5	1.8	1.5	5.0	4.3	4.1	4.1	3.7	3.4	-4.6	10.9	-0.6	-1.7
Industry	17.8	12.2	10.3	10.4	12.2	12.8	12.4	12.3	11.6	-5.3	1.7	0.2	-0.7
Residential	4.4	2.9	4.1	3.5	3.3	3.5	3.8	4.2	4.6	-0.6	-2.2	1.5	2.0
Tertiary	12.6	5.7	4.2	2.5	2.2	2.2	2.0	1.9	1.7	-10.3	-6.2	-0.9	-1.9
Transport	4.0	4.2	4.4	5.2	6.0	6.3	6.2	6.2	6.2	0.8	3.3	0.2	0.0
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.2	6.0	6.4	6.7	-0.7	3.0	3.2	1.1
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	9.0	9.0	8.3	8.0	-3.3	1.0	-0.7	-1.1
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	74.9	76.6	74.2	73.4	68.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: Cost Efficiency with JI/CDM Scenario													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1	
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	360.5	305.9	264.2	233.4	214.5	-3.2	-4.5	-3.1	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.09	2.01	1.77	1.67	1.44	-2.3	0.4	-1.7	-2.0	
Import Dependency %	76.7	70.6	66.5	67.8	70.3	71.3	67.9	66.4	65.6					
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.5	11.4	13.4	15.6	16.9		2.9	3.5	2.3	
as % of GDP			23.3	19.5	19.0	18.1	17.3	16.9	16.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.8	46.7	39.8	35.1	32.4	-6.4	-5.8	-3.1	-2.0	
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	56.9	47.6	42.9	39.3	37.0	2.0	-5.5	-2.8	-1.5	
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	53.9	46.6	40.5	35.9	32.0	-5.6	-6.0	-2.8	-2.3	
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.0	27.8	26.6	25.3	23.8	3.6	0.5	-0.8	-1.1	
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	23.8	22.9	21.4	20.3	19.6	2.0	0.8	-1.0	-0.9	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.20	0.19	0.14	0.11	0.07	-3.8	-1.4	-3.8	-6.3	
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.08	2.04	1.91	1.84	1.75	-2.0	-0.2	-0.8	-0.9	
Industry	2.65	2.82	2.61	2.37	2.47	2.42	2.26	2.18	2.03	-0.2	-0.5	-0.9	-1.1	
Residential	1.93	1.35	1.46	1.39	1.31	1.37	1.33	1.37	1.40	-2.8	-1.1	0.2	0.5	
Tertiary	2.81	1.87	1.69	1.37	1.21	1.09	0.95	0.82	0.71	-4.9	-3.3	-2.3	-2.9	
Transport	2.80	2.76	2.82	2.89	2.86	2.79	2.68	2.64	2.60	0.1	0.1	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	7.6	9.6	18.0	23.6	25.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.7	8.4	9.7	11.0					
Gross Electricity generation by source (in GWh)														
			30431	31346	30395	34979	39886	48810	55000		0.0	2.8	3.3	
Nuclear energy			16491	17724	12371	12372	16180	18397	19023		-2.8	2.7	1.6	
Solids			4969	4825	5328	4587	4155	4773	9576		0.7	-2.5	8.7	
Oil (including refinery gas)			144	455	395	501	0	126	0		10.6			
Gas (including derived gases)			4102	3527	6795	11257	7292	9192	8277		5.2	0.7	1.3	
Biomass-waste			0	172	590	982	6166	9779	11439			26.5	6.4	
Hydro (pumping excluded)			4725	4637	4721	5041	5067	5080	5094		0.0	0.7	0.1	
Wind			0	7	194	230	1007	1429	1542			17.9	4.3	
Solar			0	0	2	9	18	33	49			24.7	10.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			6795	7307	7792	8406	9360	10511	11150		1.4	1.9	1.8	
<u>Nuclear energy</u>			2326	2439	1652	1679	2132	2256	2329		-3.4	2.6	0.9	
<u>Renewable energy</u>			1669	1838	2047	2189	2760	3072	3170		2.1	3.0	1.4	
Hydro (pumping excluded)			1668	1832	1906	2018	2026	2026	2029		1.3	0.6	0.0	
Wind			1	5	139	164	719	1020	1101		63.8	17.9	4.4	
Solar			0	0	2	7	15	26	40			24.6	10.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2800	3031	4093	4538	4468	5182	5651		3.9	0.9	2.4	
of which cogeneration units			1220	1400	1618	1531	1763	2865	3049		2.9	0.9	5.6	
Solids fired			1598	1661	1846	1588	1119	986	1005		1.5	-4.9	-1.1	
Gas fired			1184	1221	2055	2648	2061	2074	2083		5.7	0.0	0.1	
Oil fired			18	115	115	115	115	115	115		20.7	0.0	0.0	
Biomass-waste fired			1	34	77	187	1173	2007	2448		54.7	31.3	7.6	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.5	44.3	42.4	45.6	46.5	50.5	52.4					
Efficiency of gross thermal power generation (%)			29.8	29.4	42.7	48.7	45.9	48.1	48.2					
% of gross electricity from CHP			26.0	15.8	31.2	25.3	24.0	28.1	25.3					
Carbon free gross electricity generation (%)			69.7	71.9	58.8	53.3	71.3	71.1	67.5					
- nuclear			54.2	56.5	40.7	35.4	40.6	37.7	34.6					
- renewable energy forms			15.5	15.4	18.1	17.9	30.7	33.4	33.0					
Transport sector														
Passenger transport activity (Gpkm)	41.5	34.2	35.8	36.4	38.8	42.0	46.9	51.9	56.3	-1.5	0.8	1.9	1.9	
Public road transport	19.5	11.2	8.4	8.1	8.0	7.9	7.8	7.8	7.8	-8.1	-0.5	-0.2	0.0	
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.2	31.4	36.1	40.9	45.1	4.5	1.6	2.5	2.2	
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.7	2.8	-6.6	-2.9	0.6	0.9	
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.4	4.7	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	35.6	29.7	25.6	32.0	41.3	46.8	49.3	51.2	52.7	-3.3	4.9	1.8	0.7	
Trucks	14.2	15.9	14.3	22.6	31.0	35.2	37.0	38.6	39.9	0.1	8.0	1.8	0.8	
Rail	21.4	13.8	11.2	9.5	10.3	11.5	12.3	12.6	12.8	-6.2	-0.8	1.8	0.4	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1440	1509	1549	1805	2107	2242	2303	2354	2376	0.7	3.1	0.9	0.3	
Public road transport	96	79	70	59	55	50	48	43	40	-3.1	-2.4	-1.4	-1.7	
Private cars and motorcycles	671	729	886	964	1002	1039	1114	1173	1194	2.8	1.2	1.1	0.7	
Trucks	572	583	510	693	947	1036	1018	1007	1001	-1.1	6.4	0.7	-0.2	
Rail	100	119	83	49	50	50	48	46	45	-1.9	-4.9	-0.5	-0.7	
Aviation	0	0	0	39	54	66	75	86	96			3.4	2.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovak Republic: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	5501	6589	7797	-463	99	169	-7.8	1.5	2.2
Solids	1397	1018	637	676	562	716	-169	-270	-48	-20.0	-32.4	-6.3
Oil	81	59	55	36	36	37	-2	-3	-3	-6.3	-8.0	-8.6
Natural gas	338	133	126	139	125	128	-5	-32	-54	-3.7	-20.4	-29.8
Nuclear	3105	4255	4573	3191	4051	4449	-663	-15	-260	-17.2	-0.4	-5.5
Renewable energy sources	328	506	914	1459	1815	2468	377	419	535	34.8	30.0	27.7
Hydro	162	406	399	433	436	438	9	4	0	2.1	1.0	0.0
Biomass & Waste	166	100	507	950	1188	1678	311	257	253	48.6	27.6	17.7
Wind	0	0	1	20	87	133	15	76	104	353.6	688.2	365.7
Solar and others	0	0	0	51	95	201	40	75	163	359.1	386.2	423.5
Geothermal	0	0	8	5	10	18	2	7	15	95.3	255.1	437.1
Net Imports	16086	11623	13163	13697	13907	14886	-659	-1437	-1829	-4.6	-9.4	-10.9
Solids	6055	3437	3794	3469	3482	3815	-227	-547	-639	-6.2	-13.6	-14.4
Oil	4231	2711	3935	3774	3792	3802	-364	-469	-510	-8.8	-11.0	-11.8
- Crude oil and Feedstocks	5892	5283	5768	5723	5773	5813	-410	-548	-601	-6.7	-8.7	-9.4
- Oil products	-1661	-2573	-1833	-1950	-1981	-2011	45	79	91	-2.3	-3.8	-4.3
Natural gas	5353	5707	5757	6402	5728	5862	-245	-1471	-2488	-3.7	-20.4	-29.8
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	19198	20496	22683	-1122	-1338	-1660	-5.5	-6.1	-6.8
Solids	7771	4261	4288	4145	4044	4531	-396	-817	-687	-8.7	-16.8	-13.2
Oil	4229	2925	4045	3809	3829	3839	-367	-472	-513	-8.8	-11.0	-11.8
Natural gas	5088	5776	5925	6541	5853	5990	-250	-1503	-2542	-3.7	-20.4	-29.8
Nuclear	3105	4255	4573	3191	4051	4449	-663	-15	-260	-17.2	-0.4	-5.5
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1565	2762	4119	554	1469	2343	54.8	113.6	131.9
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	21.6	19.7	20.0	-0.8	-2.5	-1.5			
Oil	20.2	16.7	20.8	19.8	18.7	16.9	-0.7	-1.0	-1.0			
Natural gas	24.3	33.0	30.5	34.1	28.6	26.4	0.6	-5.1	-8.6			
Nuclear	14.8	24.3	23.6	16.6	19.8	19.6	-2.3	1.1	0.3			
Renewable energy forms	1.6	2.8	4.4	8.2	13.5	18.2	3.2	7.6	10.9			
Gross Electricity Generation in GWh_e	23428	30431	31346	34979	39886	55000	-2685	-3146	-153	-7.1	-7.3	-0.3
Self consumption and grid losses	4853	5235	4704	3611	4322	7110	-379	-283	991	-9.5	-6.1	16.2
Fuel Inputs to Thermal Power Generation	3232	2656	2622	3060	3300	5228	-257	-677	239	-7.7	-17.0	4.8
Solids	2054	1617	1638	1079	991	1756	-515	-811	-519	-32.3	-45.0	-22.8
Oil (including refinery gas)	243	37	99	27	0	0	-84	-118	-10	-76.0	-100.0	-99.2
Gas (including derived gases)	936	1002	845	1736	1032	1112	296	-696	-763	20.6	-40.3	-40.7
Biomass & Waste	0	0	40	218	1277	2359	46	948	1531	26.8	288.9	184.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	9890	10036	9930	-332	-522	-781	-3.3	-4.9	-7.3
Refineries	6314	5410	6374	6537	6656	6772	-418	-558	-611	-6.0	-7.7	-8.3
Biofuels and hydrogen production	0	0	11	121	223	294	15	48	28	13.9	27.2	10.7
District heating	237	584	717	775	630	527	-45	-79	-227	-5.5	-11.1	-30.1
Derived gases, cokeries etc.	2458	2026	2233	2458	2527	2337	115	67	29	4.9	2.7	1.2
Energy Branch Consumption	1154	905	2482	2075	2036	2110	-62	-186	-227	-2.9	-8.4	-9.7
Non-Energy Uses	1203	1109	1239	1329	1498	1771	-8	-10	-12	-0.6	-0.7	-0.7
Final Energy Demand	14893	10822	10560	12097	12770	13726	-487	-742	-1124	-3.9	-5.5	-7.6
by sector												
Industry	6706	3953	4413	5280	5501	5694	12	-82	-168	0.2	-1.5	-2.9
- energy intensive industries	4081	3145	3590	4335	4474	4588	40	-34	-69	0.9	-0.7	-1.5
- other industrial sectors	2626	808	823	945	1027	1106	-28	-48	-98	-2.9	-4.5	-8.2
Residential	2275	2822	2533	2588	2842	3293	-220	-181	-183	-7.8	-6.0	-5.3
Tertiary	4473	2498	1809	1987	2124	2363	-173	-289	-514	-8.0	-12.0	-17.9
Transport	1440	1549	1805	2242	2303	2376	-106	-190	-260	-4.5	-7.6	-9.9
by fuel												
Solids	4319	1511	1455	1999	1933	1732	79	-42	-190	4.1	-2.1	-9.9
Oil	3294	1870	2195	2480	2440	2452	-115	-236	-284	-4.4	-8.8	-10.4
Gas	4319	4537	3651	3636	3688	3868	-137	-331	-867	-3.6	-8.2	-18.3
Electricity	2013	1893	1965	2575	2936	3787	-190	-245	-93	-6.9	-7.7	-2.4
Heat (from CHP and District Heating)	781	1011	951	1063	1178	1165	-171	-65	-41	-13.9	-5.2	-3.4
Renewable energy forms	166	1	344	345	594	722	48	177	351	16.1	42.3	94.8
Other	0	0	0	0	1	1	0	0	0	6.9	4.9	-31.6
RES in Gross Final Energy Consumption ^(A)		407	761	1202	2388	3685	364	1320	2241	43.5	123.7	155.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	52.9	51.3	47.4	-4.2	-9.5	-16.6	-7.3	-15.7	-26.0
CO₂ Emissions (energy related)	53.3	35.1	37.1	38.7	36.3	32.7	-3.2	-8.1	-15.3	-7.7	-18.3	-31.9
Power generation/District heating	12.1	10.6	10.5	9.9	7.8	5.2	-2.4	-5.7	-10.1	-19.4	-42.2	-65.8
Energy Branch	2.5	1.5	5.0	4.1	4.1	3.4	-0.6	-0.8	-1.6	-12.1	-16.6	-31.8
Industry	17.8	10.3	10.4	12.8	12.4	11.6	0.5	-0.2	-1.1	3.7	-1.3	-8.9
Residential	4.4	4.1	3.5	3.5	3.8	4.6	-0.3	-0.4	-0.8	-7.3	-10.4	-15.0
Tertiary	12.6	4.2	2.5	2.2	2.0	1.7	-0.1	-0.3	-0.7	-5.7	-13.5	-30.7
Transport	4.0	4.4	5.2	6.3	6.2	6.2	-0.4	-0.7	-0.9	-5.5	-10.3	-13.0
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.2	6.0	6.7	0.0	-0.1	-0.1	0.5	-0.9	-1.6
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	9.0	9.0	8.0	-0.9	-1.3	-1.2	-9.4	-12.9	-13.3
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	76.6	74.2	68.6	-6.0	-13.8	-24.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	305.9	264.2	214.5	-17.9	-17.2	-15.7	-5.5	-6.1	-6.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	2.01	1.77	1.44	-0.05	-0.26	-0.53	-2.4	-13.0	-26.9
Import Dependency %	76.7	66.5	67.8	71.3	67.9	65.6	0.7	-2.4	-3.0			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	11.4	13.4	16.9	0.4	0.7	1.1	4.0	5.4	7.0
as % of GDP		23.3	19.5	18.1	17.3	16.0	0.7	0.9	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	0.7	1.1						
as % of GDP				0.72	0.92	1.07						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	46.7	39.8	32.4	0.1	-0.6	-1.0	0.2	-1.5	-2.9
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	47.6	42.9	37.0	-4.0	-2.7	-2.1	-7.8	-6.0	-5.3
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	46.6	40.5	32.0	-4.1	-5.5	-7.0	-8.0	-12.0	-17.9
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	27.8	26.6	23.8	-0.6	-1.0	-1.1	-2.2	-3.5	-4.4
Freight transport (toe/Mtkm)	17.9	21.9	22.7	22.9	21.4	19.6	-1.1	-1.9	-2.5	-4.7	-8.2	-11.1
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.19	0.14	0.07	-0.03	-0.08	-0.14	-11.8	-38.3	-66.4
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.04	1.91	1.75	0.05	-0.02	-0.11	2.7	-0.8	-5.9
Industry	2.65	2.61	2.37	2.42	2.26	2.03	0.08	0.00	-0.13	3.5	0.2	-6.2
Residential	1.93	1.46	1.39	1.37	1.33	1.40	0.01	-0.07	-0.16	0.5	-4.7	-10.3
Tertiary	2.81	1.69	1.37	1.09	0.95	0.71	0.03	-0.02	-0.13	2.5	-1.7	-15.7
Transport	2.80	2.82	2.89	2.79	2.68	2.60	-0.03	-0.08	-0.09	-1.0	-2.9	-3.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	9.6	18.0	25.6	3.2	10.4	16.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.7	8.4	11.0	0.8	2.3	2.2			
Gross Electricity generation by source (in GWh_e)												
	30431	31346	34979	39886	55000		-2685	-3146	-153	-7.1	-7.3	-0.3
Nuclear energy	16491	17724	12372	16180	19023		-2872	0	-1111	-18.8	0.0	-5.5
Solids	4969	4825	4587	4155	9576		-1557	-3641	-2937	-25.3	-46.7	-23.5
Oil (including refinery gas)	144	455	501	0	0		0	-529	-162	0.0	-100.0	-99.8
Gas (including derived gases)	4102	3527	11257	7292	8277		1250	-4368	-4131	12.5	-37.5	-33.3
Biomass-waste	0	172	982	6166	11439		212	4465	6978	27.5	262.5	156.4
Hydro (pumping excluded)	4725	4637	5041	5067	5094		103	48	0	2.1	1.0	0.0
Wind	0	7	230	1007	1542		179	880	1211	353.6	688.2	365.7
Solar	0	0	9	18	49		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e												
	6795	7307	8406	9360	11150		-164	1380	2161	-1.9	17.3	24.0
<u>Nuclear energy</u>	2326	2439	1679	2132	2329		-332	0	-128	-16.5	0.0	-5.2
<u>Renewable energy</u>	1669	1838	2189	2760	3170		151	642	865	7.4	30.3	37.5
Hydro (pumping excluded)	1668	1832	2018	2026	2029		22	13	0	1.1	0.6	0.0
Wind	1	5	164	719	1101		129	629	865	367.1	697.6	366.6
Solar	0	0	7	15	40		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	2800	3031	4538	4468	5651		16	738	1424	0.4	19.8	33.7
of which cogeneration units	1220	1400	1531	1763	3049		-96	74	1229	-5.9	4.4	67.5
Solids fired	1598	1661	1588	1119	1005		-108	-281	-670	-6.4	-20.1	-40.0
Gas fired	1184	1221	2648	2061	2083		1	-23	-13	0.0	-1.1	-0.6
Oil fired	18	115	115	115	115		0	1	1	0.0	0.6	0.6
Biomass-waste fired	1	34	187	1173	2448		124	1042	2107	194.5	795.6	618.2
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	45.5	44.3	45.6	46.5	52.4		-2.4	-12.5	-14.2			
Efficiency of gross thermal power generation (%)	29.8	29.4	48.7	45.9	48.2		3.5	-1.0	-2.7			
% of gross electricity from CHP	26.0	15.8	25.3	24.0	25.3		1.8	-0.6	3.7			
Carbon free gross electricity generation (%)	69.7	71.9	53.3	71.3	67.5		-2.5	17.7	13.0			
- nuclear	54.2	56.5	35.4	40.6	34.6		-5.1	3.0	-1.9			
- renewable energy forms	15.5	15.4	17.9	30.7	33.0		2.6	14.8	14.9			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	41.5	35.8	36.4	42.0	46.9	56.3	-0.5	-1.0	-1.6	-1.1	-2.0	-2.7
Private cars and motorcycles	19.5	8.4	8.1	7.9	7.8	7.8	0.1	0.2	0.2	1.4	2.2	2.7
Rail	15.6	24.1	25.6	31.4	36.1	45.1	-0.6	-1.2	-1.8	-1.9	-3.1	-3.9
Aviation	6.4	3.2	2.5	2.4	2.5	2.8	0.0	0.1	0.1	1.7	2.4	3.0
Inland navigation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-2.3	-3.2	-3.6
Freight transport activity (Gtkm)												
Trucks	35.6	25.6	32.0	46.8	49.3	52.7	-0.6	-1.0	-1.3	-1.3	-2.0	-2.5
Rail	14.2	14.3	22.6	35.2	37.0	39.9	-1.0	-1.6	-2.1	-2.9	-4.2	-5.0
Inland navigation	21.4	11.2	9.5	11.5	12.3	12.8	0.4	0.6	0.7	4.0	5.3	6.1
Energy demand in transport (ktoe)												
Public road transport	1440	1549	1805	2242	2303	2376	-106	-190	-260	-4.5	-7.6	-9.9
Private cars and motorcycles	96	70	59	50	48	40	0	-1	-2	-0.8	-1.8	-5.7
Trucks	671	886	964	1039	1114	1194	-35	-61	-85	-3.3	-5.2	-6.6
Rail	572	510	693	1036	1018	1001	-67	-118	-159	-6.1	-10.4	-13.7
Aviation	100	83	49	50	48	45	0	-1	-1	-0.7	-1.8	-1.5
Inland navigation	0	0	39	66	75	96	-3	-9	-13	-4.5	-10.7	-12.2
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)								
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	2902	3020	3085	3492	3555	3214	3681	4100	4870	0.6	1.4	0.3	2.8	
Solids	1432	1216	1062	1184	1126	549	532	710	1284	-2.9	0.6	-7.2	9.2	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.8			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1479	0.3	1.9	0.0	0.0	
Renewable energy sources	254	542	788	787	942	1182	1665	1935	2107	12.0	1.8	5.9	2.4	
Hydro	254	279	330	298	347	350	354	362	371	2.7	0.5	0.2	0.5	
Biomass & Waste	0	263	458	489	581	724	1129	1348	1462		2.4	6.9	2.6	
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	13	107	180	223	270			30.1	4.2	
Geothermal	0	0	0	0	0	0	0	0	0			6.5	3.4	
Net Imports	2567	3056	3369	3810	4324	4828	4757	4720	4394	2.8	2.5	1.0	-0.8	
Solids	130	187	245	323	291	335	329	321	301	6.5	1.7	1.2	-0.9	
Oil	1798	2231	2418	2589	2879	3052	3067	3079	3030	3.0	1.8	0.6	-0.1	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.4	0.6	0.0	
- Oil products	1202	1644	2267	2589	2877	3051	3065	3078	3029	6.5	2.4	0.6	-0.1	
Natural gas	723	750	820	925	1103	1217	1144	1278	1149	1.3	3.0	0.4	0.0	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	7880	8042	8437	8820	9264	1.5	2.1	0.7	0.9	
Solids	1645	1402	1306	1539	1417	883	861	1031	1585	-2.3	0.8	-4.9	6.3	
Oil	1748	2281	2381	2560	2879	3052	3067	3079	3030	3.1	1.9	0.6	-0.1	
Natural gas	763	746	826	929	1107	1217	1144	1278	1149	0.8	3.0	0.3	0.0	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1456	1479	0.3	1.9	0.0	0.0	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	942	1182	1665	1935	2107	12.0	1.8	5.9	2.4	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	18.0	11.0	10.2	11.7	17.1					
Oil	31.7	37.4	37.1	35.0	36.5	37.9	36.3	34.9	32.7					
Natural gas	13.8	12.2	12.9	12.7	14.1	15.1	13.6	14.5	12.4					
Nuclear	21.6	20.4	19.1	20.8	18.8	18.4	17.6	16.5	16.0					
Renewable energy forms	4.6	9.3	12.3	10.8	11.9	14.7	19.7	21.9	22.7					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15486	14458	16135	20729	26157	0.9	1.3	0.4	4.9	
Self consumption and grid losses	1516	1427	1625	1908	2029	1855	2022	2511	4228	0.7	2.2	0.0	7.7	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1377	920	1143	1689	2296	-1.4	0.3	-1.8	7.2	
Solids	1296	1315	1253	1411	1302	756	719	853	1390	-0.3	0.4	-5.8	6.8	
Oil (including refinery gas)	155	119	12	9	1	1	1	1	0	-22.8	-20.5	-6.8	-3.3	
Gas (including derived gases)	92	90	62	58	42	74	59	399	335	-3.8	-3.8	3.4	18.9	
Biomass & Waste	0	0	15	30	31	89	364	437	571		7.3	27.9	4.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	194	270	317	335	314	-8.2	-2.6	5.1	-0.1	
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.1	0.6	0.0	
Biofuels and hydrogen production	0	0	0	0	44	119	213	250	284			17.1	2.9	
District heating	53	76	83	89	148	149	103	84	29	4.7	5.9	-3.6	-11.9	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	116	95	102	129	256	-0.9	0.4	-1.3	9.7	
Non-Energy Uses	6	121	234	305	371	419	448	470	490	43.5	4.7	1.9	0.9	
Final Energy Demand	3368	3940	4431	4880	5474	5958	6272	6465	6609	2.8	2.1	1.4	0.5	
by sector														
Industry	1468	1179	1423	1655	1829	1935	2027	2060	2114	-0.3	2.5	1.0	0.4	
- energy intensive industries	728	587	839	1036	1143	1232	1301	1328	1362	1.4	3.1	1.3	0.5	
- other industrial sectors	740	593	584	619	686	703	726	732	752	-2.3	1.6	0.6	0.4	
Residential	850	1176	1122	1183	1230	1332	1419	1466	1497	2.8	0.9	1.4	0.5	
Tertiary	122	259	578	573	576	590	597	598	593	16.9	0.0	0.4	-0.1	
Transport	928	1326	1309	1469	1839	2100	2229	2341	2405	3.5	3.5	1.9	0.8	
by fuel														
Solids	243	115	97	80	84	92	103	136	150	-8.8	-1.4	2.1	3.8	
Oil	1507	2098	2231	2392	2678	2825	2822	2822	2757	4.0	1.8	0.5	-0.2	
Gas	603	468	569	665	787	857	830	638	621	-0.6	3.3	0.5	-2.9	
Electricity	837	807	905	1096	1197	1296	1419	1595	1786	0.8	2.8	1.7	2.3	
Heat (from CHP and District Heating)	177	192	195	196	188	192	208	203	195	1.0	-0.4	1.0	-0.6	
Renewable energy forms	0	260	435	452	541	696	888	1071	1099		2.2	5.1	2.1	
Other	0	0	0	0	0	0	1	1	1			19.7	2.9	
RES in Gross Final Energy Consumption ^(A)			780	767	926	1143	1576	1830	1980		1.7	5.5	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.4	18.7	18.3	19.3	17.1	0.3	1.0	-1.1	-0.7	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.0	14.4	14.1	15.1	12.9	0.6	1.4	-1.2	-0.9	
Power generation/District heating	6.2	6.2	5.5	6.2	5.8	3.6	3.3	4.6	2.6	-1.1	0.5	-5.5	-2.4	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9				
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.1	2.1	-0.7	0.5	0.1	-1.6	
Residential	1.7	2.1	1.3	1.4	1.5	1.4	1.5	1.4	1.3	-2.5	1.1	0.2	-1.1	
Tertiary	0.0	0.0	1.0	1.0	1.0	0.9	0.8	0.7	0.5	46.9	0.2	-1.8	-4.1	
Transport	2.7	3.9	3.8	4.3	5.3	5.9	6.1	6.3	6.3	3.5	3.5	1.3	0.5	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.2	-1.2	0.3	1.6	0.8	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.2	3.0	3.0	2.9	-0.6	-0.4	-1.1	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	113.2	104.0	101.7	107.2	94.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: Cost Efficiency with JI/CDM Scenario										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1	
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9	
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	233.9	207.3	194.1	183.3	177.0	-0.3	-1.6	-1.8	-0.9	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.03	1.79	1.67	1.71	1.39	-0.9	-0.7	-1.9	-1.8	
Import Dependency %	46.5	50.1	52.5	52.2	54.9	60.0	56.4	53.5	47.4					
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.2	6.2	7.2	8.0	8.5		3.7	3.3	1.7	
as % of GDP			15.6	14.5	15.5	16.1	16.6	16.6	16.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.9	75.4	70.7	68.4	-0.9	-1.5	-1.3	-1.0	
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	79.6	75.3	71.9	67.4	63.5	0.2	-2.3	-1.0	-1.2	
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	69.0	61.3	55.3	49.6	44.8	14.2	-3.6	-2.2	-2.1	
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.4	43.2	40.2	38.2	37.1	5.3	-1.5	-1.2	-0.8	
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	46.6	46.8	45.8	43.2	2.3	-1.0	0.6	-0.8	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.31	0.21	0.17	0.20	0.09	-2.0	-0.8	-5.9	-6.4	
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.86	1.82	1.73	1.62	1.56	-0.8	-0.1	-0.8	-1.0	
Industry	1.72	1.55	1.65	1.38	1.34	1.34	1.23	1.01	1.00	-0.4	-2.0	-0.9	-2.0	
Residential	1.98	1.80	1.17	1.21	1.18	1.09	1.04	0.97	0.88	-5.2	0.1	-1.3	-1.6	
Tertiary	0.17	0.13	1.65	1.76	1.69	1.52	1.36	1.19	0.90	25.7	0.3	-2.2	-4.0	
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.72	2.68	2.64	0.0	0.0	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.3	18.6	24.3	27.3	28.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.8	8.1	9.1	10.1					
Gross Electricity generation by source (in GWh)														
			13622	15114	15486	14458	16135	20729	26157		1.3	0.4	4.9	
Nuclear energy			4760	5883	5751	5751	5751	6593	6700		1.9	0.0	1.5	
Solids			4484	5229	5251	3343	3298	4319	9300		1.6	-4.5	10.9	
Oil (including refinery gas)			106	36	5	3	3	4	3		-26.0	-4.5	-0.1	
Gas (including derived gases)			321	324	208	688	975	2744	2386		-4.3	16.7	9.4	
Biomass-waste			117	181	229	593	1968	2828	3416		7.0	24.0	5.7	
Hydro (pumping excluded)			3833	3460	4040	4074	4120	4214	4319		0.5	0.2	0.5	
Wind			0	0	2	6	19	25	30			27.1	4.4	
Solar			0	0	0	1	1	2	3			11.2	8.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2861	3188	3260	3384	3224	3734	4229		1.3	-0.1	2.7	
<u>Nuclear energy</u>			656	656	666	666	666	761	774		0.2	0.0	1.5	
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3	
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2	
Wind			0	0	2	7	22	29	34			27.1	4.4	
Solar			0	0	0	1	1	1	2			11.2	8.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			1241	1557	1612	1677	1498	1903	2363		2.7	-0.7	4.7	
of which cogeneration units			244	363	331	388	576	714	810		3.1	5.7	3.5	
Solids fired			996	1013	1029	1069	710	574	971		0.3	-3.6	3.2	
Gas fired			81	374	375	370	371	798	794		16.6	-0.1	7.9	
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-40.2	
Biomass-waste fired			21	71	107	165	379	531	598		17.7	13.4	4.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			51.1	50.7	50.7	46.3	54.2	59.9	63.6					
Efficiency of gross thermal power generation (%)			32.2	32.9	35.6	43.3	47.0	50.4	56.6					
% of gross electricity from CHP			3.5	3.2	5.4	14.5	21.4	18.0	16.4					
Carbon free gross electricity generation (%)			63.9	63.0	64.7	72.1	73.5	65.9	55.3					
- nuclear			34.9	38.9	37.1	39.8	35.6	31.8	25.6					
- renewable energy forms			29.0	24.1	27.6	32.3	37.9	34.1	29.7					
Transport sector														
Passenger transport activity (Gpkm)	18.1	15.5	17.2	18.7	21.1	23.3	25.3	27.6	29.7	-0.5	2.1	1.8	1.6	
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.2	1.2	
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.9	22.6	24.4	26.1	3.9	2.6	1.7	1.5	
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.4	1.6	-6.8	2.6	3.3	2.4	
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	1.8	5.2	4.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	9.1	6.4	8.2	14.3	19.9	23.5	25.9	28.2	30.2	-1.1	9.3	2.7	1.6	
Trucks	4.9	3.3	5.3	11.0	15.4	18.2	20.2	21.9	23.3	0.8	11.2	2.8	1.4	
Rail	4.2	3.1	2.9	3.2	4.5	5.3	5.7	6.2	6.9	-3.8	4.8	2.3	1.9	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	928	1326	1309	1469	1839	2100	2229	2341	2405	3.5	3.5	1.9	0.8	
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	0.0	-0.4	
Private cars and motorcycles	498	727	867	828	923	967	973	999	1041	5.7	0.6	0.5	0.7	
Trucks	330	492	368	582	845	1053	1170	1250	1274	1.1	8.7	3.3	0.9	
Rail	29	29	34	29	39	44	43	41	32	1.4	1.3	1.0	-2.7	
Aviation	27	20	25	23	24	30	36	43	50	-0.8	-0.1	3.9	3.5	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovenia: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3214	3681	4870	-265	-17	821	-7.6	-0.5	20.3
Solids	1432	1062	1184	549	532	1284	-478	-574	-10	-46.5	-51.9	-0.8
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	1479	0	0	117	0.0	0.0	8.6
Renewable energy sources	254	788	787	1182	1665	2107	213	556	714	22.0	50.2	51.3
Hydro	254	330	298	350	354	371	38	31	0	12.1	9.5	0.0
Biomass & Waste	0	458	489	724	1129	1462	101	409	538	16.3	56.7	58.3
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	107	180	270	74	117	175	220.6	185.1	184.8
Geothermal	0	0	0	0	0	0	0	0	0	61.3	103.4	164.9
Net Imports	2567	3369	3810	4828	4757	4394	-379	-771	-1336	-7.3	-13.9	-23.3
Solids	130	245	323	335	329	301	-49	-131	-208	-12.7	-28.5	-40.8
Oil	1798	2418	2589	3052	3067	3030	-264	-416	-689	-8.0	-11.9	-18.5
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-7.6	-11.4	-17.1
- Oil products	1202	2267	2589	3051	3065	3029	-264	-416	-689	-8.0	-11.9	-18.5
Natural gas	723	820	925	1217	1144	1149	-66	-224	-440	-5.1	-16.4	-27.7
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	8042	8437	9264	-644	-788	-515	-7.4	-8.5	-5.3
Solids	1645	1306	1539	883	861	1585	-527	-705	-217	-37.3	-45.0	-12.1
Oil	1748	2381	2560	3052	3067	3030	-264	-416	-689	-8.0	-11.9	-18.5
Natural gas	763	826	929	1217	1144	1149	-66	-224	-440	-5.1	-16.4	-27.7
Nuclear	1192	1228	1518	1483	1483	1479	0	0	117	0.0	0.0	8.6
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1182	1665	2107	213	556	714	22.0	50.2	51.3
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	11.0	10.2	17.1	-5.2	-6.8	-1.3			
Oil	31.7	37.1	35.0	37.9	36.3	32.7	-0.2	-1.4	-5.3			
Natural gas	13.8	12.9	12.7	15.1	13.6	12.4	0.4	-1.3	-3.8			
Nuclear	21.6	19.1	20.8	18.4	17.6	16.0	1.4	1.5	2.0			
Renewable energy forms	4.6	12.3	10.8	14.7	19.7	22.7	3.5	7.7	8.5			
Gross Electricity Generation in GWh_e	12440	13622	15114	14458	16135	26157	-1616	-1856	1892	-10.1	-10.3	7.8
Self consumption and grid losses	1516	1625	1908	1855	2022	4228	-354	-451	1050	-16.0	-18.2	33.1
Fuel Inputs to Thermal Power Generation	1543	1342	1507	920	1143	2296	-517	-476	122	-36.0	-29.4	5.6
Solids	1296	1253	1411	756	719	1390	-536	-709	-269	-41.5	-49.7	-16.2
Oil (including refinery gas)	155	12	9	1	1	0	0	-1	-1	-42.7	-48.3	-63.1
Gas (including derived gases)	92	62	58	74	59	335	-37	-59	19	-33.2	-50.0	6.0
Biomass & Waste	0	15	30	89	364	571	57	293	373	177.5	413.1	189.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	270	317	314	8	5	-24	3.2	1.7	-7.2
Refineries	540	169	1	1	1	1	0	0	0	-7.6	-11.4	-17.1
Biofuels and hydrogen production	0	0	0	119	213	284	14	44	28	13.0	25.9	10.9
District heating	53	83	89	149	103	29	-5	-39	-52	-3.5	-27.3	-64.3
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	95	102	256	-19	-24	82	-17.0	-18.9	46.8
Non-Energy Uses	6	234	305	419	448	490	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5558	6272	6099	-290	-453	-648	-4.6	-6.7	-8.9
by sector												
Industry	1468	1423	1655	1935	2027	2114	-34	-45	-79	-1.7	-2.2	-3.6
- energy intensive industries	728	839	1036	1232	1301	1362	-9	-12	-32	-0.7	-0.9	-2.3
- other industrial sectors	740	584	619	703	726	752	-25	-33	-48	-3.4	-4.3	-6.0
Residential	850	1122	1183	1332	1419	1497	-37	-47	-64	-2.7	-3.2	-4.1
Tertiary	122	578	573	590	597	593	-97	-141	-207	-14.1	-19.1	-25.9
Transport	928	1309	1469	2100	2229	2405	-123	-220	-298	-5.5	-9.0	-11.0
by fuel												
Solids	243	97	80	92	103	150	10	4	52	11.6	4.5	52.8
Oil	1507	2231	2392	2825	2822	2757	-263	-415	-688	-8.5	-12.8	-20.0
Gas	603	569	665	857	830	621	-24	-111	-397	-2.8	-11.8	-39.0
Electricity	837	905	1096	1296	1419	1786	-109	-121	72	-7.7	-7.8	4.2
Heat (from CHP and District Heating)	177	195	196	192	208	195	-19	-22	-14	-9.1	-9.5	-6.9
Renewable energy forms	0	435	452	696	888	1099	116	210	327	20.0	31.0	42.3
Other	0	0	0	0	1	1	0	0	0	3.6	0.8	-7.8
RES in Gross Final Energy Consumption ^(A)		780	767	1143	1576	1980	203	508	662	21.6	47.5	50.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	18.7	18.3	17.1	-3.3	-4.9	-8.3	-15.1	-21.2	-32.6
CO₂ Emissions (energy related)	13.2	14.0	15.2	14.4	14.1	12.9	-3.1	-4.7	-8.0	-17.9	-24.9	-38.3
Power generation/District heating	6.2	5.5	6.2	3.6	3.3	2.6	-2.3	-3.2	-5.2	-39.4	-49.2	-66.9
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.2	-19.8	-32.8
Industry	2.5	2.3	2.3	2.6	2.5	2.1	0.0	-0.2	-0.6	-1.7	-6.6	-21.9
Residential	1.7	1.3	1.4	1.4	1.5	1.3	-0.2	-0.3	-0.6	-11.6	-15.5	-31.9
Tertiary	0.0	1.0	1.0	0.9	0.8	0.5	-0.2	-0.3	-0.6	-16.8	-24.2	-51.7
Transport	2.7	3.8	4.3	5.9	6.1	6.3	-0.4	-0.8	-1.0	-6.5	-11.6	-13.9
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.1	1.1	1.2	0.0	0.0	0.0	-0.1	0.3	-1.2
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.2	3.0	2.9	-0.2	-0.2	-0.2	-5.4	-7.5	-7.8
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	104.0	101.7	94.8	-18.5	-27.4	-45.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	207.3	194.1	177.0	-16.6	-18.1	-9.8	-7.4	-8.5	-5.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.79	1.67	1.39	-0.23	-0.36	-0.74	-11.3	-17.9	-34.8
Import Dependency %	46.5	52.5	52.2	60.0	56.4	47.4	0.1	-3.5	-11.2			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.2	7.2	8.5	0.2	0.3	0.6	2.5	4.7	7.2
as % of GDP		15.6	14.5	16.1	16.6	16.3	0.4	0.7	1.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.6						
as % of GDP				0.40	0.75	1.10						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.9	75.4	68.4	-1.4	-1.7	-2.6	-1.7	-2.2	-3.6
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	75.3	71.9	63.5	-2.1	-2.4	-2.7	-2.7	-3.2	-4.1
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	61.3	55.3	44.8	-10.0	-13.1	-15.6	-14.1	-19.1	-25.9
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	43.2	40.2	37.1	-0.7	-1.1	-1.4	-1.7	-2.7	-3.6
Freight transport (toe/Mtkm)	39.1	48.9	42.6	46.6	46.8	43.2	-2.5	-4.4	-5.2	-5.0	-8.6	-10.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.21	0.17	0.09	-0.10	-0.13	-0.20	-32.8	-43.5	-68.8
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.82	1.73	1.56	-0.05	-0.11	-0.25	-2.5	-5.8	-13.7
Industry	1.72	1.65	1.38	1.34	1.23	1.00	0.00	-0.06	-0.23	0.0	-4.6	-18.9
Residential	1.98	1.17	1.21	1.09	1.04	0.88	-0.11	-0.15	-0.36	-9.2	-12.7	-29.0
Tertiary	0.17	1.65	1.76	1.52	1.36	0.90	-0.05	-0.09	-0.48	-3.1	-6.3	-34.8
Transport	2.88	2.89	2.94	2.81	2.72	2.64	-0.03	-0.08	-0.09	-1.0	-2.8	-3.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.6	24.3	28.3	28.3	4.1	9.0	10.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	8.1	10.1	0.8	2.3	2.1			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14458	16135	26157	26157	-1616	-1856	1892	-10.1	-10.3	7.8
Nuclear energy	4760	5883	5751	5751	6700	6700	0	0	531	0.0	0.0	8.6
Solids	4484	5229	3343	3298	9300	9300	-2187	-3379	-434	-39.6	-50.6	-4.5
Oil (including refinery gas)	106	36	3	3	3	3	-4	-2	-3	-51.3	-33.8	-51.2
Gas (including derived gases)	321	324	688	975	2386	2386	-162	-178	-347	-19.0	-15.4	-12.7
Biomass-waste	117	181	593	1968	3416	3416	298	1346	2146	101.0	216.1	168.9
Hydro (pumping excluded)	3833	3460	4074	4120	4319	4319	439	357	0	12.1	9.5	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3384	3224	4229	4229	-129	-341	147	-3.7	-9.6	3.6
<u>Nuclear energy</u>	656	656	666	666	774	774	0	0	61	0.0	0.0	8.6
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1677	1498	2363	2363	-129	-341	86	-7.2	-18.5	3.8
of which cogeneration units	244	363	388	576	810	810	-15	-14	28	-3.7	-2.4	3.6
Solids fired	996	1013	1069	710	971	971	-48	-307	-234	-4.3	-30.1	-19.4
Gas fired	81	374	370	371	794	794	-155	-260	-89	-29.6	-41.2	-10.1
Oil fired	142	99	73	37	0	0	0	-23	0	0.0	-37.6	-49.5
Biomass-waste fired	21	71	165	379	598	598	73	249	409	80.6	191.1	216.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	46.3	54.2	63.6	63.6	-2.8	0.0	0.2			
Efficiency of gross thermal power generation (%)	32.2	32.9	43.3	47.0	56.6	56.6	3.3	2.1	2.2			
% of gross electricity from CHP	3.5	3.2	14.5	21.4	16.4	16.4	1.5	2.1	0.0			
Carbon free gross electricity generation (%)	63.9	63.0	72.1	73.5	55.3	55.3	11.8	17.0	6.7			
- nuclear	34.9	38.9	39.8	35.6	25.6	25.6	4.0	3.7	0.2			
- renewable energy forms	29.0	24.1	32.3	37.9	29.7	29.7	7.8	13.4	6.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	18.1	17.2	18.7	23.3	25.3	29.7	-0.3	-0.6	-0.9	-1.5	-2.3	-2.8
Private cars and motorcycles	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.0	1.7	2.6	3.1
Rail	10.0	14.7	16.8	20.9	22.6	26.1	-0.4	-0.7	-0.9	-1.8	-2.8	-3.4
Aviation	1.4	0.7	0.8	1.1	1.3	1.6	0.0	0.0	0.1	2.3	3.7	4.2
Inland navigation	0.2	0.2	0.3	0.4	0.5	0.8	0.0	0.0	0.0	-2.1	-3.0	-3.3
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	9.1	8.2	14.3	23.5	25.9	30.2	-0.7	-1.0	-1.4	-2.7	-3.8	-4.4
Rail	4.9	5.3	11.0	18.2	20.2	23.3	-0.8	-1.2	-1.7	-4.2	-5.8	-6.7
Inland navigation	4.2	2.9	3.2	5.3	5.7	6.9	0.1	0.2	0.3	2.6	3.9	4.3
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	928	1309	1469	2100	2229	2405	-123	-220	-298	-5.5	-9.0	-11.0
Private cars and motorcycles	43	15	7	8	8	7	0	0	-1	-0.8	-2.5	-11.1
Trucks	498	867	828	967	973	1041	-32	-51	-69	-3.2	-5.0	-6.2
Rail	330	368	582	1053	1170	1274	-91	-167	-223	-7.9	-12.5	-14.9
Aviation	29	34	29	44	43	32	1	0	-1	1.6	0.8	-2.5
Inland navigation	27	25	23	30	36	50	-1	-2	-3	-2.7	-4.4	-6.5
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: Cost Efficiency with JI/CDM Scenario						SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30			
	Annual % Change															
Primary Production	33724	31355	31345	30126	35428	38650	41773	40030	45606	-0.7	1.2	1.7	0.9			
Solids	11679	10170	7740	6265	5856	4664	3136	3062	2546	-4.0	-2.8	-6.1	-2.1			
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.1	-4.8				
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3					
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4			
Renewable energy sources	6276	5722	7185	8710	13524	18747	23548	28150	32408	1.4	6.5	5.7	3.2			
Hydro	2184	1987	2534	1681	2483	2442	2461	2504	2552	1.5	-0.2	-0.1	0.4			
Biomass & Waste	4067	3684	4205	5129	7534	9617	12021	15026	16740	0.3	6.0	4.8	3.4			
Wind	1	23	406	1825	3032	5186	6868	8081	9320	79.0	22.3	8.5	3.1			
Solar and others	21	25	33	68	466	1490	2182	2521	3778	4.5	30.5	16.7	5.6			
Geothermal	2	3	8	8	10	12	16	18	19	12.3	2.5	4.8	1.8			
Net Imports	59857	75415	98351	122830	125360	128602	128197	128124	118967	5.1	2.5	0.2	-0.7			
Solids	7038	9146	12636	14418	15655	17207	16499	15758	10493	6.0	2.2	0.5	-4.4			
Oil	49166	58363	69866	78279	78268	78844	78611	77430	74659	3.6	1.1	0.0	-0.5			
- Crude oil and Feedstocks	53256	55362	58393	59850	60589	60952	60815	60376	59260	0.9	0.4	0.0	-0.3			
- Oil products	-4091	3001	11473	18429	17680	17893	17795	17055	15399		4.4	0.1	-1.4			
Natural gas	3690	7521	15467	30248	31174	29621	25612	25292	23046	15.4	7.3	-1.9	-1.1			
Electricity	-36	386	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6			
Gross Inland Consumption	89401	102207	122698	143487	152272	158264	160610	158551	154953	3.2	2.2	0.5	-0.4			
Solids	18942	19515	20643	20698	21511	21871	19635	18820	13039	0.9	0.4	-0.9	-4.0			
Oil	45547	54556	63223	69507	69917	70007	69351	67828	65038	3.3	1.0	-0.1	-0.6			
Natural gas	4970	7722	15219	29844	31304	29721	25612	25292	23046	11.8	7.5	-2.0	-1.1			
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4			
Electricity	-36	385	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6			
Renewable energy forms	6276	5723	7185	8711	13524	21342	30798	37814	43175	1.4	6.5	8.6	3.4			
as % in Gross Inland Consumption																
Solids	21.2	19.1	16.8	14.4	14.1	13.8	12.2	11.9	8.4							
Oil	50.9	53.4	51.5	48.4	45.9	44.2	43.2	42.8	42.0							
Natural gas	5.6	7.6	12.4	20.8	20.6	18.8	15.9	16.0	14.9							
Nuclear	15.3	14.0	13.1	10.3	10.3	9.5	9.3	5.6	6.9							
Renewable energy forms	7.0	5.6	5.9	6.1	8.9	13.5	19.2	23.8	27.9							
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	307681	325719	349433	385669	406405	4.0	3.3	1.3	1.5			
Self consumption and grid losses	21388	24573	32539	40790	38953	40518	42630	50185	51805	4.3	1.8	0.9	2.0			
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33463	31948	31037	35199	29824	4.7	2.4	-0.8	-0.4			
Solids	13881	13585	18249	17641	18899	19093	16815	16085	11439	2.8	0.4	-1.2	-3.8			
Oil (including refinery gas)	2170	3654	4442	5246	1590	628	781	836	833	7.4	-9.8	-6.9	0.6			
Gas (including derived gases)	486	987	3075	11140	11073	8410	8856	11175	9907	20.3	13.7	-2.2	1.1			
Biomass & Waste	145	377	694	1389	1902	3817	4585	7103	7646	16.9	10.6	9.2	5.2			
Geothermal heat	0	0	0	0	0	0	0	0	0							
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0							
Fuel Input to other conversion processes	57883	58965	63144	63843	64757	67230	68273	67602	66250	0.9	0.3	0.5	-0.3			
Refineries	53753	56041	60048	60507	60323	60914	60852	60379	59298	1.1	0.0	0.1	-0.3			
Biofuels and hydrogen production	0	0	65	259	2193	4145	5559	5702	5726		42.2	9.7	0.3			
District heating	0	0	0	0	0	0	0	0	0			-0.2	-2.9			
Derived gases, cokeries etc.	4131	2924	3031	3077	2241	2172	1862	1520	1225	-3.0	-3.0	-1.8	-4.1			
Energy Branch Consumption	4757	5473	6118	6397	5752	5833	5841	6099	5974	2.5	-0.6	0.2	0.2			
Non-Energy Uses	5847	8006	9094	7823	8080	8581	9066	9403	9583	4.5	-1.2	1.2	0.6			
Final Energy Demand	56647	63536	79422	97170	106261	112897	115418	116194	115309	3.4	3.0	0.8	0.0			
by sector																
Industry	20014	20476	25474	31036	33979	36699	38543	38867	38929	2.4	2.9	1.3	0.1			
- energy intensive industries	13069	13620	17260	20421	22149	23881	24760	24790	24706	2.8	2.5	1.1	0.0			
- other industrial sectors	6945	6856	8213	10615	11829	12818	13782	14077	14223	1.7	3.7	1.5	0.3			
Residential	9266	9986	11871	15150	16469	17032	16744	16335	15803	2.5	3.3	0.2	-0.6			
Tertiary	5041	7007	9219	11556	11724	11935	11796	11731	11396	6.2	2.4	0.1	-0.3			
Transport	22326	26069	32858	39428	44089	47231	48336	49261	49180	3.9	3.0	0.9	0.2			
by fuel																
Solids	3524	2235	1671	1782	1614	1870	2039	2103	1094	-7.2	-0.4	2.4	-6.0			
Oil	33488	38971	45784	52776	56070	56642	55454	53678	51961	3.2	2.0	-0.1	-0.6			
Gas	4873	6841	12141	17978	20108	21053	16382	13579	12480	9.6	5.2	-2.0	-2.7			
Electricity	10817	12116	16205	20827	22815	24296	26049	28325	29977	4.1	3.5	1.3	1.4			
Heat (from CHP and District Heating)	0	39	74	0	18	21	24	29	26		-13.2	2.7	0.9			
Renewable energy forms	3945	3335	3547	3806	5632	9007	15458	18465	19755	-1.1	4.7	10.6	2.5			
Other	0	0	0	0	3	7	14	16	16			15.3	1.9			
RES in Gross Final Energy Consumption ^(A)			6709	8189	12663	20016	29145	35889	40054	6.6	8.7	3.2				
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	458.1	451.2	427.6	419.7	384.2	3.1	1.7	-0.7	-1.1			
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	345.4	341.9	319.9	310.3	273.4	3.4	2.0	-0.8	-1.6			
Power generation/District heating	63.6	68.2	94.1	113.2	106.1	97.5	89.6	92.5	71.4	4.0	1.2	-1.7	-2.2			
Energy Branch	11.5	13.1	13.6	14.7	13.5	13.7	13.5	13.2	9.7	1.6	0.0	0.0	-3.3			
Industry	41.9	43.4	48.9	58.2	63.4	65.5	55.3	45.7	38.6	1.6	2.6	-1.3	-3.5			
Residential	12.9	13.6	16.4	20.4	20.7	19.5	17.0	13.5	10.7	2.5	2.3	-2.0	-4.5			
Tertiary	7.7	10.5	12.9	16.2	15.6	15.1	14.2	13.4	12.3	5.3	1.9	-0.9	-1.5			
Transport	65.6	76.9	97.3	116.7	126.1	130.7	130.1	132.0	130.7	4.0	2.6	0.3	0.0			
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.8	40.7	40.4	39.6	38.7	1.6	2.9	0.4	-0.4			
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	73.9	68.7	67.4	69.8	72.1	72.1	2.5	-0.2	-0.9	0.7			
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	159.6	157.2	148.9	146.2	133.8							

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	143.0	127.4	113.8	101.9	92.5	0.2	-1.0	-2.3	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.16	1.99	1.96	1.76	0.1	-0.2	-1.3	-1.2
Import Dependency %	64.2	71.6	76.5	81.2	78.0	76.9	75.4	76.2	72.3				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	102.1	118.2	135.5	149.8	160.7		3.6	2.9	1.7
as % of GDP			9.2	9.1	9.6	9.5	9.6	9.6	9.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.1	99.4	91.2	84.2	79.7	0.3	0.8	-1.7	-1.3
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	100.2	89.6	78.1	69.5	62.8	-0.4	0.0	-2.5	-2.2
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	93.1	81.4	70.8	64.1	58.3	3.8	-0.7	-2.7	-1.9
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.7	36.4	35.1	34.5	0.6	-0.4	-1.1	-0.5
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	58.6	54.9	52.1	49.2	-2.3	-1.3	-1.0	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.30	0.26	0.24	0.18	0.0	-2.0	-2.9	-3.7
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.13	2.04	1.88	1.76	1.67	-0.2	-0.4	-1.2	-1.2
Industry	2.10	2.12	1.92	1.87	1.87	1.78	1.44	1.18	0.99	-0.9	-0.3	-2.6	-3.6
Residential	1.39	1.36	1.39	1.34	1.26	1.15	1.01	0.83	0.67	0.0	-1.0	-2.1	-4.0
Tertiary	1.53	1.50	1.40	1.40	1.33	1.26	1.21	1.15	1.08	-0.9	-0.5	-1.0	-1.1
Transport	2.94	2.95	2.96	2.96	2.86	2.77	2.69	2.68	2.66	0.1	-0.3	-0.6	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.6	17.2	24.5	29.8	33.4				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	8.7	11.6	11.9	12.3				
Gross Electricity generation by source (in GWh)													
			222776	290555	307681	325719	349433	385669	406405		3.3	1.3	1.5
Nuclear energy			62195	57529	61059	58096	58096	34176	48490		-0.2	-0.5	-1.8
Solids			78694	77443	81164	82545	75620	83821	61905		0.3	-0.7	-2.0
Oil (including refinery gas)			19567	23770	8397	4020	5102	5325	5350		-8.1	-4.9	0.5
Gas (including derived gases)			24741	85513	83972	72726	60841	67808	59491		13.0	-3.2	-0.2
Biomass-waste			3374	5457	8293	18091	36394	63989	72510		9.4	15.9	7.1
Hydro (pumping excluded)			29465	19549	28872	28392	28618	29119	29674		-0.2	-0.1	0.4
Wind			4723	21215	35251	60299	79860	93965	108373		22.3	8.5	3.1
Solar			18	78	674	1549	4562	7076	20188		43.7	21.1	16.0
Geothermal and other renewables			0	0	0	0	340	389	424				2.2
Net Generation Capacity in MW_e			60718	80297	92107	101249	110658	119255	141884		4.3	1.9	2.5
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
<u>Renewable energy</u>			14974	22714	30615	40537	49904	58116	80030		7.4	5.0	4.8
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25718	32982	39527	52858		22.0	7.3	4.8
Solar			14	52	435	998	2923	4565	13130		41.5	21.0	16.2
Other renewables (tidal etc.)			0	0	0	0	176	202	220				2.2
<u>Thermal power</u>			38166	50004	54058	53726	53768	57032	56254		3.5	-0.1	0.5
of which cogeneration units			5017	7578	7541	9322	8757	11328	11345		4.2	1.5	2.6
Solids fired			11352	11485	11277	10503	10163	10589	9893		-0.1	-1.0	-0.3
Gas fired			19801	32257	35544	34167	32639	30874	30374		6.0	-0.8	-0.7
Oil fired			6518	5375	5589	5203	3912	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1648	3854	7055	12322	13483		12.8	15.7	6.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	36.8	35.5	34.9	35.4	31.5				
Efficiency of gross thermal power generation (%)			41.1	46.7	46.7	47.7	49.3	54.0	57.5				
% of gross electricity from CHP			7.4	13.5	12.5	15.0	15.0	18.3	17.7				
Carbon free gross electricity generation (%)			44.8	35.7	43.6	51.1	59.5	59.3	68.8				
- nuclear			27.9	19.8	19.8	17.8	16.6	8.9	11.9				
- renewable energy forms			16.9	15.9	23.8	33.3	42.9	50.4	56.9				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	690.7	756.3	810.8	846.4	5.3	2.9	2.1	1.1
Public road transport	33.4	39.6	50.3	54.6	57.8	60.5	63.8	66.3	68.6	4.2	1.4	1.0	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	472.9	508.4	535.0	548.8	5.5	3.1	1.8	0.8
Rail	19.9	20.8	25.4	27.2	29.7	32.5	36.7	42.1	47.9	2.5	1.6	2.2	2.7
Aviation	39.5	51.4	73.6	82.2	99.3	122.5	145.0	165.0	178.8	6.4	3.0	3.9	2.1
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	350.2	379.1	399.7	405.4	4.1	5.1	1.9	0.7
Trucks	83.8	101.6	148.7	233.2	267.4	296.2	319.4	337.7	342.4	5.9	6.0	1.8	0.7
Rail	11.2	11.0	11.6	11.1	12.8	14.4	16.1	17.1	17.5	0.4	1.0	2.3	0.9
Inland navigation	33.0	38.0	31.0	32.0	35.2	39.5	43.6	45.0	45.5	-0.6	1.3	2.2	0.4
Energy demand in transport (ktoe)	22326	26069	32858	39428	44089	47231	48336	49261	49180	3.9	3.0	0.9	0.2
Public road transport	224	221	275	284	283	278	278	269	270	2.1	0.3	-0.2	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17626	18356	18448	18470	18424	6.2	2.1	0.5	0.0
Trucks	9634	9647	11587	14854	16950	18070	18224	18248	17780	1.9	3.9	0.7	-0.2
Rail	528	626	847	1166	1233	1300	1327	1274	905	4.8	3.8	0.7	-3.8
Aviation	2456	3105	4486	5323	6324	7419	8133	9054	9864	6.2	3.5	2.5	1.9
Inland navigation	1655	1871	1378	1534	1673	1808	1926	1946	1937	-1.8	2.0	1.4	0.1

Source: PRIMES

Spain: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	38650	41773	45606	2244	1223	6358	6.2	3.0	16.2
Solids	11679	7740	6265	4664	3136	2546	0	-1115	-32	0.0	-26.2	-1.2
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	994.1
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Renewable energy sources	6276	7185	8710	18747	23548	32408	2244	2338	6390	13.6	11.0	24.6
Hydro	2184	2534	1681	2442	2461	2552	198	163	0	8.8	7.1	0.0
Biomass & Waste	4067	4205	5129	9617	12021	16740	1039	620	1810	12.1	5.4	12.1
Wind	1	406	1825	5186	6868	9320	2	145	2027	0.0	2.2	27.8
Solar and others	21	33	68	1490	2182	3778	1001	1403	2541	204.5	180.1	205.4
Geothermal	2	8	8	12	16	19	4	7	11	51.7	90.7	130.4
Net Imports	59857	98351	122830	128602	128197	118967	-11485	-12535	-23704	-8.2	-8.9	-16.6
Solids	7038	12636	14418	17207	16499	10493	404	-895	-13213	2.4	-5.1	-55.7
Oil	49166	69866	78279	78844	78611	74659	-3292	-5812	-10586	-4.0	-6.9	-12.4
- Crude oil and Feedstocks	53256	58393	59850	60952	60815	59260	-2244	-4030	-6324	-3.6	-6.2	-9.6
- Oil products	-4091	11473	18429	17893	17795	15399	-1048	-1782	-4262	-5.5	-9.1	-21.7
Natural gas	3690	15467	30248	29621	25612	23046	-10943	-12748	-10239	-27.0	-33.2	-30.8
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	158264	160610	154953	-9235	-11296	-17326	-5.5	-6.6	-10.1
Solids	18942	20643	20698	21871	19635	13039	404	-2010	-13244	1.9	-9.3	-50.4
Oil	45547	63223	69507	70007	69351	65038	-3285	-5796	-10566	-4.5	-7.7	-14.0
Natural gas	4970	15219	29844	29721	25612	23046	-10943	-12748	-10239	-26.9	-33.2	-30.8
Nuclear	13701	16046	14842	14989	14989	10652	0	0	0	0.0	0.0	0.0
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	21342	30798	43175	4590	9258	16723	27.4	43.0	63.2
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	13.8	12.2	8.4	1.0	-0.4	-6.8			
Oil	50.9	51.5	48.4	44.2	43.2	42.0	0.5	-0.5	-1.9			
Natural gas	5.6	12.4	20.8	18.8	15.9	14.9	-5.5	-6.4	-4.4			
Nuclear	15.3	13.1	10.3	9.5	9.3	6.9	0.5	0.6	0.7			
Renewable energy forms	7.0	5.9	6.1	13.5	19.2	27.9	3.5	6.6	12.5			
Gross Electricity Generation in GWh_e	150944	222776	290555	325719	349433	406405	-38042	-37386	-10390	-10.5	-9.7	-2.5
Self consumption and grid losses	21388	32539	40790	40518	42630	51805	-4363	-5259	-3530	-9.7	-11.0	-6.4
Fuel Inputs to Thermal Power Generation	16682	26461	35416	31948	31037	29824	-7492	-7223	-10007	-19.0	-18.9	-25.1
Solids	13881	18249	17641	19093	16815	11439	28	-2517	-12755	0.1	-13.0	-52.7
Oil (including refinery gas)	2170	4442	5246	628	781	833	72	177	107	12.8	29.4	14.7
Gas (including derived gases)	486	3075	11140	8410	8856	9907	-9607	-4596	1389	-53.3	-34.2	16.3
Biomass & Waste	145	694	1389	3817	4585	7646	2015	-288	1251	111.8	-5.9	19.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	67230	68273	66250	-1447	-2659	-5749	-2.1	-3.7	-8.0
Refineries	53753	60048	60507	60914	60852	59298	-2243	-4030	-6325	-3.6	-6.2	-9.6
Biofuels and hydrogen production	0	65	259	4145	5559	5726	493	1155	555	13.5	26.2	10.7
District heating	0	0	0	0	0	0	0	0	0	-13.3	-9.8	-36.4
Derived gases, cokeries etc.	4131	3031	3077	2172	1862	1225	303	216	20	16.2	13.1	1.7
Energy Branch Consumption	4757	6118	6397	5833	5841	5974	-142	-310	-575	-2.4	-5.0	-8.8
Non-Energy Uses	5847	9094	7823	8581	9066	9583	-19	-15	-30	-0.2	-0.2	-0.3
Final Energy Demand	56647	79422	97170	112897	115418	115309	-4758	-7240	-10840	-4.0	-5.9	-8.6
by sector												
Industry	20014	25474	31036	36699	38543	38929	-678	-847	-1603	-1.8	-2.2	-4.0
- energy intensive industries	13069	17260	20421	23881	24760	24706	-270	-379	-876	-1.1	-1.5	-3.4
- other industrial sectors	6945	8213	10615	12818	13782	14223	-408	-468	-727	-3.1	-3.3	-4.9
Residential	9266	11871	15150	17032	16744	15803	-634	-1024	-1860	-3.6	-5.8	-10.5
Tertiary	5041	9219	11556	11935	11796	11396	-1520	-1955	-2576	-11.3	-14.2	-18.4
Transport	22326	32858	39428	47231	48336	49180	-1926	-3414	-4800	-3.9	-6.6	-8.9
by fuel												
Solids	3524	1671	1782	1870	2039	1094	279	437	-504	17.5	27.3	-31.5
Oil	33488	45784	52776	56642	55454	51961	-3301	-5871	-9467	-5.5	-9.6	-15.4
Gas	4873	12141	17978	21053	16382	12480	-1110	-7896	-11550	-5.0	-32.5	-48.1
Electricity	10817	16205	20827	24296	26049	29977	-2892	-2750	-560	-10.6	-9.5	-1.8
Heat (from CHP and District Heating)	0	74	0	21	24	26	1	-4	2	5.4	-13.7	6.6
Renewable energy forms	3945	3547	3806	9007	15458	19755	2266	8842	11239	33.6	133.6	132.0
Other	0	0	0	7	14	16	1	1	0	9.1	5.7	-1.9
RES in Gross Final Energy Consumption ^(A)		6709	8189	20016	29145	40054	4542	9440	15894	29.4	47.9	65.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	388.0	449.5	451.2	427.6	384.2	-39.9	-64.3	-118.3	-8.1	-13.1	-23.5
CO₂ Emissions (energy related)	203.3	283.2	339.4	341.9	319.9	273.4	-33.9	-55.4	-107.9	-9.0	-14.8	-28.3
Power generation/District heating	63.6	94.1	113.2	97.5	89.6	71.4	-22.2	-20.5	-46.6	-18.5	-18.6	-39.5
Energy Branch	11.5	13.6	14.7	13.7	13.5	9.7	-0.3	-0.5	-3.4	-2.3	-3.8	-26.1
Industry	41.9	48.9	58.2	65.5	55.3	38.6	-0.8	-14.7	-28.6	-1.1	-21.0	-42.6
Residential	12.9	16.4	20.4	19.5	17.0	10.7	-2.0	-4.0	-9.3	-9.4	-19.0	-46.5
Tertiary	7.7	12.9	16.2	15.1	14.2	12.3	-1.5	-2.1	-3.0	-9.1	-12.7	-19.6
Transport	65.6	97.3	116.7	130.7	130.1	130.7	-7.1	-13.6	-17.0	-5.2	-9.5	-11.5
CO ₂ Emissions (non energy related)	24.9	29.2	36.5	40.7	40.4	38.7	0.0	-0.5	-0.9	0.0	-1.2	-2.3
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	68.7	67.4	72.1	-6.0	-8.5	-9.5	-8.0	-11.2	-11.7
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	157.2	148.9	133.8	-13.9	-22.4	-41.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Spain: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	127.4	113.8	92.5	-7.4	-8.0	-10.3	-5.5	-6.6	-10.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.16	1.99	1.76	-0.08	-0.19	-0.45	-3.7	-8.8	-20.3
Import Dependency %	64.2	76.5	81.2	76.9	75.4	72.3	-2.5	-2.2	-6.1			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	118.2	135.5	160.7	4.8	7.0	14.9	4.2	5.5	10.2
as % of GDP		9.2	9.1	9.5	9.6	9.6	0.4	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				4.8	7.2	15.1						
as % of GDP				0.39	0.51	0.90						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	99.4	91.2	79.7	-1.8	-2.0	-3.3	-1.8	-2.2	-4.0
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	89.6	78.1	62.8	-3.3	-4.8	-7.4	-3.6	-5.8	-10.5
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	81.4	70.8	58.3	-10.4	-11.7	-13.2	-11.3	-14.2	-18.4
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.7	36.4	34.5	-0.6	-0.9	-1.4	-1.5	-2.5	-3.9
Freight transport (toe/Mtkm)	87.8	69.3	61.1	58.6	54.9	49.2	-1.9	-3.6	-4.9	-3.2	-6.2	-9.1
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.30	0.26	0.18	-0.03	-0.03	-0.11	-9.0	-9.9	-37.9
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.04	1.88	1.67	-0.01	-0.17	-0.32	-0.7	-8.3	-15.9
Industry	2.10	1.92	1.87	1.78	1.44	0.99	0.01	-0.34	-0.67	0.7	-19.2	-40.2
Residential	1.39	1.39	1.34	1.15	1.01	0.67	-0.07	-0.17	-0.45	-6.0	-14.1	-40.2
Tertiary	1.53	1.40	1.40	1.26	1.21	1.08	0.03	0.02	-0.02	2.5	1.8	-1.5
Transport	2.94	2.96	2.96	2.77	2.69	2.66	-0.04	-0.09	-0.08	-1.3	-3.1	-2.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	17.2	24.5	33.4	4.5	8.9	15.0			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	8.7	11.6	12.3	1.4	3.1	2.3			
Gross Electricity generation by source (in GWh_e)												
	222776	290555	325719	349433	406405	406405	-38042	-37386	-10390	-10.5	-9.7	-2.5
Nuclear energy	62195	57529	58096	58096	58096	48490	0	0	0	0.0	0.0	0.0
Solids	78694	77443	82545	75620	61905	61905	652	-11850	-71024	0.8	-13.5	-53.4
Oil (including refinery gas)	19567	23770	4020	5102	5350	5350	272	1235	1380	7.3	31.9	34.7
Gas (including derived gases)	24741	85513	72726	60841	59491	59491	-51223	-45863	-19109	-41.3	-43.0	-24.3
Biomass-waste	3374	5457	18091	36394	72510	72510	9729	13458	40177	116.4	58.7	124.3
Hydro (pumping excluded)	29465	19549	28392	28618	29674	29674	2298	1893	0	8.8	7.1	0.0
Wind	4723	21215	60299	79860	108373	108373	18	1683	23575	0.0	2.2	27.8
Solar	18	78	1549	4562	20188	20188	212	1719	14187	15.8	60.4	236.4
Geothermal and other renewables	0	0	0	340	424	424	0	340	424			
Net Generation Capacity in MW_e												
	60718	80297	101249	110658	141884	141884	2517	1524	24427	2.5	1.4	20.8
<u>Nuclear energy</u>	7579	7579	6986	6986	5600	5600	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	14974	22714	40537	49904	80030	80030	141	559	23842	0.3	1.1	42.4
Hydro (pumping excluded)	12725	12725	13820	13822	13822	13822	0	0	0	0.0	0.0	0.0
Wind	2235	9937	25718	32982	52858	52858	7	-710	14349	0.0	-2.1	37.3
Solar	14	52	998	2923	13130	13130	134	1093	9272	15.5	59.7	240.3
Other renewables (tidal etc.)	0	0	0	176	220	220	0	176	220			
<u>Thermal power</u>	38166	50004	53726	53768	56254	56254	2376	965	585	4.6	1.8	1.1
of which cogeneration units	5017	7578	9322	8757	11345	11345	1270	-1699	-137	15.8	-16.3	-1.2
Solids fired	11352	11485	10503	10163	9893	9893	-68	-1179	-6485	-0.6	-10.4	-39.6
Gas fired	19801	32257	34167	32639	30374	30374	-301	-1245	-1430	-0.9	-3.7	-4.5
Oil fired	6518	5375	5203	3912	2504	2504	-14	-14	0	-0.3	-0.3	0.0
Biomass-waste fired	495	887	3854	7055	13483	13483	2758	3402	8501	251.4	93.1	170.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	40.0	39.6	35.5	34.9	31.5	31.5	-5.3	-4.2	-7.2			
Efficiency of gross thermal power generation (%)	41.1	46.7	47.7	49.3	57.5	57.5	0.2	-0.4	3.9			
% of gross electricity from CHP	7.4	13.5	15.0	15.0	17.7	17.7	3.7	0.4	3.0			
Carbon free gross electricity generation (%)	44.8	35.7	51.1	59.5	68.8	68.8	8.7	10.7	20.5			
- nuclear	27.9	19.8	17.8	16.6	11.9	11.9	1.9	1.6	0.3			
- renewable energy forms	16.9	15.9	33.3	42.9	56.9	56.9	6.8	9.1	20.2			
Transport sector												
Passenger transport activity (Gpkm)												
	276.7	461.8	535.3	690.7	756.3	846.4	-9.4	-16.3	-21.5	-1.3	-2.1	-2.5
Public road transport	33.4	50.3	54.6	60.5	63.8	68.6	1.1	1.7	2.1	1.9	2.8	3.2
Private cars and motorcycles	182.0	310.7	369.2	472.9	508.4	548.8	-8.5	-14.8	-19.2	-1.8	-2.8	-3.4
Rail	19.9	25.4	27.2	32.5	36.7	47.9	0.2	0.8	1.2	0.7	2.3	2.5
Aviation	39.5	73.6	82.2	122.5	145.0	178.8	-2.2	-3.9	-5.6	-1.8	-2.6	-3.0
Inland navigation	2.1	1.9	2.1	2.3	2.4	2.4	0.0	0.0	0.0	-0.8	-0.7	-0.7
Freight transport activity (Gtkm)												
	128.0	191.3	276.4	350.2	379.1	405.4	-7.9	-12.4	-15.6	-2.2	-3.2	-3.7
Trucks	83.8	148.7	233.2	296.2	319.4	342.4	-8.8	-13.9	-17.4	-2.9	-4.2	-4.8
Rail	11.2	11.6	11.1	14.4	16.1	17.5	0.5	0.8	1.0	3.7	5.2	5.8
Inland navigation	33.0	31.0	32.0	39.5	43.6	45.5	0.4	0.7	0.9	1.1	1.7	2.0
Energy demand in transport (ktoe)												
	22326	32858	39428	47231	48336	49180	-1926	-3414	-4800	-3.9	-6.6	-8.9
Public road transport	224	275	284	278	278	270	-1	-3	-16	-0.2	-1.1	-5.6
Private cars and motorcycles	7830	14286	16266	18356	18448	18424	-578	-935	-1125	-3.1	-4.8	-5.8
Trucks	9634	11587	14854	18070	18224	17780	-1178	-2141	-2847	-6.1	-10.5	-13.8
Rail	528	847	1166	1300	1327	905	13	20	-33	1.0	1.5	-3.6
Aviation	2456	4486	5323	7419	8133	9864	-180	-351	-808	-2.4	-4.1	-7.6
Inland navigation	1655	1378	1534	1808	1926	1937	-2	-4	29	-0.1	-0.2	1.5

Source: PRIMES

Sweden: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	29728	31514	30077	34378	35746	37470	35968	35666	33581	0.1	1.7	0.1	-0.7	
Solids	216	321	231	302	299	99	59	7	5	0.7	2.6	-15.0	-21.5	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19424	19476	16160	13823	9669	-1.8	2.8	-1.8	-5.0	
Renewable energy sources	11745	13149	15065	15406	16023	17896	19749	21836	23908	2.5	0.6	2.1	1.9	
Hydro	6234	5856	6757	6260	6261	6271	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9103	10886	12625	14050	14638	4.1	1.0	3.3	1.5	
Wind	1	9	39	80	620	622	700	1345	2817	54.2	31.8	1.2	14.9	
Solar and others	3	5	5	6	39	117	143	161	172	5.3	22.0	14.0	1.8	
Geothermal	0	0	0	0	0	0	0	0	0			5.5	0.0	
Net Imports	17923	19281	19172	19867	20487	19717	19333	18802	18096	0.7	0.7	-0.6	-0.7	
Solids	2329	2657	2340	2462	2916	3348	3480	3244	2960	0.0	2.2	1.8	-1.6	
Oil	15169	16014	15654	17198	17507	16336	15427	15153	14897	0.3	1.1	-1.3	-0.3	
- Crude oil and Feedstocks	16989	17815	20372	19825	20252	19495	18886	18669	18464	1.8	-0.1	-0.7	-0.2	
- Oil products	-1820	-1801	-4718	-2626	-2745	-3158	-3459	-3516	-3567					
Natural gas	577	755	776	843	992	1495	1838	1729	1597	3.0	2.5	6.4	-1.4	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54196	55077	53117	52201	49336	0.1	1.3	-0.2	-0.7	
Solids	2677	2893	2442	2626	3215	3446	3539	3251	2965	-0.9	2.8	1.0	-1.8	
Oil	14555	15754	14382	14646	15471	14227	13243	12886	12555	-0.1	0.7	-1.5	-0.5	
Natural gas	577	755	776	843	992	1495	1838	1729	1597	3.0	2.5	6.4	-1.4	
Nuclear	17764	18040	14781	18670	19424	19476	16160	13823	9669	-1.8	2.8	-1.8	-5.0	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16023	17896	19749	21836	23908	2.5	0.6	2.1	1.9	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.3	6.7	6.2	6.0					
Oil	30.9	31.2	30.1	28.4	28.5	25.8	24.9	24.7	25.4					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.7	3.5	3.3	3.2					
Nuclear	37.7	35.8	30.9	36.2	35.8	35.4	30.4	26.5	19.6					
Renewable energy forms	24.9	26.1	31.5	29.9	29.6	32.5	37.2	41.8	48.5					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	166883	180644	179149	188573	194977	0.0	1.4	0.7	0.9	
Self consumption and grid losses	13436	14222	14818	15557	16925	17863	17727	19788	20384	1.0	1.3	0.5	1.4	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3890	4201	5133	6305	6000	8.1	1.8	2.8	1.6	
Solids	558	705	467	494	562	10	0	0	0	-1.8	1.9			
Oil (including refinery gas)	253	737	276	316	46	22	23	2	1	0.9	-16.4	-6.9	-30.6	
Gas (including derived gases)	253	406	414	490	2	15	10	0	0	5.0	-40.4	16.2	-36.3	
Biomass & Waste	427	1398	2083	3166	3279	4154	5100	6303	5999	17.2	4.6	4.5	1.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24193	23563	23114	22502	22113	2.1	-0.4	-0.5	-0.4	
Refineries	18041	19475	21618	20537	20231	19484	18881	18667	18463	1.8	-0.7	-0.7	-0.2	
Biofuels and hydrogen production	0	0	0	210	437	707	990	1060	1157			8.5	1.6	
District heating	1123	2373	1973	1722	1588	1394	1272	901	680	5.8	-2.1	-2.2	-6.1	
Derived gases, cokeries etc.	1415	1615	1704	1835	1937	1977	1971	1874	1813	1.9	1.3	0.2	-0.8	
Energy Branch Consumption	1758	1629	1532	1424	1534	1603	1590	1660	1581	-1.4	0.0	0.4	-0.1	
Non-Energy Uses	1769	1772	1771	2344	2518	2550	2570	2586	2601	0.0	3.6	0.2	0.1	
Final Energy Demand	30514	32602	33302	33145	34365	35817	35964	35896	36551	0.9	0.3	0.5	0.2	
by sector														
Industry	11857	11527	12047	12042	13152	14562	15247	15600	16287	0.2	0.9	1.5	0.7	
- energy intensive industries	8574	8572	9161	9204	9935	11056	11567	11820	12382	0.7	0.8	1.5	0.7	
- other industrial sectors	3283	2955	2886	2838	3217	3507	3679	3780	3904	-1.3	1.1	1.4	0.6	
Residential	6840	8032	7546	7882	7830	7562	6997	6440	6263	1.0	0.4	-1.1	-1.1	
Tertiary	4555	5378	5581	4577	4490	4583	4482	4449	4436	2.1	-2.2	0.0	-0.1	
Transport	7263	7666	8128	8643	8893	9109	9237	9407	9565	1.1	0.9	0.4	0.3	
by fuel														
Solids	1231	1192	1141	1345	1618	2367	2474	2285	2039	-0.8	3.6	4.3	-1.9	
Oil	12004	12567	12341	11087	11262	10279	9961	9821	9708	0.3	-0.9	-1.2	-0.3	
Gas	587	611	673	746	1515	1922	1995	1860	1606	1.4	8.5	2.8	-2.1	
Electricity	10348	10711	11068	11382	11697	12264	12232	12977	13484	0.7	0.6	0.4	1.0	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3740	3347	3047	2221	1878	7.6	0.5	-2.0	-4.7	
Renewable energy forms	4639	3981	4528	4410	4532	5636	6251	6728	7831	-0.2	0.0	3.3	2.3	
Other	0	0	0	0	1	2	3	4	4			14.5	2.8	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14612	16523	18008	19401	21861		-0.1	2.1	2.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	71.3	69.2	67.5	64.9	62.7	-0.1	-0.1	-0.5	-0.7	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.7	49.4	47.9	45.8	43.8	0.0	0.0	-0.6	-0.9	
Power generation/District heating	6.3	7.9	5.1	5.5	3.7	1.3	0.5	0.0	0.0	-2.0	-3.3	-18.5		
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.4	2.1	2.0	1.9	2.3	1.3	-0.6	-1.1	
Industry	11.6	12.5	11.0	12.2	16.0	17.1	17.4	15.9	14.2	-0.5	3.8	0.8	-2.0	
Residential	4.8	4.6	3.7	1.4	1.6	1.4	1.2	1.0	0.7	-2.6	-8.3	-2.3	-6.1	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.8	2.8	2.8	2.7	0.0	-6.2	-0.6	-0.3	
Transport	20.7	21.8	23.2	24.0	24.3	24.3	23.9	24.2	24.4	1.1	0.5	-0.2	0.2	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.9	6.9	6.8	6.8	-0.3	0.7	0.0	0.0	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.8	12.8	12.3	12.1	-0.4	-1.1	-0.7	-0.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.7	94.7	92.5	88.9	85.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Sweden: Cost Efficiency with JI/CDM Scenario						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.3	145.5	126.1	112.5	98.2	-1.9	-1.5	-2.4	-2.5
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.94	0.90	0.90	0.88	0.89	-0.1	-1.2	-0.4	-0.2
Import Dependency %	37.5	37.5	39.0	37.2	36.4	34.5	35.0	34.5	35.0				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	35.1	39.3	43.5	47.8	50.9		3.8	2.2	1.6
as % of GDP			9.5	10.7	10.5	10.4	10.3	10.3	10.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.7	72.1	67.1	62.2	60.1	-5.6	-2.9	-1.1	-1.1
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	84.0	73.2	61.6	52.0	47.0	-0.7	-1.7	-3.0	-2.7
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.3	57.4	50.4	45.1	41.3	0.5	-4.5	-2.3	-2.0
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	35.2	33.8	32.2	30.9	-0.6	-0.9	-0.9	-0.9
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	40.0	37.1	35.6	34.7	1.3	-0.3	-1.4	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.00	-3.1	-4.3		
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.30	1.28	1.26	1.22	1.15	-0.7	0.0	-0.3	-0.9
Industry	0.97	1.08	0.91	1.01	1.22	1.18	1.14	1.02	0.87	-0.6	2.9	-0.7	-2.7
Residential	0.70	0.57	0.49	0.18	0.20	0.19	0.18	0.15	0.11	-3.5	-8.7	-1.1	-5.1
Tertiary	1.23	1.00	1.00	0.68	0.65	0.62	0.62	0.62	0.61	-2.0	-4.1	-0.6	-0.2
Transport	2.85	2.85	2.85	2.77	2.74	2.67	2.59	2.57	2.55	0.0	-0.4	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.7	44.1	47.9	51.5	57.0				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.0	10.0	10.7	11.7				
Gross Electricity generation by source (in GWh)													
			145524	158341	166883	180644	179149	188573	194977		1.4	0.7	0.9
Nuclear energy			57306	72364	75317	75602	62704	53644	37492		2.8	-1.8	-5.0
Solids			1141	1241	787	278	0	0	0		-3.6	-65.6	
Oil (including refinery gas)			1828	1004	260	190	155	12	3		-17.7	-5.1	-32.6
Gas (including derived gases)			1714	1394	131	194	64	1	1		-22.7	-6.9	-37.6
Biomass-waste			4508	8607	10372	24230	35051	46240	51686		8.7	12.9	4.0
Hydro (pumping excluded)			78570	72795	72804	72915	73025	73025	73025		-0.8	0.0	0.0
Wind			457	936	7210	7229	8141	15641	32756		31.8	1.2	14.9
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	36153	36523	36317	41942	50911		1.1	0.0	3.4
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	18467	18485	18836	21366	28388		1.5	0.2	4.2
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	2806	2812	3153	5745	12751		28.4	1.2	15.0
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	8641	8592	8032	11128	13075		2.1	-0.7	5.0
of which cogeneration units			3791	4762	3306	4126	4436	4286	4570		-1.4	3.0	0.3
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4
Gas fired			514	522	583	504	465	2233	3515		1.3	-2.2	22.4
Oil fired			4271	4366	4135	3022	1586	1573	1489		-0.3	-9.1	-0.6
Biomass-waste fired			1389	1842	3248	4776	5749	7107	7938		8.9	5.9	3.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	51.3	54.8	54.4	49.4	42.1				
Efficiency of gross thermal power generation (%)			24.4	23.6	25.5	51.0	59.1	63.1	74.1				
% of gross electricity from CHP			5.9	7.5	5.5	11.8	14.4	13.2	14.4				
Carbon free gross electricity generation (%)			96.8	97.7	99.3	99.6	99.9	100.0	100.0				
- nuclear			39.4	45.7	45.1	41.9	35.0	28.4	19.2				
- renewable energy forms			57.4	52.0	54.2	57.8	64.9	71.5	80.8				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	154.4	166.2	176.9	188.3	198.1	1.1	1.4	1.4	1.1
Public road transport	8.0	8.5	9.5	9.0	9.2	9.4	9.9	10.3	10.7	1.7	-0.3	0.7	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	113.7	119.5	126.2	132.0	0.6	1.4	1.1	1.0
Rail	8.6	8.8	10.2	11.0	12.2	13.7	15.0	16.2	17.0	1.7	1.8	2.1	1.2
Aviation	8.1	10.8	13.8	15.6	18.8	21.9	24.9	27.9	30.7	5.4	3.1	2.9	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.3	7.5	7.7	7.8	-1.3	0.0	0.4	0.4
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	74.6	81.3	87.5	94.0	99.2	1.4	1.9	1.6	1.3
Trucks	26.5	31.6	35.6	38.6	42.3	45.2	48.1	51.7	55.0	3.0	1.7	1.3	1.4
Rail	19.1	19.4	19.5	21.7	25.1	28.3	31.1	33.6	35.3	0.2	2.6	2.2	1.3
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.8	9.0	-1.8	0.6	1.4	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	8893	9109	9237	9407	9565	1.1	0.9	0.4	0.3
Public road transport	230	275	189	156	146	143	144	144	142	-2.0	-2.5	-0.1	-0.1
Private cars and motorcycles	4004	4099	4086	4472	4437	4474	4488	4420	4358	0.2	0.8	0.1	-0.3
Trucks	1872	2066	2471	2695	2863	2897	2890	2988	3089	2.8	1.5	0.1	0.7
Rail	252	273	299	332	368	382	384	380	377	1.7	2.1	0.4	-0.2
Aviation	760	849	928	846	936	1066	1182	1322	1446	2.0	0.1	2.4	2.0
Inland navigation	143	103	154	141	143	147	150	153	153	0.8	-0.8	0.5	0.2

Source: PRIMES

Sweden: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	37470	35968	33581	774	-1348	-4886	2.1	-3.6	-12.7
Solids	216	231	302	99	59	5	-207	-211	-140	-67.8	-78.1	-96.4
Oil	3	0	0	0	0	0	0	0	0	-244.4	-230.0	281.8
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19476	16160	9669	0	-3318	-9810	0.0	-17.0	-50.4
Renewable energy sources	11745	15065	15406	17896	19749	23908	982	2181	5065	5.8	12.4	26.9
Hydro	6234	6757	6260	6271	6280	6280	18	1	1	0.3	0.0	0.0
Biomass & Waste	5507	8264	9059	10886	12625	14638	683	1805	2636	6.7	16.7	22.0
Wind	1	39	80	622	700	2817	199	275	2311	47.0	64.7	457.0
Solar and others	3	5	6	117	143	172	82	99	116	230.8	226.2	208.7
Geothermal	0	0	0	0	0	0	0	0	0	51.9	84.7	86.2
Net Imports	17923	19172	19867	19717	19333	18096	-3225	-3913	-4790	-14.1	-16.8	-20.9
Solids	2329	2340	2462	3348	3480	2960	-1717	-1697	-1816	-33.9	-32.8	-38.0
Oil	15169	15654	17198	16336	15427	14897	-859	-1287	-1718	-5.0	-7.7	-10.3
- Crude oil and Feedstocks	16989	20372	19825	19495	18886	18464	-617	-884	-1229	-3.1	-4.5	-6.2
- Oil products	-1820	-4718	-2626	-3158	-3459	-3567	-242	-403	-489	8.3	13.2	15.9
Natural gas	577	776	843	1495	1838	1597	-649	-929	-1256	-30.3	-33.6	-44.0
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	55077	53117	49336	-2450	-5260	-9674	-4.3	-9.0	-16.4
Solids	2677	2442	2626	3446	3539	2965	-1925	-1908	-1956	-35.8	-35.0	-39.8
Oil	14555	14382	14646	14227	13243	12555	-858	-1286	-1716	-5.7	-8.8	-12.0
Natural gas	577	776	843	1495	1838	1597	-649	-929	-1256	-30.3	-33.6	-44.0
Nuclear	17764	14781	18670	19476	16160	9669	0	-3318	-9810	0.0	-17.0	-50.4
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	17896	19749	23908	982	2181	5065	5.8	12.4	26.9
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.3	6.7	6.0	-3.1	-2.7	-2.3			
Oil	30.9	30.1	28.4	25.8	24.9	25.4	-0.4	0.0	1.3			
Natural gas	1.2	1.6	1.6	2.7	3.5	3.2	-1.0	-1.3	-1.6			
Nuclear	37.7	30.9	36.2	35.4	30.4	19.6	1.5	-2.9	-13.4			
Renewable energy forms	24.9	31.5	29.9	32.5	37.2	48.5	3.1	7.1	16.5			
Gross Electricity Generation in GWh_e	145958	145524	158341	180644	179149	194977	-5277	-9598	3392	-2.8	-5.1	1.8
Self consumption and grid losses	13436	14818	15557	17863	17727	20384	-873	-1238	572	-4.7	-6.5	2.9
Fuel Inputs to Thermal Power Generation	1491	3239	4465	4201	5133	6000	-2090	-1062	488	-33.2	-17.1	8.9
Solids	558	467	494	10	0	0	-990	-646	-166	-99.0	-100.0	-100.0
Oil (including refinery gas)	253	276	316	22	23	1	-31	9	0	-58.8	64.0	-18.9
Gas (including derived gases)	253	414	490	15	10	0	-385	-467	-596	-96.3	-97.8	-100.0
Biomass & Waste	427	2083	3166	4154	5100	5999	-684	42	1251	-14.1	0.8	26.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	23563	23114	22113	-856	-1209	-2111	-3.5	-5.0	-8.7
Refineries	18041	21618	20537	19484	18881	18463	-617	-884	-1229	-3.1	-4.5	-6.2
Biofuels and hydrogen production	0	0	210	707	990	1157	76	196	104	12.0	24.7	9.8
District heating	1123	1973	1722	1394	1272	680	-355	-491	-984	-20.3	-27.9	-59.1
Derived gases, cokeries etc.	1415	1704	1835	1977	1971	1813	40	-30	-2	2.0	-1.5	-0.1
Energy Branch Consumption	1758	1532	1424	1603	1590	1581	-58	-90	-154	-3.5	-5.4	-8.9
Non-Energy Uses	1769	1771	2344	2550	2570	2601	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	35817	35964	36551	-1215	-2297	-3387	-3.3	-6.0	-8.5
by sector												
Industry	11857	12047	12042	14562	15247	16287	303	316	432	2.1	2.1	2.7
- energy intensive industries	8574	9161	9204	11056	11567	12382	368	424	587	3.4	3.8	5.0
- other industrial sectors	3283	2886	2838	3507	3679	3904	-65	-109	-155	-1.8	-2.9	-3.8
Residential	6840	7546	7882	7562	6997	6263	-708	-1311	-2111	-8.6	-15.8	-25.2
Tertiary	4555	5581	4577	4583	4482	4436	-391	-608	-813	-7.9	-11.9	-15.5
Transport	7263	8128	8643	9109	9237	9565	-418	-694	-895	-4.4	-7.0	-8.6
by fuel												
Solids	1231	1141	1345	2367	2474	2039	-479	-703	-1128	-16.8	-22.1	-35.6
Oil	12004	12341	11087	10279	9961	9708	-689	-1173	-1672	-6.3	-10.5	-14.7
Gas	587	673	746	1922	1995	1606	-326	-411	-497	-14.5	-17.1	-23.6
Electricity	10348	11068	11382	12264	12232	13484	-376	-681	349	-3.0	-5.3	2.7
Heat (from CHP and District Heating)	1706	3550	4174	3347	3047	1878	-634	-966	-2099	-15.9	-24.1	-52.8
Renewable energy forms	4639	4528	4410	5636	6251	7831	1289	1636	1660	29.6	35.5	26.9
Other	0	0	0	2	3	4	0	0	-1	8.3	7.3	-22.2
RES in Gross Final Energy Consumption ^(A)		14717	14682	16523	18008	21861	1315	2074	4355	8.6	13.0	24.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	69.2	67.5	62.7	-12.7	-15.1	-17.6	-15.5	-18.3	-21.9
CO₂ Emissions (energy related)	50.5	50.5	48.5	49.4	47.9	43.8	-11.7	-13.6	-15.9	-19.2	-22.1	-26.6
Power generation/District heating	6.3	5.1	5.5	1.3	0.5	0.0	-6.9	-6.2	-5.4	-83.7	-92.8	-100.0
Energy Branch	1.5	1.9	2.3	2.4	2.1	1.9	-0.2	-0.2	-0.2	-7.0	-7.4	-7.7
Industry	11.6	11.0	12.2	17.1	17.4	14.2	-2.6	-3.6	-5.0	-13.1	-17.2	-26.2
Residential	4.8	3.7	1.4	1.4	1.2	0.7	-0.3	-0.5	-1.5	-15.7	-29.8	-69.1
Tertiary	5.6	5.6	3.1	2.8	2.8	2.7	-0.4	-0.5	-0.7	-11.1	-15.6	-19.8
Transport	20.7	23.2	24.0	24.3	23.9	24.4	-1.4	-2.6	-3.1	-5.6	-9.7	-11.3
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.9	6.9	6.8	-0.1	-0.3	-0.4	-0.8	-3.8	-5.8
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.8	12.8	12.1	-0.9	-1.3	-1.3	-6.5	-9.1	-10.0
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	94.7	92.5	85.9	-17.4	-20.7	-24.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Sweden: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	145.5	126.1	98.2	-6.5	-12.5	-19.3	-4.3	-9.0	-16.4
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.90	0.90	0.89	-0.17	-0.15	-0.12	-15.6	-14.4	-12.2
Import Dependency %	37.5	39.0	37.2	34.5	35.0	35.0	-4.0	-3.4	-2.3			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	39.3	43.5	50.9	1.3	2.8	6.2	3.6	6.9	13.8
as % of GDP		9.5	10.7	10.4	10.3	10.1	0.4	0.7	1.2			
Total Compliance Costs ^(D) (in 000 M€05)				1.4	2.8	6.2						
as % of GDP				0.36	0.67	1.23						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	72.1	67.1	60.1	1.5	1.4	1.6	2.1	2.1	2.7
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	73.2	61.6	47.0	-6.9	-11.5	-15.8	-8.6	-15.8	-25.2
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	57.4	50.4	41.3	-4.9	-6.8	-7.6	-7.9	-11.9	-15.5
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	35.2	33.8	30.9	-0.6	-0.9	-1.3	-1.7	-2.7	-4.0
Freight transport (toe/Mtkm)	38.8	44.2	44.6	40.0	37.1	34.7	-2.1	-3.5	-3.5	-5.0	-8.7	-9.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.01	0.00	0.00	-0.03	-0.03	-0.02	-82.8	-92.1	-100.0
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.28	1.26	1.15	-0.08	-0.11	-0.16	-6.1	-8.2	-12.3
Industry	0.97	0.91	1.01	1.18	1.14	0.87	-0.21	-0.27	-0.34	-14.9	-18.9	-28.2
Residential	0.70	0.49	0.18	0.19	0.18	0.11	-0.02	-0.04	-0.15	-7.8	-16.7	-58.7
Tertiary	1.23	1.00	0.68	0.62	0.62	0.61	-0.02	-0.03	-0.03	-3.6	-4.2	-5.1
Transport	2.85	2.85	2.77	2.67	2.59	2.55	-0.03	-0.08	-0.08	-1.2	-3.0	-3.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.1	47.9	57.0	4.9	8.1	15.1			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.0	10.0	11.7	1.1	2.6	2.2			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	180644	179149	194977	194977	-5277	-9598	3392	-2.8	-5.1	1.8
Nuclear energy	57306	72364	75602	62704	37492	37492	-279	-13181	-38401	-0.4	-17.4	-50.6
Solids	1141	1241	278	0	0	0	-3327	-2381	-1157	-92.3	-100.0	-100.0
Oil (including refinery gas)	1828	1004	190	155	3	3	-306	-43	-1	-61.7	-21.8	-17.3
Gas (including derived gases)	1714	1394	194	64	1	1	-3550	-3969	-3866	-94.8	-98.4	-100.0
Biomass-waste	4508	8607	24230	35051	51686	51686	-338	6767	19930	-1.4	23.9	62.8
Hydro (pumping excluded)	78570	72795	72915	73025	73025	73025	210	12	12	0.3	0.0	0.0
Wind	457	936	7229	8141	32756	32756	2313	3198	26875	47.0	64.7	457.0
Solar	0	0	5	7	14	14	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	32460	33376	36523	36317	50911	50911	278	-698	10759	0.8	-1.9	26.8
<u>Nuclear energy</u>	9584	9630	9446	9449	9449	9449	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	18485	18836	28388	28388	941	1273	10567	5.4	7.2	59.3
Hydro (pumping excluded)	15625	15651	15651	15576	15576	15576	0	0	0	0.0	0.0	0.0
Wind	231	493	2812	3153	12751	12751	941	1273	10567	50.3	67.7	483.9
Solar	0	4	22	32	61	61	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	8592	8032	13075	13075	-662	-1971	192	-7.2	-19.7	1.5
of which cogeneration units	3791	4762	4126	4436	4570	4570	-942	-998	-1327	-18.6	-18.4	-22.5
Solids fired	847	868	290	232	133	133	-434	-434	-129	-60.0	-65.2	-49.4
Gas fired	514	522	504	465	3515	3515	-793	-2531	-1748	-61.1	-84.5	-33.2
Oil fired	4271	4366	3022	1586	1489	1489	0	0	-430	0.0	0.0	-22.4
Biomass-waste fired	1389	1842	4776	5749	7938	7938	565	994	2498	13.4	20.9	45.9
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.8	54.4	42.1	42.1	-2.0	-1.9	-10.4			
Efficiency of gross thermal power generation (%)	24.4	23.6	51.0	59.1	74.1	74.1	6.6	10.7	16.7			
% of gross electricity from CHP	5.9	7.5	11.8	14.4	14.4	14.4	-1.7	-0.7	-2.6			
Carbon free gross electricity generation (%)	96.8	97.7	99.6	99.9	100.0	100.0	3.9	3.4	2.6			
- nuclear	39.4	45.7	41.9	35.0	19.2	19.2	1.0	-5.2	-20.4			
- renewable energy forms	57.4	52.0	57.8	64.9	80.8	80.8	2.8	8.6	23.0			
Transport sector												
Passenger transport activity (Gpkm)												
	120.6	134.0	142.2	166.2	176.9	198.1	-2.5	-4.1	-5.7	-1.5	-2.3	-2.8
Public road transport	8.0	9.5	9.0	9.4	9.9	10.7	0.1	0.2	0.2	1.2	1.8	2.2
Private cars and motorcycles	87.6	93.3	99.4	113.7	119.5	132.0	-2.2	-3.8	-5.2	-1.9	-3.1	-3.8
Rail	8.6	10.2	11.0	13.7	15.0	17.0	0.2	0.4	0.4	1.1	2.6	2.6
Aviation	8.1	13.8	15.6	21.9	24.9	30.7	-0.5	-0.8	-1.1	-2.2	-3.2	-3.6
Inland navigation	8.3	7.2	7.2	7.3	7.5	7.8	-0.1	-0.1	0.0	-0.8	-0.7	-0.6
Freight transport activity (Gtkm)												
	53.9	62.0	67.3	81.3	87.5	99.2	-1.3	-2.0	-2.8	-1.6	-2.2	-2.8
Trucks	26.5	35.6	38.6	45.2	48.1	55.0	-1.9	-3.0	-4.1	-4.1	-5.9	-6.9
Rail	19.1	19.5	21.7	28.3	31.1	35.3	0.6	1.0	1.3	2.2	3.5	3.7
Inland navigation	8.3	6.9	7.0	7.8	8.3	9.0	0.0	0.0	0.0	-0.3	-0.3	-0.2
Energy demand in transport (ktoe)												
	7263	8128	8643	9109	9237	9565	-418	-694	-895	-4.4	-7.0	-8.6
Public road transport	230	189	156	143	144	142	-2	-4	-9	-1.2	-3.0	-6.0
Private cars and motorcycles	4004	4086	4472	4474	4488	4358	-159	-249	-341	-3.4	-5.3	-7.3
Trucks	1872	2471	2695	2897	2890	3089	-223	-383	-446	-7.2	-11.7	-12.6
Rail	252	299	332	382	384	377	-6	-7	-12	-1.7	-1.8	-3.1
Aviation	760	928	846	1066	1182	1446	-26	-49	-83	-2.4	-4.0	-5.4
Inland navigation	143	154	141	147	150	153	-2	-2	-4	-1.1	-1.6	-2.5

Source: PRIMES

United Kingdom: Cost Efficiency with JI/CDM Scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	205508	249865	268722	202300	170624	112675	79320	76482	78260	2.7	-4.4	-7.4	-0.1	
Solids	54125	30516	18577	12172	10500	9000	5988	6099	6000	-10.1	-5.5	-5.5	0.0	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	12701	17297	2.8	-1.6	-8.7	8.7	
Renewable energy sources	1070	1996	2635	4048	8382	12757	16815	19682	21964	9.4	12.3	7.2	2.7	
Hydro	436	416	437	427	485	492	497	509	523	0.0	1.0	0.3	0.5	
Biomass & Waste	627	1539	2104	3340	4933	6263	7829	9311	10458	12.9	8.9	4.7	2.9	
Wind	1	34	81	250	2621	4442	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	342	1558	2346	2574	3006	8.1	40.7	21.2	2.5	
Geothermal	1	1	1	1	2	3	5	6	8	0.0	7.6	11.3	4.9	
Net Imports	5932	-36021	-39030	32641	46833	101560	127790	128386	129231				10.6	
Solids	9122	10493	14577	27467	23692	21623	13551	12815	13262	4.8	5.0	-5.4	-0.2	
Oil	-10396	-48554	-45515	-2171	15307	40817	58600	60032	62182				14.4	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	20545	46069	64654	67594	69756				12.1	
- Oil products	-5858	-12196	-6490	-7027	-5238	-5251	-6053	-7562	-7574					
Natural gas	6178	637	-9311	5973	6015	36271	49445	48459	46207				23.4	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	215417	212159	205005	202741	205360	0.9	-0.7	-0.5	0.0	
Solids	64305	45866	36816	38186	34192	30623	19539	18914	19262	-5.4	-0.7	-5.4	-0.1	
Oil	80903	82378	81357	82701	83266	83741	81495	77906	78052	0.1	0.2	-0.2	-0.4	
Natural gas	47203	65119	87399	84898	69015	66271	73445	66459	61207	6.4	-2.3	0.6	-1.8	
Nuclear	16574	21249	21942	21054	18742	15918	7517	12701	17297	2.8	-1.6	-8.7	8.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	9352	14682	22177	26059	29126	9.4	13.5	9.0	2.8	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	15.9	14.4	9.5	9.3	9.4					
Oil	38.3	37.8	35.2	35.6	38.7	39.5	39.8	38.4	38.0					
Natural gas	22.4	29.9	37.8	36.6	32.0	31.2	35.8	32.8	29.8					
Nuclear	7.9	9.7	9.5	9.1	8.7	7.5	3.7	6.3	8.4					
Renewable energy forms	0.5	0.9	1.1	2.0	4.3	6.9	10.8	12.9	14.2					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	379895	385281	403224	461137	515090	1.7	0.1	0.6	2.5	
Self consumption and grid losses	44516	46573	48246	50822	45993	44690	46237	56413	63234	0.8	-0.5	0.1	3.2	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	50211	47793	48298	47546	49340	-0.1	-1.0	-0.4	0.2	
Solids	47267	33844	27232	30920	27146	23836	13232	13725	14666	-5.4	0.0	-6.9	1.0	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	48	0	-19.6			-3.3	
Gas (including derived gases)	1668	12054	26033	26807	20392	20272	28140	24424	23649	31.6	-2.4	3.3	-1.7	
Biomass & Waste	212	620	1410	3455	2673	3684	6926	9349	11023	20.9	6.6	10.0	4.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	96147	98498	98934	96826	97079	0.1	-0.4	0.3	-0.2	
Refineries	89882	94255	89299	87320	88865	90352	89429	87635	87933	-0.1	0.0	0.1	-0.2	
Biofuels and hydrogen production	0	0	0	80	1478	2861	4714	5143	5559				12.3	
District heating	0	0	3354	1976	1007	721	624	439	308				-4.7	
Derived gases, cokeries etc.	9263	8079	7682	5436	4797	4564	4166	3610	3279	-1.9	-4.6	-1.4	-2.4	
Energy Branch Consumption	12836	14401	15039	15383	12951	12321	12396	11921	11525	1.6	-1.5	-0.4	-0.7	
Non-Energy Uses	11173	12550	11152	11510	11819	12179	12593	13005	13359	0.0	0.6	0.6	0.6	
Final Energy Demand	136947	142429	151665	151500	146952	147847	147657	144843	144747	1.0	-0.3	0.0	-0.2	
by sector														
Industry	34962	35132	35909	33889	33770	34358	34614	34881	35332	0.3	-0.6	0.2	0.2	
- energy intensive industries	19483	19965	19215	16289	16387	16663	16527	16314	16248	-0.1	-1.6	0.1	-0.2	
- other industrial sectors	15479	15167	16694	17600	17384	17696	18087	18566	19084	0.8	0.4	0.4	0.5	
Residential	37939	39567	43072	43284	38891	38099	37343	36176	34816	1.3	-1.0	-0.4	-0.7	
Tertiary	18596	20863	20359	19170	17312	16803	16519	16416	16216	0.9	-1.6	-0.5	-0.2	
Transport	45451	46867	52324	55236	56979	58587	59181	57369	58383	1.4	0.9	0.4	-0.1	
by fuel														
Solids	12266	8891	5683	4422	4787	4779	4495	3579	3189	-7.4	-1.7	-0.6	-3.4	
Oil	58770	60197	62437	65731	67492	67660	65170	61416	61398	0.6	0.8	-0.3	-0.6	
Gas	41893	47140	52180	49853	42048	39889	38803	36265	32144	2.2	-2.1	-0.8	-1.9	
Electricity	23597	25274	28325	29686	28737	29407	30801	34742	38463	1.8	0.1	0.7	2.2	
Heat (from CHP and District Heating)	0	0	2439	1317	1067	1196	1515	1831	1967				-7.9	
Renewable energy forms	421	926	600	572	2819	4907	6858	6993	7567	3.6	16.7	9.3	1.0	
Other	0	0	0	0	4	7	15	17	19				14.7	
RES in Gross Final Energy Consumption ^(A)			1537	2483	7666	12800	19985	23587	26382		17.4	10.1	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	631.5	601.9	563.8	512.2	487.2	-1.1	-0.9	-1.1	-1.5	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	506.4	486.5	451.4	420.8	409.4	-0.4	-0.8	-1.1	-1.0	
Power generation/District heating	214.2	173.6	181.2	193.8	157.9	143.6	119.9	112.8	114.3	-1.7	-1.4	-2.7	-0.5	
Energy Branch	27.9	31.9	33.1	34.6	28.3	27.3	25.5	25.1	23.7	1.7	-1.6	-0.3	-1.5	
Industry	81.8	78.8	70.5	65.5	65.7	67.0	64.7	61.1	60.0	-1.5	-0.7	-0.2	-0.7	
Residential	77.8	77.3	81.9	79.7	69.6	63.9	58.4	48.8	38.6	0.5	-1.6	-1.7	-4.0	
Tertiary	32.9	35.2	26.7	24.3	21.0	19.2	18.4	17.2	15.8	-2.1	-2.4	-1.3	-1.5	
Transport	132.4	136.5	152.7	161.8	163.9	165.5	162.6	155.7	157.1	1.4	0.7	-0.1	-0.3	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.0	26.9	27.2	26.9	27.3	-1.5	1.3	0.1	0.0	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	88.5	85.1	64.4	50.4	-3.9	-2.2	-1.4	-5.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	81.4	77.6	72.7	66.0	62.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: Cost Efficiency with JI/CDM Scenario												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	105.9	92.7	80.1	71.7	67.0	-1.5	-3.1	-2.8	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.35	2.29	2.20	2.08	1.99	-1.3	0.0	-0.7	-1.0
Import Dependency %	2.8	-16.3	-16.7	13.9	21.5	47.4	61.7	62.7	62.3				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	152.3	170.0	190.8	206.1	216.6		0.9	2.3	1.3
as % of GDP			8.7	7.4	7.5	7.4	7.5	7.3	7.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.5	87.5	81.5	76.2	73.0	-0.6	-0.7	-1.4	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	69.6	60.9	53.6	47.2	42.0	-1.4	-3.6	-2.6	-2.4
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	61.3	52.1	45.1	40.2	36.3	-2.2	-4.8	-3.0	-2.2
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.5	42.2	40.8	37.3	36.9	0.3	-0.9	-0.6	-1.0
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	57.7	56.5	53.8	51.8	50.1	-0.5	1.1	-0.7	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.40	0.36	0.28	0.23	0.21	-4.0	-1.2	-3.4	-2.9
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.18	2.13	2.06	1.95	1.88	-0.8	0.0	-0.6	-0.9
Industry	2.34	2.24	1.96	1.93	1.95	1.95	1.87	1.75	1.70	-1.7	-0.1	-0.4	-0.9
Residential	2.05	1.95	1.90	1.84	1.79	1.68	1.56	1.35	1.11	-0.7	-0.6	-1.3	-3.4
Tertiary	1.77	1.69	1.31	1.27	1.22	1.14	1.11	1.05	0.97	-3.0	-0.8	-0.9	-1.3
Transport	2.91	2.91	2.92	2.93	2.88	2.82	2.75	2.71	2.69	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	5.1	8.4	13.2	15.7	17.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.3	9.0	10.0	10.8				
Gross Electricity generation by source (in GWh)													
			374308	397522	379895	385281	403224	461137	515090		0.1	0.6	2.5
Nuclear energy			85048	81603	72657	61709	29140	53272	77209		-1.6	-8.7	10.2
Solids			118129	134618	119438	104988	58366	79272	87115		0.1	-6.9	4.1
Oil (including refinery gas)			7147	7622	104	104	106	324	1243		-34.5	0.2	27.9
Gas (including derived gases)			153298	152495	139816	142560	203570	191886	196271		-0.9	3.8	-0.4
Biomass-waste			4653	13308	11743	17215	31048	40761	48003		9.7	10.2	4.5
Hydro (pumping excluded)			5085	4960	5635	5715	5783	5921	6076		1.0	0.3	0.5
Wind			947	2907	30477	51657	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	1283	3761	4891	6267				5.2
Net Generation Capacity in MW_e			84356	90824	102008	109952	104264	119996	133272		1.9	0.2	2.5
<u>Nuclear energy</u>			130388	11837	10723	9265	4412	7059	9202		-1.9	-8.5	7.6
<u>Renewable energy</u>			1758	3009	12000	20587	30286	35942	39652		21.2	9.7	2.7
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10510	18381	26741	31717	34573		38.5	9.8	2.6
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	666	1952	2538	3252				5.2
<u>Thermal power</u>			69560	75978	79285	80100	69567	76996	84418		1.3	-1.3	2.0
of which cogeneration units			6116	8041	7052	8770	11695	14173	16040		1.4	5.2	3.2
Solids fired			30684	30627	28669	23771	7478	9798	10497		-0.7	-12.6	3.4
Gas fired			27319	33944	38246	41652	41961	46464	52941		3.4	0.9	2.4
Oil fired			10540	9879	9357	9164	7715	3410	1873		-1.2	-1.9	-13.2
Biomass-waste fired			1017	1528	3013	5511	12413	17324	19107		11.5	15.2	4.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	40.8	38.7	42.8	42.2	42.5				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.4	47.7	52.2	56.5	58.0				
% of gross electricity from CHP			9.0	8.5	11.2	14.6	19.9	20.6	20.7				
Carbon free gross electricity generation (%)			25.6	25.9	31.7	35.7	35.0	41.1	44.7				
- nuclear			22.7	20.5	19.1	16.0	7.2	11.6	15.0				
- renewable energy forms			2.9	5.3	12.6	19.7	27.8	29.6	29.8				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	968.1	1029.9	1086.4	1144.2	1193.2	1.3	1.4	1.2	0.9
Public road transport	46.2	44.3	47.0	48.8	51.1	52.5	54.5	55.9	56.9	0.2	0.8	0.7	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	723.3	758.8	790.6	827.2	857.6	0.9	1.2	0.9	0.8
Rail	39.9	37.1	46.7	51.8	57.5	62.8	68.5	73.9	80.0	1.6	2.1	1.8	1.6
Aviation	49.3	66.8	94.0	110.0	129.8	149.3	166.1	180.4	192.0	6.7	3.3	2.5	1.5
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.6	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	257.9	268.2	276.3	283.5	287.3	1.1	0.6	0.7	0.4
Trucks	145.7	161.5	165.6	167.5	170.8	179.3	185.6	191.5	194.4	1.3	0.3	0.8	0.5
Rail	16.0	13.3	18.1	22.1	24.8	26.4	27.9	28.9	29.6	1.2	3.2	1.2	0.6
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.5	62.9	63.1	63.2	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	56979	58587	59181	57369	58383	1.4	0.9	0.4	-0.1
Public road transport	514	493	518	490	482	481	482	481	479	0.1	-0.7	0.0	-0.1
Private cars and motorcycles	25438	25836	27031	25783	25683	25840	25704	25481	25967	0.6	-0.5	0.0	0.1
Trucks	10387	10366	11277	13316	13172	13349	13180	13209	13214	0.8	1.6	0.0	0.0
Rail	1063	1233	1464	1532	1621	1457	1284	1093	831	3.2	1.0	-2.3	-4.3
Aviation	6779	7822	11115	12847	14744	16191	17286	15887	16694	5.1	2.9	1.6	-0.3
Inland navigation	1269	1117	920	1269	1278	1269	1245	1218	1197	-3.2	3.3	-0.3	-0.4

Source: PRIMES

United Kingdom: Cost Efficiency with JI/CDM Scenario							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	112675	79320	78260	4609	3881	7504	4.3	5.1	10.6
Solids	54125	18577	12172	9000	5988	6000	0	-2012	0	0.0	-25.2	0.0
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	0	0.0	0.0	0.0
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Renewable energy sources	1070	2635	4048	12757	16815	21964	4609	5893	6462	56.6	54.0	41.7
Hydro	436	437	427	492	497	523	56	45	0	12.7	10.0	0.0
Biomass & Waste	627	2104	3340	6263	7829	10458	289	477	773	4.8	6.5	8.0
Wind	1	81	250	4442	6138	7970	3083	3657	3611	226.7	147.4	82.8
Solar and others	5	11	30	1558	2346	3006	1180	1711	2074	312.7	269.1	222.3
Geothermal	1	1	1	3	5	8	1	3	5	86.1	162.9	206.1
Net Imports	5932	-39030	32641	101560	127790	129231	-24267	-24957	-30286	-19.3	-16.3	-19.0
Solids	9122	14577	27467	21623	13551	13262	-12223	-17786	-14271	-36.1	-56.8	-51.8
Oil	-10396	-45515	-2171	40817	58600	62182	-2936	-6636	-12660	-6.7	-10.2	-16.9
- Crude oil and Feedstocks	-4537	-39025	4856	46069	64654	69756	-2960	-5871	-10391	-6.0	-8.3	-13.0
- Oil products	-5858	-6490	-7027	-5251	-6053	-7574	24	-765	-2270	-0.4	14.5	42.8
Natural gas	6178	-9311	5973	36271	49445	46207	-9858	-4452	-8613	-21.4	-8.3	-15.7
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	212159	205005	205360	-19655	-21067	-22770	-8.5	-9.3	-10.0
Solids	64305	36816	38186	30623	19539	19262	-12223	-19798	-14271	-28.5	-50.3	-42.6
Oil	80903	81357	82701	83741	81495	78052	-2933	-6627	-12648	-3.4	-7.5	-13.9
Natural gas	47203	87399	84898	66271	73445	61207	-9858	-4452	-8613	-12.9	-5.7	-12.3
Nuclear	16574	21942	21054	15918	7517	17297	0	0	1041	0.0	0.0	6.4
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	14682	22177	29126	5359	9810	11721	57.5	79.3	67.3
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	14.4	9.5	9.4	-4.0	-7.9	-5.3			
Oil	38.3	35.2	35.6	39.5	39.8	38.0	2.1	0.8	-1.8			
Natural gas	22.4	37.8	36.6	31.2	35.8	29.8	-1.6	1.4	-0.8			
Nuclear	7.9	9.5	9.1	7.5	3.7	8.4	0.6	0.3	1.3			
Renewable energy forms	0.5	1.1	2.0	6.9	10.8	14.2	2.9	5.3	6.6			
Gross Electricity Generation in GWh_e	316937	374308	397522	385281	403224	515090	-46235	-48271	35866	-10.7	-10.7	7.5
Self consumption and grid losses	44516	48246	50822	44690	46237	63234	-6148	-9964	2681	-12.1	-17.7	4.4
Fuel Inputs to Thermal Power Generation	56319	55481	61996	47793	48298	49340	-17446	-16628	-5457	-26.7	-25.6	-10.0
Solids	47267	27232	30920	23836	13232	14666	-12286	-19644	-13667	-34.0	-59.8	-48.2
Oil (including refinery gas)	7172	806	815	0	0	0	0	0	0		-16.4	41.8
Gas (including derived gases)	1668	26033	26807	20272	28140	23649	-5584	46	2793	-21.6	0.2	13.4
Biomass & Waste	212	1410	3455	3684	6926	11023	423	2971	5417	13.0	75.1	96.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	98498	98934	97079	-2694	-5094	-10230	-2.7	-4.9	-9.5
Refineries	89882	89299	87320	90352	89429	87933	-2959	-5871	-10391	-3.2	-6.2	-10.6
Biofuels and hydrogen production	0	0	80	2861	4714	5559	277	872	474	10.7	22.7	9.3
District heating	0	3354	1976	721	624	308	-175	-166	-328	-19.5	-21.0	-51.6
Derived gases, cokeries etc.	9263	7682	5436	4564	4166	3279	163	71	14	3.7	1.7	0.4
Energy Branch Consumption	12836	15039	15383	12321	12396	11525	-1109	-1204	-1446	-8.3	-8.9	-11.1
Non-Energy Uses	11173	11152	11510	12179	12593	13359	-9	-6	-2	-0.1	0.0	0.0
Final Energy Demand	136947	151665	151580	147847	147657	144747	-7787	-10778	-17411	-5.0	-6.8	-10.7
by sector												
Industry	34962	35909	33889	34358	34614	35332	-788	-1285	-1345	-2.2	-3.6	-3.7
- energy intensive industries	19483	19215	16289	16663	16527	16248	-177	-471	-424	-1.1	-2.8	-2.5
- other industrial sectors	15479	16694	17600	17696	18087	19084	-611	-814	-921	-3.3	-4.3	-4.6
Residential	37939	43072	43284	38099	37343	34816	-2636	-2978	-4746	-6.5	-7.4	-12.0
Tertiary	18596	20359	19170	16803	16519	16216	-2188	-2713	-3286	-11.5	-14.1	-16.8
Transport	45451	52324	55236	58587	59181	58383	-2175	-3802	-8035	-3.6	-6.0	-12.1
by fuel												
Solids	12266	5683	4422	4779	4495	3189	158	-185	-263	3.4	-4.0	-7.6
Oil	58770	62437	65731	67660	65170	61398	-2830	-6391	-12081	-4.0	-8.9	-16.4
Gas	41893	52180	49853	39889	38803	32144	-3339	-3741	-10611	-7.7	-8.8	-24.8
Electricity	23597	28325	29686	29407	30801	38463	-3434	-3267	2900	-10.5	-9.6	8.2
Heat (from CHP and District Heating)	0	2439	1317	1196	1515	1967	42	206	402	3.6	15.8	25.7
Renewable energy forms	421	600	572	4907	6858	7567	1615	2599	2246	49.1	61.0	42.2
Other	0	0	0	7	15	19	0	1	-5	5.4	4.8	-19.9
RES in Gross Final Energy Consumption ^(A)		1537	2483	12800	19985	26382	5769	9858	11299	82.1	97.3	74.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	601.9	563.8	487.2	-88.6	-120.6	-125.2	-12.8	-17.6	-20.4
CO₂ Emissions (energy related)	566.9	546.0	559.7	486.5	451.4	409.4	-79.8	-108.5	-114.4	-14.1	-19.4	-21.8
Power generation/District heating	214.2	181.2	193.8	143.6	119.9	114.3	-62.1	-78.0	-48.9	-30.2	-39.4	-30.0
Energy Branch	27.9	33.1	34.6	27.3	27.5	23.7	-2.1	-1.7	-3.3	-7.2	-5.7	-12.2
Industry	81.8	70.5	65.5	67.0	64.7	60.0	0.5	-2.6	-4.8	0.7	-3.8	-7.3
Residential	77.8	81.9	79.7	63.9	58.4	38.6	-6.6	-9.8	-26.2	-9.4	-14.4	-40.5
Tertiary	32.9	26.7	24.3	19.2	18.4	15.8	-2.4	-2.9	-5.1	-11.0	-13.5	-24.5
Transport	132.4	152.7	161.8	165.5	162.6	157.1	-7.0	-13.5	-26.1	-4.1	-7.7	-14.3
CO₂ Emissions (non energy related)	27.5	23.7	26.8	26.9	27.2	27.3	-0.4	-0.5	-0.9	-1.4	-1.9	-3.2
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	88.5	85.1	50.4	-8.4	-11.6	-9.8	-8.7	-12.0	-16.3
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	77.6	72.7	62.8	-11.4	-15.5	-16.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: Cost Efficiency with JI/CDM Scenario					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	92.7	80.1	67.0	-8.6	-8.2	-7.4	-8.5	-9.3	-10.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.29	2.20	1.99	-0.15	-0.27	-0.30	-6.1	-11.1	-13.2
Import Dependency %	2.8	-16.7	13.9	47.4	61.7	62.3	-6.4	-5.2	-7.0			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	170.0	190.8	216.6	6.1	9.7	10.4	3.7	5.3	5.0
as % of GDP		8.7	7.4	7.4	7.5	7.1	0.3	0.4	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				6.2	9.9	10.6						
as % of GDP				0.27	0.38	0.34						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	87.5	81.5	73.0	-2.0	-3.0	-2.8	-2.2	-3.6	-3.7
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	60.9	53.6	42.0	-4.2	-4.3	-5.7	-6.5	-7.4	-12.0
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	52.1	45.1	36.3	-6.8	-7.4	-7.3	-11.5	-14.1	-16.8
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	42.2	40.8	36.9	-0.8	-1.3	-4.4	-1.8	-3.0	-10.6
Freight transport (toe/Mtkm)	54.4	51.5	59.8	56.5	53.8	50.1	-1.9	-3.7	-3.9	-3.3	-6.4	-7.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.36	0.28	0.21	-0.10	-0.14	-0.12	-22.3	-32.9	-35.2
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.13	2.06	1.88	0.01	-0.04	-0.18	0.3	-2.0	-8.9
Industry	2.34	1.96	1.93	1.95	1.87	1.70	0.06	0.00	-0.07	3.0	-0.3	-3.8
Residential	2.05	1.90	1.84	1.68	1.56	1.11	-0.05	-0.13	-0.53	-3.1	-7.6	-32.3
Tertiary	1.77	1.31	1.27	1.14	1.11	0.97	0.01	0.01	-0.10	0.6	0.7	-9.1
Transport	2.91	2.92	2.93	2.82	2.75	2.69	-0.01	-0.05	-0.07	-0.5	-1.7	-2.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	8.4	13.2	17.6	4.0	7.0	8.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	5.3	9.0	10.8	0.7	2.1	1.8			
Gross Electricity generation by source (in GWh_e)												
	374308	397522	385281	403224	515090	46235	-48271	35866	-10.7	-10.7	7.5	
Nuclear energy	85048	81603	61709	29140	77209	0	0	4674	0.0	0.0	6.4	
Solids	118129	134618	104988	58366	87115	-54031	-114636	-74259	-34.0	-66.3	-46.0	
Oil (including refinery gas)	7147	7622	104	106	1243	0	-1	1154	0.0	-0.5	1292.0	
Gas (including derived gases)	153298	152495	142560	203570	196271	-32573	9295	37402	-18.6	4.8	23.5	
Biomass-waste	4653	13308	17215	31048	48003	2593	11503	22016	17.7	58.9	84.7	
Hydro (pumping excluded)	5085	4960	5715	5783	6076	646	525	0	12.7	10.0	0.0	
Wind	947	2907	51657	71371	92670	35847	42524	41988	226.7	147.4	82.8	
Solar	1	8	50	79	236	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	1283	3761	6267	1283	2518	2891		202.7	85.6	
Net Generation Capacity in MW_e	84356	90824	109952	104264	133272	15153	8090	24476	16.0	8.4	22.5	
<u>Nuclear energy</u>	13038	11837	9265	4412	9202	0	0	540	0.0	0.0	6.2	
<u>Renewable energy</u>	1758	3009	20587	30286	39652	13459	17791	18009	188.8	142.4	83.2	
Hydro (pumping excluded)	1350	1437	1475	1514	1514	0	0	0	0.0	0.0	0.0	
Wind	406	1562	18381	26741	34573	12870	16484	16509	233.5	160.7	91.4	
Solar	2	11	66	105	313	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	666	1952	3252	589	1307	1500	764.4	202.7	85.6	
<u>Thermal power</u>	69560	75978	80100	69567	84418	1695	-9701	5927	2.2	-12.2	7.6	
of which cogeneration units	6116	8041	8770	11695	16040	367	2022	3104	4.4	20.9	24.0	
Solids fired	30684	30627	23771	7478	10497	0	-13286	-10307	0.0	-64.0	-49.5	
Gas fired	27319	33944	41652	41961	52941	-1028	-4228	4218	-2.4	-9.2	8.7	
Oil fired	10540	9879	9164	7715	1873	0	0	-2285	0.0	0.0	-54.9	
Biomass-waste fired	1017	1528	5511	12413	19107	2723	7812	14300	97.7	169.8	297.5	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	48.4	47.7	38.7	42.8	42.5	-11.4	-8.5	-5.5				
Efficiency of gross thermal power generation (%)	43.9	42.7	47.7	52.2	58.0	1.7	0.9	3.6				
% of gross electricity from CHP	9.0	8.5	14.6	19.9	20.7	2.0	5.8	5.0				
Carbon free gross electricity generation (%)	25.6	25.9	35.7	35.0	44.7	13.2	16.4	11.6				
- nuclear	22.7	20.5	16.0	7.2	15.0	1.7	0.8	-0.1				
- renewable energy forms	2.9	5.3	19.7	27.8	29.8	11.5	15.6	11.7				
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1029.9	1086.4	1193.2	-12.7	-21.7	-28.4	-1.2	-2.0	-2.3
Public road transport	46.2	47.0	48.8	52.5	54.5	56.9	0.9	1.4	1.7	1.8	2.6	3.0
Private cars and motorcycles	591.1	644.9	684.7	758.8	790.6	857.6	-11.3	-19.1	-26.7	-1.5	-2.4	-3.0
Rail	39.9	46.7	51.8	62.8	68.5	80.0	0.8	1.0	2.8	1.3	1.5	3.6
Aviation	49.3	94.0	110.0	149.3	166.1	192.0	-3.0	-5.0	-6.1	-2.0	-2.9	-3.1
Inland navigation	8.1	6.6	6.5	6.6	6.6	6.8	-0.1	-0.1	-0.1	-0.8	-0.8	-0.8
Freight transport activity (Gtkm)	217.5	243.7	250.8	268.2	276.3	287.3	-5.7	-8.4	-10.1	-2.1	-2.9	-3.4
Trucks	145.7	165.6	167.5	179.3	185.6	194.4	-6.4	-9.4	-11.4	-3.4	-4.8	-5.6
Rail	16.0	18.1	22.1	26.4	27.9	29.6	0.7	0.9	1.2	2.8	3.4	4.3
Inland navigation	55.8	60.0	61.2	62.5	62.9	63.2	0.0	0.1	0.1	0.0	0.2	0.2
Energy demand in transport (ktoe)	45451	52324	55236	58587	59181	58383	-2175	-3802	-8035	-3.6	-6.0	-12.1
Public road transport	514	518	490	481	482	479	-1	-5	-20	-0.3	-1.1	-3.9
Private cars and motorcycles	25438	27031	25783	25840	25704	25967	-788	-1232	-1677	-3.0	-4.6	-6.1
Trucks	10387	11277	13316	13349	13180	13214	-911	-1550	-1697	-6.4	-10.5	-11.4
Rail	1063	1464	1532	1457	1284	831	27	15	27	1.9	1.2	3.4
Aviation	6779	11115	12847	16191	17286	16694	-490	-1011	-4637	-2.9	-5.5	-21.7
Inland navigation	1269	920	1269	1269	1245	1197	-13	-19	-30	-1.0	-1.5	-2.5

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 8: High Oil & Gas prices Baseline

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: High Oil & Gas prices Baseline				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Annual % Change														
Primary Production	933011	946298	937567	896393	838713	782777	774386	760295	799771	0.0	-1.1	-0.8	0.3	
Solids	365918	277924	213693	196451	166526	155924	146214	136701	131952	-5.2	-2.5	-1.3	-1.0	
Oil	128809	170055	171665	132993	104438	77033	53078	44274	40786	2.9	-4.8	-6.5	-2.6	
Natural gas	162447	188965	207559	188021	168642	127037	112530	96128	82417	2.5	-2.1	-4.0	-3.1	
Nuclear	202589	223028	243761	257360	245217	243931	249193	245327	280175	1.9	0.1	0.2	1.2	
Renewable energy sources	73248	86325	100890	121568	153890	178852	213370	237864	264441	3.3	4.3	3.3	2.2	
Hydro	25101	28054	30374	26394	28650	28336	28930	29677	30182	1.9	-0.6	0.1	0.4	
Biomass & Waste	44737	54203	64774	82903	104351	121652	143344	157996	178631	3.8	4.9	3.2	2.2	
Wind	67	350	1913	6060	13078	28130	18733	34783	37981	39.8	21.2	8.0	3.0	
Solar and others	153	273	418	816	2221	4456	7122	9288	10957	10.6	18.2	12.4	4.4	
Geothermal	3190	3444	3412	5395	5589	5675	5846	6120	6689	0.7	5.1	0.4	1.4	
Net Imports	748677	730704	818875	975298	1067116	1164072	1184441	1202320	1187000	0.9	2.7	1.0	0.0	
Solids	79289	79183	98575	126702	155438	182061	194191	195096	196518	2.2	4.7	2.3	0.1	
Oil	530805	504448	525661	589611	602567	639604	651291	647622	644269	-0.1	1.4	0.8	-0.1	
- Crude oil and Feedstocks	503539	488479	507317	574313	600556	640906	660827	664553	667145	0.1	1.7	1.0	0.1	
- Oil products	27265	15969	18344	15298	2011	-1302	-9536	-16931	-22876	-3.9	-19.8			
Natural gas	135121	145288	192531	256828	305184	336118	330019	349507	334395	3.6	4.7	0.8	0.1	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1852180	1891673	1902544	1905098	1928425	0.4	0.8	0.3	0.1	
Solids	450105	364252	321399	320065	321964	337984	340405	331797	328470	-3.3	0.0	0.6	-0.4	
Oil	625464	642003	650399	665514	653356	661461	648086	634378	626710	0.4	0.0	-0.1	-0.3	
Natural gas	294905	333268	393417	444804	473826	463156	442549	445636	416812	2.9	1.9	-0.7	-0.6	
Nuclear	202589	223028	243761	257360	245217	243931	249193	245327	280175	1.9	0.1	0.2	1.2	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	156321	183674	221270	247033	275335	3.2	4.4	3.5	2.2	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	17.4	17.9	17.9	17.4	17.0					
Oil	37.9	38.9	38.0	36.7	35.3	35.0	34.1	33.3	32.5					
Natural gas	17.9	20.2	23.0	24.6	25.6	24.5	23.3	23.4	21.6					
Nuclear	12.3	13.5	14.2	14.2	13.2	12.9	13.1	12.9	14.5					
Renewable energy forms	4.5	5.2	5.9	6.8	8.4	9.7	11.6	13.0	14.3					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3591397	3830227	4065100	4230489	4396696	1.6	1.8	1.2	0.8	
Self consumption and grid losses	335093	353101	383382	407678	415097	435423	468729	497566	528670	1.4	0.8	1.2	1.2	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	417573	431191	428981	418291	402131	0.1	0.9	0.3	-0.6	
Solids	259913	233747	223114	229144	235624	252071	257063	252979	252923	-1.5	0.5	0.9	-0.2	
Oil (including refinery gas)	54361	51375	39172	29499	13026	11701	9924	3353	2355	-3.2	-10.4	-2.7	-13.4	
Gas (including derived gases)	56680	67840	102572	133257	136933	131636	120186	111827	85457	6.1	2.9	-1.3	-3.4	
Biomass & Waste	5861	9809	14969	26638	27184	30899	36776	44809	55496	9.8	6.1	3.1	4.2	
Geothermal heat	2774	2992	2939	4645	4806	4884	5032	5323	5900	0.6	5.0	0.5	1.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	829679	849576	853514	847610	846456	-0.2	0.1	0.3	-0.1	
Refineries	673810	699352	727451	749312	737145	751018	745963	739541	737554	0.8	0.1	0.1	-0.1	
Biofuels and hydrogen production	2	202	624	3206	16373	28515	43821	48830	53455	80.0	38.6	10.3	2.0	
District heating	33413	23351	19302	16177	18715	17466	16789	16106	15910	-5.3	-0.3	-1.1	-0.5	
Derived gases, cokeries etc.	127920	86079	71473	65511	57446	52577	46940	43133	39537	-5.7	-2.2	-2.0	-1.7	
Energy Branch Consumption	81962	88206	87583	93941	90235	88356	87397	87528	87648	0.7	0.3	-0.3	0.0	
Non-Energy Uses	96068	105319	109135	111706	116048	119855	121147	123306	124337	1.3	0.6	0.4	0.3	
Final Energy Demand	1070684	1066881	1112192	1166880	1235206	1276493	1293366	1315392	1329573	0.4	1.1	0.5	0.3	
by sector														
Industry	367505	325769	324835	324493	337745	350261	357117	364097	370350	-1.2	0.4	0.6	0.4	
- energy intensive industries	236724	213853	212264	209326	215818	220899	222025	223107	224210	-1.1	0.2	0.3	0.1	
- other industrial sectors	130780	111916	112571	115167	121927	129362	135092	140989	146140	-1.5	0.8	1.0	0.8	
Residential	264548	279716	287255	307013	319986	321225	319630	323670	324945	0.8	1.1	0.0	0.2	
Tertiary	159192	161639	160963	173669	186511	191262	193510	196404	198369	0.1	1.5	0.4	0.2	
Transport	279440	299758	339129	361705	390963	413746	423108	431223	435909	2.0	1.4	0.8	0.3	
by fuel														
Solids	130725	85607	61781	53475	55058	55959	55823	52804	50122	-7.2	-1.1	0.1	-1.1	
Oil	442561	455056	477166	492540	498344	506658	499101	495714	491440	0.8	0.4	0.0	-0.2	
Gas	227872	245996	267506	287197	304491	298966	287327	294964	293337	1.6	1.3	-0.6	0.2	
Electricity	184059	194149	217155	237501	264538	284678	301781	313440	324732	1.7	2.0	1.3	0.7	
Heat (from CHP and District Heating)	48744	45026	40988	41333	40638	42484	44076	45306	46459	-1.7	-0.1	0.8	0.5	
Renewable energy forms	36724	41048	47586	54833	72108	87692	105166	113029	123334	2.6	4.2	3.8	1.6	
Other	0	0	0	0	29	56	91	136	148			12.3	4.9	
RES in Gross Final Energy Consumption ^(A)			91114	104237	137484	164086	199595	224254	249479		4.2	3.8	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	5200.8	5253.4	5179.3	5026.8	4868.9	-0.9	0.2	0.0	-0.6	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3973.9	4030.5	3954.1	3881.2	3778.4	-0.6	0.4	0.0	-0.5	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1354.2	1401.5	1388.1	1328.8	1264.5	-1.1	0.3	0.2	-0.9	
Energy Branch	154.2	172.4	173.1	184.3	169.3	165.7	156.1	149.8	140.6	1.2	-0.2	-0.8	-1.0	
Industry	801.7	684.2	632.4	599.4	605.5	603.9	588.9	575.5	556.6	-2.3	-0.4	-0.3	-0.6	
Residential	507.7	482.4	466.1	483.1	481.4	462.4	440.8	439.3	432.2	-0.9	0.3	-0.9	-0.2	
Tertiary	304.7	274.8	242.0	254.6	256.1	250.9	242.6	237.9	233.3	-2.3	0.6	-0.5	-0.4	
Transport	810.0	870.4	987.6	1050.6	1107.4	1146.1	1137.6	1149.8	1151.1	2.0	1.2	0.3	0.1	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	326.8	334.0	339.3	345.3	349.5	-0.8	0.6	0.4	0.3	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	888.8	885.9	800.3	741.1	-2.1	-0.8	-0.2	-1.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	93.2	94.2	92.9	90.1	87.3					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)									EU27: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	149.0	134.6	121.3	110.3	103.2	-1.8	-1.3	-2.0	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.15	2.13	2.08	2.04	1.96	-0.9	-0.4	-0.3	-0.6
Import Dependency %	44.4	43.3	46.7	52.4	56.0	59.8	60.5	61.3	59.7				
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1305.5	1545.6	1791.3	1959.3	2106.2		2.9	3.2	1.6
as % of GDP			9.7	9.9	10.5	11.0	11.4	11.3	11.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.3	80.2	73.4	68.2	64.4	-2.7	-1.4	-1.7	-1.3
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	89.9	80.5	72.2	66.7	62.0	-1.3	-1.1	-2.2	-1.5
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	91.8	82.9	75.0	69.0	64.2	-2.3	-0.8	-2.0	-1.5
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.9	36.0	34.3	32.8	31.4	0.1	-0.6	-0.7	-0.9
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.7	50.1	48.8	47.7	46.8	0.3	0.0	-0.4	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.33	0.32	0.30	0.27	0.25	-2.0	-1.3	-0.9	-1.6
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	1.98	1.93	1.86	1.83	1.79	-0.8	-0.5	-0.6	-0.4
Industry	2.18	2.10	1.95	1.85	1.79	1.72	1.65	1.58	1.50	-1.1	-0.8	-0.8	-0.9
Residential	1.92	1.72	1.62	1.57	1.50	1.44	1.38	1.36	1.33	-1.7	-0.8	-0.9	-0.4
Tertiary	1.91	1.70	1.50	1.47	1.37	1.31	1.25	1.21	1.18	-2.4	-0.9	-0.9	-0.6
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.69	2.67	2.64	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	10.8	12.5	14.9	16.5	18.1				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.2	6.9	10.4	11.2	12.1				
Gross Electricity generation by source (in GWh)													
			2992030	3275359	3591397	3830227	4065100	4230489	4396696		1.8	1.2	0.8
Nuclear energy	944823	997519	951111	949646	976606	996436	1206450			0.1	0.3	2.1	
Solids	900381	918139	1046726	1180477	1290452	1346649	1379292			1.5	2.1	0.7	
Oil (including refinery gas)	176516	150480	78122	72857	63543	30368	23769			-7.8	-2.0	-9.4	
Gas (including derived gases)	535039	721024	886661	899738	847430	826253	662065			5.2	-0.5	-2.4	
Biomass-waste	54964	101813	132014	165363	200068	245043	285473			9.2	4.2	3.6	
Hydro (pumping excluded)	353182	306902	333139	329485	336392	345085	350959			-0.6	0.1	0.4	
Wind	22246	70469	152072	217830	327089	404456	441636			21.2	8.0	3.0	
Solar	117	1489	3731	6427	12155	23093	31692			41.4	12.5	10.1	
Geothermal and other renewables	4762	7525	7820	8405	11365	13104	15359			5.1	3.8	3.1	
Net Generation Capacity in MW_e			680864	739517	841327	882277	945831	1016366	1057487		2.1	1.2	1.1
<u>Nuclear energy</u>	135806	134187	125500	123772	115949	117340	140674			-0.8	-0.8	2.0	
<u>Renewable energy</u>	120596	151902	190246	218656	272101	315254	336588			4.7	3.6	2.1	
Hydro (pumping excluded)	107638	109284	111355	113045	114302	114886	115631			0.3	0.3	0.1	
Wind	12786	40822	74869	99021	145459	179471	192436			19.3	6.9	2.8	
Solar	172	1797	3782	6273	10684	18574	25187			36.2	10.9	9.0	
Other renewables (tidal etc.)	0	0	240	317	1656	2324	3333				21.3	7.2	
<u>Thermal power</u>	424462	453429	525582	539849	557781	583772	580225			2.2	0.6	0.4	
of which cogeneration units	123462	133684	129408	145365	159710	171280	174358			0.5	2.1	0.9	
Solids fired	191258	188695	189901	197350	203032	213912	206180			-0.1	0.7	0.2	
Gas fired	149738	181031	244808	260897	273066	284561	283471			5.0	1.1	0.4	
Oil fired	71858	67498	67112	49741	38038	30518	24234			-0.7	-5.5	-4.4	
Biomass-waste fired	10810	15216	22763	30860	42615	53741	65075			7.7	6.5	4.3	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	798	988	998	1001	1030	1041	1266			2.3	0.3	2.1	
Avg. Load factor of net power capacity (%)			47.4	47.8	46.4	47.3	46.8	45.2	45.1				
Efficiency of gross thermal power generation (%)			37.6	38.6	44.3	46.4	48.3	50.5	50.5				
% of gross electricity from CHP			12.7	12.8	16.9	19.0	19.7	20.5	19.1				
Carbon free gross electricity generation (%)			46.1	45.4	44.0	43.8	45.8	47.9	53.0				
- nuclear			31.6	30.5	26.5	24.8	24.0	23.6	27.4				
- renewable energy forms			14.5	14.9	17.5	19.0	21.8	24.4	25.6				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	555.6	498.3	514.0	529.0	540.4	558.0	586.6	610.5	630.3	-0.8	0.5	0.8	0.7
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5115.0	5432.9	5691.5	5954.9	6173.1	2.4	1.6	1.1	0.8
Rail	464.8	412.0	438.5	446.8	468.2	509.7	562.0	620.9	681.3	-0.6	0.7	1.8	1.9
Aviation	247.9	325.9	442.0	506.3	610.9	722.3	818.5	910.9	991.9	6.0	3.3	3.0	1.9
Inland navigation	57.0	55.4	49.4	48.9	49.4	50.1	51.8	53.4	54.7	-1.4	0.0	0.5	0.5
Freight transport activity (Gtkm)													
Trucks	1096.9	1279.3	1507.5	1790.0	2048.3	2246.9	2405.2	2553.2	2660.5	3.2	3.1	1.6	1.0
Rail	524.8	385.0	396.1	393.9	427.2	471.1	510.7	544.3	571.0	-2.8	0.8	1.8	1.1
Inland navigation	257.2	264.7	271.3	280.1	294.2	313.1	333.7	348.0	360.0	0.5	0.8	1.3	0.8
Energy demand in transport (ktoe)													
Public road transport	5216	4538	4464	4316	4259	4288	4395	4362	4264	-1.5	-0.5	0.3	-0.3
Private cars and motorcycles	148125	159084	174735	175721	183484	188364	189274	193185	196675	1.7	0.5	0.3	0.4
Trucks	80641	85832	99349	116963	129627	140262	146966	153161	158510	2.1	2.7	1.3	0.8
Rail	9605	9409	9710	9605	9764	9941	9723	9145	7813	0.1	0.1	0.0	-2.2
Aviation	28947	34014	45368	49744	58254	65097	66717	65232	62461	4.6	2.5	1.4	-0.7
Inland navigation	6905	6881	5503	5356	5575	5795	6034	6138	6185	-2.2	0.1	0.8	0.2

Source: PRIMES

Austria: High Oil & Gas prices Baseline											SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	8154	8638	9551	9780	10615	10799	10668	11120	11674	1.6	1.1	0.1	0.9	
Solids	644	305	293	0	18	18	18	18	18	-7.6	-24.4	0.1	0.0	
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8	
Natural gas	1097	1261	1533	1403	1479	1270	400	391	377	3.4	-0.4	-12.3	-0.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	5168	6001	6654	7422	8268	8891	9970	10481	11089	2.6	2.2	1.9	1.1	
Hydro	2709	3187	3598	3085	3252	2998	3297	3297	3297	2.9	-1.0	0.1	0.0	
Biomass & Waste	2440	2775	2973	4097	4572	5276	5943	6399	6995	2.0	4.4	2.7	1.6	
Wind	0	0	6	114	267	376	425	446	435		46.8	4.7	0.2	
Solar and others	15	36	64	92	168	233	293	324	345	15.7	10.2	5.7	1.7	
Geothermal	4	3	14	35	7	10	12	14	16	14.2	-6.2	5.7	2.8	
Net Imports	17086	17769	18853	24392	24451	25355	25266	25151	24691	1.0	2.6	0.3	-0.2	
Solids	3112	2543	3064	3958	3998	4274	4677	5125	5454	-0.2	2.7	1.6	1.6	
Oil	9521	10012	10703	13028	13045	13218	12801	12477	11974	1.2	2.0	-0.2	-0.7	
- Crude oil and Feedstocks	7878	8068	7704	7964	8200	8412	8501	8425	8277	-0.2	0.6	0.4	-0.3	
- Oil products	1643	1944	3000	5064	4845	4806	4300	4052	3696	6.2	4.9	-1.2	-1.5	
Natural gas	4443	5404	5253	7288	7230	7810	7820	7638	7368	1.7	3.2	0.8	-0.6	
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Gross Inland Consumption	24986	26722	28524	33980	35066	36155	35934	36270	36365	1.3	2.1	0.2	0.1	
Solids	4042	3336	3637	4050	4016	4292	4695	5143	5472	-1.1	1.0	1.6	1.5	
Oil	10596	11196	11882	14125	13895	13838	13081	12707	12164	1.2	1.6	-0.6	-0.7	
Natural gas	5184	6374	6519	8263	8709	9080	8220	8029	7745	2.3	2.9	-0.6	-0.6	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1	
Renewable energy forms	5204	6027	6605	7312	8144	8749	9809	10308	10900	2.4	2.1	1.9	1.1	
as % in Gross Inland Consumption														
Solids	16.2	12.5	12.7	11.9	11.5	11.9	13.1	14.2	15.0					
Oil	42.4	41.9	41.7	41.6	39.6	38.3	36.4	35.0	33.4					
Natural gas	20.7	23.9	22.9	24.3	24.8	25.1	22.9	22.1	21.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	20.8	22.6	23.2	21.5	23.2	24.2	27.3	28.4	30.0					
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	66547	72342	77870	83048	85948	2.0	1.0	1.6	1.0	
Self consumption and grid losses	4886	4995	5404	7536	6704	6875	7588	8609	9216	1.0	2.2	1.2	2.0	
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	4192	5441	5478	6033	6327	-0.2	0.7	2.7	1.5	
Solids	1510	1055	1236	1510	1326	1638	2175	2755	3036	-2.0	0.7	5.1	3.4	
Oil (including refinery gas)	488	489	287	270	391	363	246	170	177	-5.2	3.1	-4.5	-3.2	
Gas (including derived gases)	1776	2276	1974	2901	2127	2916	1887	1651	1417	1.1	0.8	-1.2	-2.8	
Biomass & Waste	237	455	428	786	345	519	1164	1449	1687	6.1	-2.1	12.9	3.8	
Geothermal heat	0	0	0	2	3	4	6	8	10			9.1	5.0	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11443	11404	11250	11743	12548	12231	11776	11575	11512	-0.2	1.1	-0.6	-0.2	
Refineries	9123	9170	8765	9080	9051	9033	8782	8655	8467	-0.4	0.3	-0.3	-0.4	
Biofuels and hydrogen production	2	5	9	42	349	593	966	1114	1285	17.5	44.6	10.7	2.9	
District heating	347	438	566	612	1064	668	240	148	143	5.0	6.5	-13.8	-5.1	
Derived gases, cokeries etc.	1971	1790	1910	2009	2084	1937	1788	1658	1617	-0.3	0.9	-1.5	-1.0	
Energy Branch Consumption	1639	1703	1750	2134	1953	1883	1800	1767	1711	0.7	1.1	-0.8	-0.5	
Non-Energy Uses	1401	1145	1386	1381	1412	1445	1470	1494	1514	-0.1	0.2	0.4	0.3	
Final Energy Demand	19057	20919	22913	27309	29312	30209	30364	30664	30664	1.9	2.5	0.4	0.1	
by sector														
Industry	6153	6474	7528	8825	9341	9518	9518	9436	9429	2.0	2.2	0.2	-0.1	
- energy intensive industries	4048	4038	4982	5533	5754	5752	5656	5484	5385	2.1	1.5	-0.2	-0.5	
- other industrial sectors	2105	2436	2546	3293	3588	3766	3861	3952	4043	1.9	3.5	0.7	0.5	
Residential	5755	6222	6042	6548	6941	7138	7119	7279	7350	0.5	1.4	0.3	0.3	
Tertiary	2544	3062	3304	3942	4391	4632	4677	4794	4785	2.6	2.9	0.6	0.2	
Transport	4603	5161	6038	7994	8639	8921	9051	9155	9101	2.7	3.6	0.5	0.1	
by fuel														
Solids	1718	1535	1415	1458	1465	1439	1354	1234	1149	-1.9	0.4	-0.8	-1.6	
Oil	7896	8728	9402	11774	11773	11775	11309	11133	10826	1.8	2.3	-0.4	-0.4	
Gas	2968	3607	4254	4936	5800	5582	5663	5679	5586	3.7	3.1	-0.2	-0.1	
Electricity	3669	3953	4474	4884	5334	5712	6060	6374	6573	2.0	1.8	1.3	0.8	
Heat (from CHP and District Heating)	614	848	1052	1260	1375	1426	1320	1376	1344	5.5	2.7	-0.4	0.2	
Renewable energy forms	2192	2248	2316	2996	3564	4272	4656	4864	5183	0.6	4.4	2.7	1.1	
Other	0	0	0	0	1	1	2	3	3			11.1	5.2	
RES in Gross Final Energy Consumption ^(A)			6285	6788	7665	8285	9435	9886	10407	2.0	2.1	1.0		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	97.5	98.7	95.9	95.0	93.1	0.5	1.4	-0.2	-0.3	
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	73.7	75.4	72.7	72.8	71.6	1.0	1.9	-0.1	-0.2	
Power generation/District heating	12.8	12.1	11.6	15.0	13.2	15.8	15.0	16.4	17.0	-1.0	1.3	1.4	1.2	
Energy Branch	3.8	4.0	4.2	4.6	4.4	4.2	3.9	3.7	3.5	1.0	0.3	-1.0	-1.0	
Industry	12.7	13.6	15.5	17.5	18.3	17.6	17.3	16.6	16.0	2.0	1.7	-0.6	-0.7	
Residential	9.8	9.7	8.8	9.0	8.8	8.4	7.8	7.7	7.6	-1.1	-0.1	-1.1	-0.3	
Tertiary	3.4	4.0	3.7	4.5	4.8	4.9	4.6	4.4	4.1	0.8	2.7	-0.4	-1.1	
Transport	12.7	14.6	17.2	23.1	24.3	24.5	24.0	23.9	23.3	3.1	3.5	-0.1	-0.3	
CO₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.6	9.4	9.1	9.1	9.0	0.2	1.4	-0.5	0.0	
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	13.9	14.2	13.1	12.5	-1.1	-0.7	-0.1	-1.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	121.3	122.7	119.4	118.2	115.8					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	126.4	118.1	107.2	99.9	94.1	-1.2	0.1	-1.6	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.10	2.09	2.02	2.01	1.97	-0.3	-0.2	-0.4	-0.3
Import Dependency %	68.4	66.5	66.1	71.8	69.7	70.1	70.3	69.3	67.9				
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	27.8	33.1	38.1	41.3	43.7		3.8	3.2	1.4
as % of GDP			8.4	9.5	10.0	10.8	11.4	11.4	11.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.8	91.5	83.3	76.0	71.3	-0.6	0.0	-1.8	-1.5
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	96.2	89.9	82.2	77.8	74.0	-1.6	-0.4	-1.6	-1.0
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	109.0	103.8	95.5	90.1	84.5	0.1	0.9	-1.3	-1.2
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	39.2	38.3	36.8	35.4	33.3	0.1	2.4	-0.6	-1.0
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	58.9	57.9	56.3	54.7	53.7	-0.8	2.6	-0.5	-0.5
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.16	0.17	0.16	0.16	0.17	-3.4	-0.1	0.2	0.4
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.92	1.83	1.77	1.72	1.67	-0.3	-0.3	-0.8	-0.6
Industry	2.06	2.10	2.06	1.98	1.96	1.85	1.82	1.76	1.70	0.0	-0.5	-0.8	-0.7
Residential	1.71	1.55	1.46	1.37	1.26	1.18	1.10	1.06	1.03	-1.6	-1.4	-1.4	-0.6
Tertiary	1.34	1.32	1.12	1.15	1.09	1.06	0.99	0.91	0.86	-1.8	-0.2	-1.0	-1.4
Transport	2.75	2.82	2.85	2.89	2.81	2.75	2.65	2.61	2.56	0.3	-0.1	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	25.5	26.8	30.3	31.4	33.0				
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.2	10.0	11.5	13.4				
Gross Electricity generation by source (in GWh)													
			60150	62969	66547	72342	77870	83048	85948		1.0	1.6	1.0
Nuclear energy			0	0	0	0	0	0	0				
Solids			4642	5863	6114	7652	10740	14217	15854		2.8	5.8	4.0
Oil (including refinery gas)			1220	1452	3183	3183	2542	2151	2151		10.1	-2.2	-1.7
Gas (including derived gases)			10541	14513	12515	17125	12783	12504	12487		1.7	0.2	-0.2
Biomass-waste			1845	3929	3766	5069	8356	10397	11700		7.4	8.3	3.4
Hydro (pumping excluded)			41832	35868	37818	34856	38342	38342	38342		-1.0	0.1	0.0
Wind			67	1328	3109	4368	4943	5184	5061		46.8	4.7	0.2
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1
Geothermal and other renewables			0	3	4	6	8	10	13			7.1	4.4
Net Generation Capacity in MW_e			16771	17685	20920	23417	25415	25819	25548		2.2	2.0	0.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			10792	11287	12018	13405	14581	15045	15636		1.1	2.0	0.7
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3
Wind			77	817	1368	2098	2630	2767	3062		33.3	6.8	1.5
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5978	6397	8902	10012	10834	10775	9912		4.1	2.0	-0.9
of which cogeneration units			3067	3657	3963	4871	5704	6063	5840		2.6	3.7	0.2
Solids fired			1600	1587	1460	1462	2154	2008	1968		-0.9	4.0	-0.9
Gas fired			2916	3267	5375	6433	6242	6188	5352		6.3	1.5	-1.5
Oil fired			1167	1158	1602	1353	838	652	468		3.2	-6.3	-5.7
Biomass-waste fired			295	384	464	763	1598	1925	2122		4.6	13.2	2.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	1	1	1	2	2	3			5.2	3.7
Avg. Load factor of net power capacity (%)			39.8	38.3	34.7	34.0	33.7	35.3	36.8				
Efficiency of gross thermal power generation (%)			40.0	40.5	52.5	52.2	54.1	56.0	57.4				
% of gross electricity from CHP			12.3	20.6	27.4	33.1	34.5	36.6	37.3				
Carbon free gross electricity generation (%)			72.7	65.3	67.2	61.3	66.5	65.2	64.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			72.7	65.3	67.2	61.3	66.5	65.2	64.5				
Transport sector													
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	131.3	137.8	143.7	149.5	153.9	1.9	1.4	0.9	0.7
Public road transport	14.2	14.8	14.8	15.1	15.8	16.3	17.0	17.6	18.0	0.4	0.6	0.8	0.5
Private cars and motorcycles	65.2	73.8	81.3	85.8	93.2	96.4	98.6	101.0	102.3	2.2	1.4	0.6	0.4
Rail	11.5	12.7	11.8	12.3	13.2	14.4	15.5	16.5	17.3	0.3	1.1	1.6	1.1
Aviation	4.1	5.4	6.6	7.3	8.9	10.7	12.4	14.4	16.3	5.0	3.1	3.4	2.8
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.4	0.7	0.8
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	59.2	63.0	66.8	70.7	74.1	4.7	0.9	1.2	1.0
Trucks	20.3	26.5	35.1	37.0	39.4	41.4	43.2	45.4	47.3	5.6	1.1	0.9	0.9
Rail	12.2	13.2	16.6	17.1	18.1	19.7	21.5	23.0	24.5	3.2	0.8	1.8	1.3
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.3	3.9	-3.0	1.6	0.8
Energy demand in transport (ktoe)	4603	5161	6038	7994	8639	8921	9051	9155	9101	2.7	3.6	0.5	0.1
Public road transport	80	83	80	107	110	110	112	106	99	-0.1	3.3	0.1	-1.2
Private cars and motorcycles	2499	2643	2865	3890	4197	4198	4140	4062	3884	1.4	3.9	-0.1	-0.6
Trucks	1350	1675	2167	3004	3188	3333	3440	3549	3684	4.8	3.9	0.8	0.7
Rail	357	292	333	310	320	333	335	330	310	-0.7	-0.4	0.5	-0.8
Aviation	310	461	586	675	815	936	1013	1097	1113	6.6	3.3	2.2	0.9
Inland navigation	7	6	6	9	9	10	11	11	11	-1.5	4.3	1.3	0.7

Source: PRIMES

Belgium: High Oil & Gas prices Baseline						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	12529	11336	13366	14064	15076	14531	12730	6684	4490	0.6	1.2	-1.7	-9.9
Solids	1085	269	191	57	24	20	18	15	13	-16.0	-18.8	-3.0	-3.0
Oil	0	0	0	6	0	0	0	0	0				
Natural gas	10	0	2	0	0	0	0	0	0	-14.3			
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Renewable energy sources	728	726	751	1723	2128	2807	3644	4029	4477	0.3	11.0	5.5	2.1
Hydro	23	29	39	25	30	31	31	30	30	5.6	-2.7	0.4	-0.6
Biomass & Waste	702	694	706	1675	1874	2354	2933	3223	3625	0.0	10.3	4.6	2.1
Wind	1	1	1	20	197	343	545	607	622	7.9	65.3	10.7	1.3
Solar and others	1	1	1	3	26	77	133	167	198	2.1	38.1	17.8	4.0
Geothermal	1	1	4	1	2	2	2	2	2	14.0	-8.1	2.2	0.6
Net Imports	38857	43775	48651	48968	49881	50044	51109	54565	55940	2.3	0.3	0.2	0.9
Solids	9492	9343	7566	5511	5048	5688	7954	10952	12578	-2.2	-4.0	4.7	4.7
Oil	21468	23579	27331	28425	28666	27880	26978	26397	26291	2.4	0.5	-0.6	-0.3
- Crude oil and Feedstocks	26116	25674	32658	30565	32026	31763	31383	31176	31157	2.3	-0.2	-0.2	-0.1
- Oil products	-4648	-2096	-5328	-2141	-3360	-3882	-4404	-4779	-4866				
Natural gas	8217	10418	13278	14191	15223	15454	15142	16161	15987	4.9	1.4	-0.1	0.5
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Gross Inland Consumption	47258	50459	57168	54952	57177	56641	55681	52805	51722	1.9	0.0	-0.3	-0.7
Solids	10244	8551	8200	5450	5072	5708	7971	10967	12590	-2.2	-4.7	4.6	4.7
Oil	17730	19794	21949	20547	20885	19946	18821	17953	17583	2.2	-0.5	-1.0	-0.7
Natural gas	8169	10611	13369	14113	15223	15454	15142	16161	15987	5.0	1.3	-0.1	0.5
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Renewable energy forms	728	812	856	2022	2463	3228	4168	4605	5125	1.6	11.2	5.4	2.1
as % in Gross Inland Consumption													
Solids	21.7	16.9	14.3	9.9	8.9	10.1	14.3	20.8	24.3				
Oil	37.5	39.2	38.4	37.4	36.5	35.2	33.8	34.0	34.0				
Natural gas	17.3	21.0	23.4	25.7	26.6	27.3	27.2	30.6	30.9				
Nuclear	22.7	20.5	21.7	22.3	22.6	20.7	16.3	5.0	0.0				
Renewable energy forms	1.5	1.6	1.5	3.7	4.3	5.7	7.5	8.7	9.9				
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	95483	103111	111981	116332	119488	1.6	1.5	1.6	0.7
Self consumption and grid losses	7382	7778	7813	8244	8117	8957	10357	11747	12607	0.6	0.4	2.5	2.0
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	7421	8713	11253	15478	17404	1.3	0.0	4.3	4.5
Solids	3875	3764	3025	1889	1937	2705	5213	8362	10066	-2.4	-4.4	10.4	6.8
Oil (including refinery gas)	318	232	172	411	0	71	61	0	0	-6.0	-54.1	96.7	-48.5
Gas (including derived gases)	1983	2721	3790	4612	4250	4601	4508	5465	5270	6.7	1.2	0.6	1.6
Biomass & Waste	368	465	466	1388	1234	1337	1471	1652	2069	2.4	10.2	1.8	3.5
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	35155	32956	40739	38991	37897	37349	36808	36261	36177	1.5	-0.7	-0.3	-0.2
Refineries	29036	28632	37085	35792	34592	33910	33195	32657	32522	2.5	-0.7	-0.4	-0.2
Biofuels and hydrogen production	0	0	0	0	243	605	1079	1240	1346			16.1	2.2
District heating	10	5	41	27	68	45	41	36	36	15.2	5.3	-5.0	-1.2
Derived gases, cokeries etc.	6109	4320	3612	3173	2994	2789	2493	2328	2273	-5.1	-1.9	-1.8	-0.9
Energy Branch Consumption	2310	2273	2370	2127	1921	1897	1897	1931	1952	0.3	-2.1	-0.1	0.3
Non-Energy Uses	2739	3289	5814	4583	4266	4020	3915	3841	3774	7.8	-3.0	-0.9	-0.4
Final Energy Demand	31296	34489	36931	36403	38004	38203	37912	37584	37497	1.7	0.3	0.0	-0.1
by sector													
Industry	11886	12110	13636	11605	11816	11768	11518	11374	11341	1.4	-1.4	-0.3	-0.2
- energy intensive industries	9285	9192	10043	8751	8856	8786	8507	8314	8198	0.8	-1.2	-0.4	-0.4
- other industrial sectors	2600	2918	3593	2854	2960	2982	3010	3060	3144	3.3	-1.9	0.2	0.4
Residential	8337	9295	9465	9914	10121	10062	9822	9732	9638	1.3	0.7	-0.3	-0.2
Tertiary	3370	4604	4158	5005	5406	5384	5434	5382	5357	2.1	2.7	0.1	-0.1
Transport	7704	8480	9672	9880	10661	10990	11138	11096	11161	2.3	1.0	0.4	0.0
by fuel													
Solids	3787	3306	3378	2080	1860	1848	1736	1670	1608	-1.1	-5.8	-0.7	-0.8
Oil	14734	16248	16047	16443	16282	15632	14775	14196	13916	0.9	0.1	-1.0	-0.6
Gas	7249	8517	10010	10009	10777	10516	10094	9985	9983	3.3	0.7	-0.7	-0.1
Electricity	4986	5885	6667	6894	7829	8408	8969	9208	9369	2.9	1.6	1.4	0.4
Heat (from CHP and District Heating)	213	220	490	427	337	431	455	480	508	8.7	-3.7	3.0	1.1
Renewable energy forms	326	312	338	549	919	1366	1881	2042	2109	0.3	10.5	7.4	1.2
Other	0	0	0	0	1	1	3	4	4			15.2	2.3
RES in Gross Final Energy Consumption ^(A)			495	909	1921	2831	3749	4108	4493		14.5	6.9	1.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	142.7	143.7	148.2	160.8	166.0	0.4	-0.4	0.4	1.1
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	105.7	106.6	111.8	123.7	128.8	0.8	-0.9	0.6	1.4
Power generation/District heating	21.8	23.1	22.5	20.6	18.7	22.7	32.3	46.7	53.0	0.3	-1.9	5.6	5.1
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.6	3.4	3.2	3.1	0.3	-3.8	-1.2	-0.7
Industry	30.2	28.7	30.5	22.8	22.1	20.7	19.2	18.2	18.0	0.1	-3.2	-1.4	-0.6
Residential	18.7	20.1	20.0	20.3	19.4	18.3	16.6	16.0	15.3	0.7	-0.3	-1.5	-0.8
Tertiary	7.5	10.4	8.2	10.5	10.6	10.2	9.9	9.6	9.4	0.8	2.7	-0.7	-0.5
Transport	22.6	24.9	28.6	29.4	31.1	31.2	30.5	30.0	29.9	2.4	0.8	-0.2	-0.2
CO₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.0	9.9	9.8	9.5	0.9	-0.2	-0.1	-0.3
Non-CO₂ GHGs Emissions	26.7		23.1	23.6	27.1	27.1	26.6	27.4	27.7	-1.4	1.6	-0.2	0.4
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	100.4	101.1	104.2	113.1	116.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	170.2	151.6	136.1	118.7	108.3	-0.4	-1.9	-2.2	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.85	1.88	2.01	2.34	2.49	-1.1	-0.9	0.8	2.2
Import Dependency %	75.7	80.5	77.8	78.3	76.8	77.5	80.1	89.1	92.6				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	38.1	44.7	51.5	55.5	59.2		2.3	3.1	1.4
as % of GDP			10.9	10.6	11.3	12.0	12.6	12.5	12.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.2	71.4	64.9	59.7	55.6	-0.2	-2.4	-1.9	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	90.9	82.2	74.0	68.0	63.1	-0.9	-0.9	-2.0	-1.6
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	104.7	93.3	85.5	77.6	72.0	0.2	0.5	-2.0	-1.7
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.8	44.6	42.8	39.6	37.5	0.1	-0.3	-0.7	-1.3
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.9	47.8	47.6	48.1	48.4	-0.7	0.1	-0.1	0.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.19	0.21	0.27	0.38	0.42	-1.7	-3.1	3.9	4.4
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.19	2.10	2.01	1.96	1.94	-0.7	-0.8	-0.9	-0.4
Industry	2.54	2.37	2.24	1.97	1.87	1.76	1.66	1.60	1.59	-1.3	-1.8	-1.2	-0.5
Residential	2.24	2.16	2.11	2.05	1.92	1.82	1.69	1.64	1.59	-0.6	-1.0	-1.2	-0.6
Tertiary	2.23	2.26	1.96	2.09	1.97	1.90	1.83	1.79	1.76	-1.3	0.0	-0.7	-0.4
Transport	2.94	2.94	2.96	2.97	2.92	2.84	2.73	2.70	2.68	0.1	-0.2	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.0	7.3	9.6	10.6	11.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.5	9.7	10.8	11.6				
Gross Electricity generation by source (in GWh)													
			82639	85694	95483	103111	111981	116332	119488		1.5	1.6	0.7
Nuclear energy			48148	47586	50094	45361	35148	10232	0	0.4	-3.5		
Solids			12953	8552	8519	12062	27860	48059	58293	-4.1	12.6	7.7	
Oil (including refinery gas)			865	1871	83	743	658	196	127	-20.9	23.0	-15.2	
Gas (including derived gases)			18968	23608	28128	33532	33751	41419	42082	4.0	1.8	2.2	
Biomass-waste			1231	3561	6005	7026	7791	8914	11243	17.2	2.6	3.7	
Hydro (pumping excluded)			459	288	350	357	366	346	346	-2.7	0.4	-0.6	
Wind			15	227	2287	3991	6335	7057	7238	65.3	10.7	1.3	
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17974	19121	21512	22908	22673		2.2	1.8	0.5
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0	0.1	-3.5		
<u>Renewable energy</u>			319	467	1233	1970	3006	3403	3516	14.5	9.3	1.6	
Hydro (pumping excluded)			306	298	300	303	304	304	304	-0.2	0.1	0.0	
Wind			13	167	909	1616	2609	2957	3003	52.9	11.1	1.4	
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10868	11878	14410	18313	19157	2.7	2.9	2.9	
of which cogeneration units			1863	2324	3107	4360	4779	4988	5550	5.2	4.4	1.5	
Solids fired			1680	1392	1258	1532	3783	5995	7065	-2.8	11.6	6.4	
Gas fired			5522	6360	7858	8210	8311	10419	10470	3.6	0.6	2.3	
Oil fired			615	641	591	549	523	169	153	-0.4	-1.2	-11.6	
Biomass-waste fired			515	551	1161	1588	1794	1731	1469	8.5	4.4	-2.0	
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	58.6	59.5	57.1	55.2	57.2				
Efficiency of gross thermal power generation (%)			39.3	39.0	49.5	52.7	53.5	54.8	55.2				
% of gross electricity from CHP			7.3	7.2	16.8	22.5	22.7	24.3	26.4				
Carbon free gross electricity generation (%)			60.3	60.3	61.5	55.1	44.4	22.9	15.9				
- nuclear			58.3	55.5	52.5	44.0	31.4	8.8	0.0				
- renewable energy forms			2.1	4.8	9.1	11.1	13.0	14.1	15.9				
Transport sector													
Passenger transport activity (Gpkm)	113.7	126.3	139.3	153.2	166.2	173.9	179.4	185.5	190.7	2.0	1.8	0.8	0.6
Public road transport	10.9	13.1	13.3	17.6	18.5	18.8	19.4	19.8	20.0	2.0	3.4	0.5	0.3
Private cars and motorcycles	90.1	98.6	107.7	114.4	122.2	125.7	127.3	129.9	131.8	1.8	1.3	0.4	0.3
Rail	7.3	7.6	8.6	10.1	11.6	12.8	14.1	15.2	16.3	1.7	3.0	2.0	1.5
Aviation	4.6	6.4	9.3	10.8	13.5	16.2	18.3	20.2	22.1	7.2	3.8	3.1	1.9
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.1	0.5	0.4
Freight transport activity (Gtkm)	48.0	58.6	65.9	60.5	63.8	67.8	72.8	78.0	82.7	3.2	-0.3	1.3	1.3
Trucks	34.2	45.6	51.0	43.8	46.3	49.6	53.9	58.6	63.0	4.1	-1.0	1.5	1.6
Rail	8.4	7.3	7.7	8.1	8.5	9.0	9.5	9.8	10.0	-0.9	1.1	1.1	0.5
Inland navigation	5.4	5.7	7.2	8.6	9.0	9.2	9.5	9.6	9.8	2.8	2.2	0.5	0.3
Energy demand in transport (ktoe)	7704	8480	9672	9880	10661	10990	11138	11096	11161	2.3	1.0	0.4	0.0
Public road transport	165	164	170	173	181	178	178	171	160	0.3	0.6	-0.2	-1.1
Private cars and motorcycles	4075	4502	4794	5442	5776	5740	5606	5639	5413	1.6	1.9	-0.3	-0.3
Trucks	2205	2420	2858	2581	2721	2897	3117	3408	3686	2.6	-0.5	1.4	1.7
Rail	177	202	183	185	193	195	195	185	162	0.4	0.5	0.1	-1.8
Aviation	952	945	1530	1281	1564	1750	1809	1455	1501	4.9	0.2	1.5	-1.8
Inland navigation	129	247	136	217	226	230	235	237	238	0.5	5.2	0.4	0.2

Source: PRIMES

Bulgaria: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	9136	10192	9845	10611	9711	10685	13579	14523	15219	0.8	-0.1	3.4	1.1	
Solids	5121	5287	4310	4178	4637	5579	6405	5311	5581	-1.7	0.7	3.3	-1.4	
Oil	60	43	42	30	33	34	37	38	39	-3.5	-2.5	1.2	0.7	
Natural gas	11	40	12	384	237	153	157	143	122	1.3	34.4	-4.0	-2.5	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Renewable energy sources	161	370	792	1207	1283	1380	1506	1679	2125	17.2	5.0	1.6	3.5	
Hydro	161	151	230	373	250	285	295	317	341	3.6	0.9	1.7	1.5	
Biomass & Waste	0	219	562	801	951	1002	1104	1239	1623		5.4	1.5	3.9	
Wind	0	0	0	0	33	39	45	57	81			3.0	6.1	
Solar and others	0	0	0	0	5	14	28	41	57			19.9	7.2	
Geothermal	0	0	0	33	44	40	34	26	24			-2.7	-3.4	
Net Imports	17823	13475	8681	9416	10469	9591	9696	9996	10326	-6.9	1.9	-0.8	0.6	
Solids	3527	2424	2258	2550	2863	2723	2780	2769	2801	-4.4	2.4	-0.3	0.1	
Oil	8540	6511	4081	5086	5208	5453	5852	6158	6324	-7.1	2.5	1.2	0.8	
- Crude oil and Feedstocks	8247	8003	5346	6328	6980	7306	7824	8218	8439	-4.2	2.7	1.1	0.8	
- Oil products	292	-1492	-1265	-1242	-1772	-1853	-1972	-2061	-2115					
Natural gas	5430	4563	2742	2458	2637	1700	1753	1821	2019	-6.6	-0.4	-4.0	1.4	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Gross Inland Consumption	27964	23305	18610	19885	20046	20124	23110	24346	25366	-4.0	0.7	1.4	0.9	
Solids	8706	7673	6417	6892	7500	8302	9185	8079	8382	-3.0	1.6	2.0	-0.9	
Oil	9593	6245	4181	4847	5106	5336	5724	6023	6185	-8.0	2.0	1.2	0.8	
Natural gas	5395	4584	2932	2804	2873	1853	1910	1964	2141	-5.9	-0.2	-4.0	1.2	
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0	
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768					
Renewable energy forms	161	363	788	1181	1253	1348	1471	1640	2074	17.2	4.7	1.6	3.5	
as % in Gross Inland Consumption														
Solids	31.1	32.9	34.5	34.7	37.4	41.3	39.7	33.2	33.0					
Oil	34.3	26.8	22.5	24.4	25.5	26.5	24.8	24.7	24.4					
Natural gas	19.3	19.7	15.8	14.1	14.3	9.2	8.3	8.1	8.4					
Nuclear	13.5	19.1	25.2	24.2	17.6	17.6	23.7	30.2	29.0					
Renewable energy forms	0.6	1.6	4.2	5.9	6.3	6.7	6.4	6.7	8.2					
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	41331	46971	58616	64675	69825	-0.4	0.2	3.6	1.8	
Self consumption and grid losses	8456	8102	7245	7081	6497	7136	8143	8704	9309	-1.5	-1.1	2.3	1.3	
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	6700	6667	7575	6371	6907	-4.6	0.6	1.2	-0.9	
Solids	6800	6734	5245	5675	5912	6544	7477	6287	6843	-2.6	1.2	2.4	-0.9	
Oil (including refinery gas)	951	613	160	149	28	0	0	0	0	-16.3	-16.0			
Gas (including derived gases)	2352	1835	884	697	728	123	106	84	64	-9.3	-1.9	-17.5	-5.0	
Biomass & Waste	0	0	3	2	32	0	-7	0	0		25.4			
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	13079	11635	7612	8839	8584	8736	9125	9526	9857	-5.3	1.2	0.6	0.8	
Refineries	8341	8023	5406	6586	7207	7540	8061	8431	8632	-4.2	2.9	1.1	0.7	
Biofuels and hydrogen production	0	0	0	0	35	79	126	224	366			13.6	11.2	
District heating	2779	1544	324	370	427	333	299	301	335	-19.3	2.8	-3.5	1.1	
Derived gases, cokeries etc.	1960	2069	1882	1883	915	784	639	570	524	-0.4	-7.0	-3.5	-2.0	
Energy Branch Consumption	1359	1458	1146	1279	1503	1418	1526	1599	1643	-1.7	2.7	0.2	0.7	
Non-Energy Uses	1427	1236	1261	1059	1000	1056	1174	1249	1309	-1.2	-2.3	1.6	1.1	
Final Energy Demand	16138	11575	8861	9682	10477	11385	12466	13610	14555	-5.8	1.7	1.8	1.6	
by sector														
Industry	8966	6032	3637	3673	3632	3830	4225	4669	5115	-8.6	0.0	1.5	1.9	
- energy intensive industries	5579	4837	2814	2809	2796	2912	3140	3390	3637	-6.6	-0.1	1.2	1.5	
- other industrial sectors	3387	1195	823	864	836	919	1085	1279	1477	-13.2	0.2	2.6	3.1	
Residential	2264	2378	2363	2268	2349	2449	2612	2804	2953	0.4	-0.1	1.1	1.2	
Tertiary	2389	1189	1044	1181	1359	1472	1569	1657	1711	-7.9	2.7	1.4	0.9	
Transport	2518	1976	1817	2560	3138	3634	4060	4479	4776	-3.2	5.6	2.6	1.6	
by fuel														
Solids	1477	1280	860	936	1164	1141	1117	1202	1209	-5.3	3.1	-0.4	0.8	
Oil	4967	2893	2981	3599	4125	4461	4833	5157	5339	-5.0	3.3	1.6	1.0	
Gas	2066	1787	1231	1025	907	900	946	978	1106	-5.0	-3.0	0.4	1.6	
Electricity	3085	2639	2358	2383	2657	3040	3532	3922	4255	-2.7	1.2	2.9	1.9	
Heat (from CHP and District Heating)	4543	2798	877	939	702	859	949	1138	1300	-15.2	-2.2	3.1	3.2	
Renewable energy forms	0	178	555	800	921	983	1088	1212	1344		5.2	1.7	2.1	
Other	0	0	0	0	0	1	1	1	1			13.5	3.8	
RES in Gross Final Energy Consumption ^(A)			786	1182	1240	1330	1445	1597	1973		4.7	1.5	3.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	66.5	66.6	70.7	63.4	62.9	-5.4	0.5	0.6	-1.2	
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	48.4	50.1	55.0	51.4	53.6	-5.3	1.4	1.3	-0.3	
Power generation/District heating	44.8	38.2	24.9	26.2	27.2	28.1	31.8	26.8	29.1	-5.7	0.9	1.6	-0.9	
Energy Branch	1.6	1.4	1.3	1.6	1.9	1.9	1.9	1.9	1.0	-2.1	3.9	0.0	-6.4	
Industry	11.2	9.3	8.3	7.6	7.8	7.4	7.4	7.8	8.1	-2.9	-0.6	-0.5	0.9	
Residential	3.0	2.2	1.2	1.2	1.2	1.1	1.0	1.0	1.0	-8.9	0.1	-2.2	0.2	
Tertiary	4.7	1.4	1.2	1.1	1.2	1.4	1.3	1.4	1.4	-13.0	0.4	0.9	0.4	
Transport	7.1	5.6	5.2	7.4	9.1	10.4	11.5	12.5	13.0	-3.0	5.7	2.5	1.2	
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.6	5.0	5.7	6.4	-4.2	0.0	1.4	2.6	
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	11.9	10.8	6.3	2.9	-5.8	-1.8	-2.5	-12.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	60.8	60.9	64.6	57.9	57.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	718.0	547.2	468.9	373.5	298.7	-2.3	-4.2	-4.2	-4.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.41	2.49	2.38	2.11	2.11	-1.3	0.6	-0.2	-1.2
Import Dependency %	63.6	57.2	46.5	47.1	51.9	47.3	41.7	40.8	40.4				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	8.7	10.8	13.5	16.2	19.3		4.0	4.5	3.7
as % of GDP			34.7	28.7	31.1	29.4	27.3	24.8	22.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.5	44.0	34.9	28.2	23.1	-3.0	-5.4	-4.9	-4.0
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	58.7	47.0	37.9	31.1	25.4	1.5	-5.2	-4.3	-3.9
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	80.2	66.0	52.9	42.9	34.3	-4.0	-2.2	-4.1	-4.2
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.6	30.5	29.6	28.9	2.5	1.9	-0.6	-0.5
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.5	61.5	59.6	59.3	59.0	2.1	-1.4	-0.8	-0.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.49	0.44	0.42	0.32	0.32	0.2	0.8	-1.6	-2.7
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.84	1.77	1.71	1.66	1.61	1.1	0.3	-0.8	-0.5
Industry	1.25	1.55	2.29	2.06	2.16	1.92	1.76	1.66	1.58	6.2	-0.6	-2.0	-1.0
Residential	1.33	0.92	0.50	0.53	0.51	0.43	0.37	0.34	0.33	-9.3	0.2	-3.2	-1.0
Tertiary	1.98	1.16	1.13	0.91	0.90	0.92	0.85	0.83	0.81	-5.5	-2.2	-0.6	-0.5
Transport	2.81	2.84	2.87	2.91	2.88	2.86	2.84	2.80	2.73	0.2	0.1	-0.1	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	11.1	10.9	10.9	11.0	12.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.3	3.3	5.4	8.4				
Gross Electricity generation by source (in GWh)													
			40639	43965	41331	46971	58616	64675	69825		0.2	3.6	1.8
Nuclear energy			18175	18650	13650	13718	22242	30700	30700		-2.8	5.0	3.3
Solids			16824	18120	20201	28077	31142	28792	33585		1.8	4.4	0.8
Oil (including refinery gas)			590	825	117	0	0	0	1		-14.9		
Gas (including derived gases)			2368	1963	3880	1239	1007	552	1		5.1	-12.6	-53.1
Biomass-waste			10	70	185	171	262	266	601		34.3	3.5	8.7
Hydro (pumping excluded)			2673	4336	2909	3313	3436	3687	3968		0.9	1.7	1.5
Wind			0	2	387	449	519	659	937			3.0	6.1
Solar			0	0	2	5	9	19	33			17.5	13.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9918	11165	10437	11995	12954		-0.9	0.5	2.2
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
<u>Renewable energy</u>			1921	2005	2462	2533	2602	2747	3105		2.5	0.6	1.8
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	283	327	377	477	676			2.9	6.0
Solar			0	0	2	4	8	15	27			17.5	13.5
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5571	6722	4965	5431	6033		0.1	-1.1	2.0
of which cogeneration units			2163	2183	980	1518	1346	1579	1862		-7.6	3.2	3.3
Solids fired			4536	4527	4403	5717	4347	5090	5294		-0.3	-0.1	2.0
Gas fired			603	625	783	640	314	238	179		2.6	-8.7	-5.4
Oil fired			355	355	354	334	262	59	348		0.0	-3.0	2.9
Biomass-waste fired			11	11	30	31	43	44	212		11.0	3.6	17.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	43.6	44.2	59.3	57.1	57.0				
Efficiency of gross thermal power generation (%)			27.0	27.7	31.3	38.0	36.8	40.0	42.6				
% of gross electricity from CHP			12.0	14.3	10.6	18.5	14.6	15.7	16.9				
Carbon free gross electricity generation (%)			51.3	52.4	41.5	37.6	45.2	54.6	51.9				
- nuclear			44.7	42.4	33.0	29.2	37.9	47.5	44.0				
- renewable energy forms			6.6	10.0	8.4	8.4	7.2	7.2	7.9				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	45.0	51.8	59.1	66.5	72.7	-1.7	2.9	2.8	2.1
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.8	9.9	10.0	-6.1	-2.8	-0.6	0.2
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	35.5	41.2	47.0	51.5	11.2	6.6	3.4	2.2
Rail	7.8	4.7	3.5	2.4	2.5	2.9	3.5	4.3	5.2	-7.8	-3.3	3.6	3.9
Aviation	0.8	0.9	0.9	1.6	2.5	3.5	4.5	5.3	5.9	0.6	10.8	5.9	2.9
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-23.0	-2.4	-0.6	0.5
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.2	32.5	37.9	42.3	45.3	-7.9	7.9	3.8	1.8
Trucks	12.0	9.7	6.4	14.3	19.7	24.5	28.6	31.8	34.0	-6.1	11.9	3.8	1.7
Rail	14.1	8.6	5.5	5.2	5.5	6.7	7.9	8.9	9.7	-8.9	-0.1	3.7	2.1
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.7	-15.1	12.0	4.0	1.6
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3138	3634	4060	4479	4776	-3.2	5.6	2.6	1.6
Public road transport	318	152	158	97	82	72	69	67	64	-6.8	-6.4	-1.7	-0.7
Private cars and motorcycles	231	175	639	928	1096	1228	1328	1434	1520	10.7	5.5	1.9	1.4
Trucks	1459	1223	842	1274	1629	1925	2180	2429	2603	-5.4	6.8	3.0	1.8
Rail	216	144	77	60	61	72	81	83	71	-9.8	-2.4	3.0	-1.3
Aviation	276	276	101	200	268	334	400	462	514	-9.6	10.3	4.1	2.5
Inland navigation	18	6	1	2	2	3	3	3	3	-25.5	8.4	3.5	1.4

Source: PRIMES

Cyprus: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6	42	44	51	91	114	165	195	232	23.0	7.4	6.2	3.5	
Solids	0	0	0	0	1	0	2	3	5			10.3	12.1	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6	42	44	51	90	114	164	192	227	23.0	7.3	6.1	3.3	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6	
Wind	0	0	0	0	7	10	43	61	84			19.9	6.8	
Solar and others	0	31	35	41	69	85	98	103	108		6.8	3.6	1.0	
Geothermal	0	0	0	0	0	0	0	0	0			0.3	-1.6	
Net Imports	1554	2017	2537	2808	3127	2985	3013	2997	3009	5.0	2.1	-0.4	0.0	
Solids	68	17	36	44	35	36	36	36	36	-6.3	-0.1	0.2	0.2	
Oil	1486	2000	2502	2764	2838	2416	2427	2170	2111	5.3	1.3	-1.6	-1.4	
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-0.8	-0.7	
- Oil products	761	1207	1353	2764	2835	2413	2425	2167	2109	5.9	7.7	-1.6	-1.4	
Natural gas	0	0	0	0	251	518	501	627	642			7.2	2.5	
Electricity	0	0	0	0	0	0	0	0	0					
Gross Inland Consumption	1500	1970	2381	2461	2883	2765	2848	2863	2912	4.7	1.9	-0.1	0.2	
Solids	60	13	35	36	36	37	37	38	41	-5.3	0.2	0.4	1.0	
Oil	1434	1914	2302	2374	2504	2097	2097	1840	1783	4.8	0.8	-1.8	-1.6	
Natural gas	0	0	0	0	251	518	501	627	642			7.2	2.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	42	44	51	93	129	212	357	446	23.0	7.7	8.6	7.7	
as % in Gross Inland Consumption														
Solids	4.0	0.7	1.5	1.5	1.2	1.3	1.3	1.3	1.4					
Oil	95.6	97.2	96.7	96.5	86.8	75.3	73.6	64.3	61.2					
Natural gas	0.0	0.0	0.0	0.0	8.7	18.7	17.6	21.9	22.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.4	2.2	1.9	2.1	3.2	4.7	7.4	12.5	15.3					
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4981	5468	5933	6719	7103	5.5	4.0	1.8	1.8	
Self consumption and grid losses	207	236	353	410	497	412	437	462	489	5.5	3.5	-1.3	1.1	
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1196	1000	1010	996	997	5.7	3.1	-1.7	-0.1	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	509	641	884	1077	942	476	479	228	163	5.7	0.6	-6.5	-10.2	
Gas (including derived gases)	0	0	0	0	251	518	501	627	642			7.2	2.5	
Biomass & Waste	0	0	0	0	2	6	30	141	192			30.4	20.6	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	725	824	1167	0	7	16	29	38	49	4.9	-40.3	15.8	5.3	
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-0.8	-0.7	
Biofuels and hydrogen production	0	0	0	0	4	13	27	36	47			20.3	5.7	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	35	43	54	22	27	17	17	16	16	4.3	-6.7	-4.4	-0.7	
Non-Energy Uses	111	155	188	185	186	186	194	199	203	5.4	-0.1	0.4	0.4	
Final Energy Demand	1013	1306	1527	1691	1879	2001	2064	2134	2163	4.2	2.1	0.9	0.6	
by sector														
Industry	281	201	229	201	202	207	221	233	240	-2.0	-1.3	0.9	0.8	
- energy intensive industries	246	125	117	78	74	74	71	69	68	-7.2	-4.5	-0.4	-0.4	
- other industrial sectors	35	76	113	122	128	133	151	164	171	12.3	1.3	1.6	1.3	
Residential	102	172	215	234	260	272	277	282	285	7.8	1.9	0.6	0.3	
Tertiary	151	186	233	289	341	391	422	466	487	4.4	3.9	2.1	1.4	
Transport	479	747	850	967	1076	1131	1145	1154	1171	5.9	2.4	0.6	0.2	
by fuel														
Solids	76	13	35	36	36	37	37	38	41	-7.5	0.3	0.4	1.0	
Oil	781	1068	1190	1263	1375	1420	1424	1413	1417	4.3	1.5	0.3	0.0	
Gas	0	0	0	0	0	0	0	0	0			6.6	1.0	
Electricity	151	191	258	340	385	434	472	537	568	5.5	4.1	2.1	1.9	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0					
Renewable energy forms	6	33	44	51	83	110	131	144	156	23.0	6.4	4.7	1.8	
Other	0	0	0	0	0	0	0	0	0			10.2	7.7	
RES in Gross Final Energy Consumption ^(A)			44	51	91	122	189	265	321		7.4	7.6	5.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	9.0	8.2	8.2	7.5	7.3	3.1	1.3	-0.9	-1.1	
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.8	7.1	7.1	6.6	6.4	4.3	1.7	-1.0	-1.0	
Power generation/District heating	1.6	2.1	2.8	3.5	3.6	2.7	2.7	2.2	2.0	5.7	2.5	-2.8	-2.9	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6	-3.2	-2.2	0.9	0.9	
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	3.9	-2.4	-3.6	-5.0	
Tertiary	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	4.3	1.8	0.5	-1.0	
Transport	1.4	2.2	2.5	2.9	3.2	3.3	3.3	3.3	3.4	6.0	2.3	0.5	0.1	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.1	1.1	1.0	0.9	-1.5	-0.8	0.0	-2.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	155.6	142.4	142.8	131.3	127.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Cyprus: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	176.3	141.4	121.9	106.7	97.2	0.2	-1.5	-3.6	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.72	2.57	2.50	2.29	2.20	-0.4	-0.2	-0.9	-1.2
Import Dependency %	100.1	99.1	98.8	100.7	97.2	96.3	94.8	93.9	92.8				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	2.0	2.3	2.8	3.2	3.5		6.4	3.4	2.2
as % of GDP			9.3	11.4	12.4	12.0	12.1	11.9	11.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.6	68.7	61.4	56.3	52.2	-3.1	-2.8	-2.1	-1.6
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.7	73.0	61.9	55.2	50.6	1.6	-1.8	-3.0	-2.0
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	103.2	98.0	88.1	84.4	78.6	-1.4	0.3	-1.6	-1.1
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.5	43.4	41.7	40.3	39.8	2.1	0.2	-0.7	-0.5
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	261.2	265.0	261.3	258.3	259.5	3.5	-0.7	0.0	-0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.72	0.50	0.46	0.33	0.28	0.2	-1.5	-4.5	-4.6
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.26	2.19	2.13	2.05	2.01	-0.8	-0.7	-0.6	-0.6
Industry	3.07	2.67	2.72	2.48	2.48	2.46	2.47	2.48	2.50	-1.2	-0.9	0.0	0.1
Residential	1.51	1.15	1.05	0.82	0.68	0.55	0.44	0.34	0.26	-3.6	-4.2	-4.2	-5.3
Tertiary	1.37	1.55	1.35	1.18	1.11	1.02	0.94	0.78	0.74	-0.1	-1.9	-1.7	-2.4
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.91	2.89	2.87	0.0	-0.1	-0.2	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	4.7	6.0	9.0	12.2	14.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.5	1.4	2.8	3.7	4.8				
Gross Electricity generation by source (in GWh)													
			3369	4377	4981	5468	5933	6719	7103		4.0	1.8	1.8
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3910	2093	2107	1102	789		1.5	-6.0	-9.4
Gas (including derived gases)			0	0	978	3225	3141	4174	4346			12.4	3.3
Biomass-waste			0	0	9	33	144	686	928			31.4	20.5
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	83	117	505	708	975			19.9	6.8
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	0	0	0				1.1
Net Generation Capacity in MW_e			930	1155	1394	1386	1582	2039	2202		4.1	1.3	3.4
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	47	54	249	335	456		49.4	18.2	6.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	46	53	225	303	413			17.2	6.2
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	0	0	0				1.1
<u>Thermal power</u>			929	1154	1347	1332	1333	1705	1747		3.8	-0.1	2.7
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	463	859	972				7.7
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	1	4	24	114	156			35.5	20.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	38.3	43.4	41.4	36.6	35.9				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.2	46.0	45.9	51.5	52.3				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	1.9	2.8	11.5	21.5	27.7				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	1.9	2.8	11.5	21.5	27.7				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.5	16.7	17.7	18.3	18.8	3.5	3.4	1.3	0.6
Public road transport	0.8	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8	3.1	1.8	1.6	1.2
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.7	4.9	5.0	2.5	4.0	0.8	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.8	10.7	11.4	11.8	12.1	4.0	3.4	1.5	0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.2	0.6	0.4
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	2.7	1.2	0.6	0.4
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1076	1131	1145	1154	1171	5.9	2.4	0.6	0.2
Public road transport	8	14	16	16	17	18	20	20	19	6.4	1.1	1.3	-0.4
Private cars and motorcycles	117	145	177	288	325	336	334	335	344	4.2	6.3	0.3	0.3
Trucks	201	321	368	364	385	405	409	414	423	6.2	0.5	0.6	0.3
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	348	371	381	386	386	6.6	1.9	0.9	0.1
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Czech Republic: High Oil & Gas prices Baseline						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	38484	31733	29788	32779	28134	25859	26304	27945	28755	-2.5	-0.6	-0.7	0.9
Solids	34715	27481	25002	23520	17097	14091	12091	11092	10099	-3.2	-3.7	-3.4	-1.8
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0
Natural gas	201	198	169	154	158	155	148	148	144	-1.7	-0.7	-0.6	-0.2
Nuclear	3246	3155	3506	6379	7479	7592	9012	11114	12266	0.8	7.9	1.9	3.1
Renewable energy sources	100	627	727	2142	3200	3820	4853	5391	6045	22.0	16.0	4.3	2.2
Hydro	100	172	151	205	211	212	218	221	230	4.2	3.4	0.3	0.6
Biomass & Waste	0	455	576	1933	2900	3437	4412	4899	5496		17.5	4.3	2.2
Wind	0	0	0	2	58	98	111	129	148			6.7	3.0
Solar and others	0	0	0	2	31	73	113	142	170			14.0	4.2
Geothermal	0	0	0	0	0	0	0	0	0			2.2	1.4
Net Imports	7630	8417	9297	12271	18829	19824	21236	21960	22638	2.0	7.3	1.2	0.6
Solids	-5685	-5784	-4751	-3489	2019	2242	3528	4332	4901			5.7	3.3
Oil	8589	7742	7428	9499	10612	11390	11752	12066	12602	-1.4	3.6	1.0	0.7
- Crude oil and Feedstocks	7382	6798	5492	7539	8494	9083	9356	9595	10000	-2.9	4.5	1.0	0.7
- Oil products	1207	944	1936	1960	2118	2307	2396	2472	2602	4.8	0.9	1.2	0.8
Natural gas	4786	6424	7482	7535	7733	7607	7247	7248	7068	4.6	0.3	-0.6	-0.2
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Gross Inland Consumption	47380	40801	40307	44798	46962	45683	47541	49905	51393	-1.6	1.5	0.1	0.8
Solids	29882	22556	21645	20099	19116	16334	15619	15424	15001	-3.2	-1.2	-2.0	-0.4
Oil	8964	7876	7790	9748	10812	11590	11952	12266	12802	-1.4	3.3	1.0	0.7
Natural gas	5248	6552	7500	7703	7891	7762	7395	7396	7213	3.6	0.5	-0.6	-0.2
Nuclear	3246	3155	3506	6379	7479	7592	9012	11114	12266	0.8	7.9	1.9	3.1
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Renewable energy forms	100	627	727	1955	3078	3675	4668	5185	5814	22.0	15.5	4.3	2.2
as % in Gross Inland Consumption													
Solids	63.1	55.3	53.7	44.9	40.7	35.8	32.9	30.9	29.2				
Oil	18.9	19.3	19.3	21.8	23.0	25.4	25.1	24.6	24.9				
Natural gas	11.1	16.1	18.6	17.2	16.8	17.0	15.6	14.8	14.0				
Nuclear	6.9	7.7	8.7	14.2	15.9	16.6	19.0	22.3	23.9				
Renewable energy forms	0.2	1.5	1.8	4.4	6.6	8.0	9.8	10.4	11.3				
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	94342	99048	103248	115913	124721	1.6	2.6	0.9	1.9
Self consumption and grid losses	8541	8837	10601	11632	12430	12415	12978	14631	15839	2.2	1.6	0.4	2.0
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	15159	12807	12377	12474	12300	3.7	-0.5	-2.0	-0.1
Solids	9947	13571	14031	13955	14000	11538	11017	11027	11035	3.5	0.0	-2.4	0.0
Oil (including refinery gas)	741	311	203	126	56	7	0	0	0	-12.2	-12.1	-39.5	
Gas (including derived gases)	300	573	1270	1286	1001	1219	866	711	440	15.5	-2.4	-1.4	-6.5
Biomass & Waste	0	119	369	224	102	43	493	735	825		-12.1	17.0	5.3
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	18634	14422	11312	13108	13184	13266	13663	13769	14074	-4.9	1.5	0.4	0.3
Refineries	7946	7026	6047	7957	8735	9343	9628	9869	10281	-2.7	3.7	1.0	0.7
Biofuels and hydrogen production	0	11	0	3	411	655	1049	1152	1291			9.8	2.1
District heating	2138	1404	999	909	1002	612	517	448	425	-7.3	0.0	-6.4	-1.9
Derived gases, cokeries etc.	8549	5982	4266	4239	3037	2656	2469	2300	2077	-6.7	-3.3	-2.0	-1.7
Energy Branch Consumption	2124	1866	1919	1915	2259	2231	2270	2359	2434	-1.0	1.6	0.0	0.7
Non-Energy Uses	1680	2132	1962	2419	2848	3183	3529	3719	3914	1.6	3.8	2.2	1.0
Final Energy Demand	36267	25697	23905	25801	28092	29364	30312	31394	32372	-4.1	1.6	0.8	0.7
by sector													
Industry	19215	12191	10031	9439	9940	10208	10511	10701	10859	-6.3	-0.1	0.6	0.3
- energy intensive industries	8050	6719	6276	6588	6863	6959	7043	7057	7051	-2.5	0.9	0.3	0.0
- other industrial sectors	11165	5472	3755	2851	3077	3249	3467	3645	3807	-10.3	-2.0	1.2	0.9
Residential	8625	5796	5260	6063	6680	6784	6735	6993	7063	-4.8	2.4	0.1	0.5
Tertiary	5622	4871	3893	3730	3913	4076	4266	4581	4808	-3.6	0.1	0.9	1.2
Transport	2804	2840	4721	6569	7559	8295	8800	9119	9642	5.3	4.8	1.5	0.9
by fuel													
Solids	17789	6457	5164	3619	3662	3450	3438	3265	2932	-11.6	-3.4	-0.6	-1.6
Oil	6229	5018	5291	6913	7517	7980	8141	8338	8679	-1.6	3.6	0.8	0.6
Gas	5146	6119	6419	6581	6591	6615	6322	6484	6494	2.2	0.3	-0.4	0.3
Electricity	4142	4129	4243	4750	5428	5981	6459	7031	7460	0.2	2.5	1.8	1.5
Heat (from CHP and District Heating)	2959	3664	2624	2478	2408	2293	2380	2493	2497	-1.2	-0.9	-0.1	0.5
Renewable energy forms	0	309	165	1460	2486	3043	3569	3781	4307		31.2	3.7	1.9
Other	0	0	0	0	1	1	2	2	3			12.0	3.7
RES in Gross Final Energy Consumption ^(A)			610	1832	2961	3520	4389	4849	5452		17.1	4.0	2.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	145.9	135.7	131.3	127.9	124.4	-3.1	-0.2	-1.1	-0.5
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	116.3	106.5	102.9	102.5	101.5	-2.8	0.0	-1.2	-0.1
Power generation/District heating	48.8	60.4	62.1	61.0	60.2	50.0	46.9	46.3	45.8	2.4	-0.3	-2.5	-0.2
Energy Branch	2.3	1.5	2.2	2.3	2.7	2.7	2.5	2.4	2.4	-0.5	2.0	-0.8	-0.6
Industry	58.1	29.0	25.2	20.9	20.9	20.2	19.8	19.3	17.7	-8.0	-1.9	-0.5	-1.1
Residential	24.0	10.6	7.9	7.1	7.5	7.2	6.9	6.9	7.0	-10.5	-0.5	-1.0	0.2
Tertiary	14.1	9.2	5.9	4.5	3.9	3.6	3.5	3.4	3.5	-8.4	-4.0	-1.1	0.1
Transport	7.5	7.7	13.4	19.1	21.1	22.7	23.3	24.0	25.1	6.0	4.6	1.0	0.8
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.0	10.9	11.2	11.4	11.4	-3.8	-1.2	0.2	0.2
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	18.3	17.2	14.1	11.5	-4.4	-0.6	-0.7	-4.0
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	71.5	66.5	64.3	62.6	60.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Czech Republic: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	377.1	307.6	266.8	244.9	226.4	-1.9	-2.5	-3.4	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.48	2.33	2.16	2.05	1.97	-1.2	-1.5	-1.3	-0.9
Import Dependency %	16.1	20.6	23.1	27.4	40.1	43.4	44.7	44.0	44.0				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	21.6	27.1	33.1	37.6	42.1		3.5	4.4	2.4
as % of GDP			18.3	16.9	17.4	18.2	18.6	18.5	18.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	58.9	51.3	44.9	40.3	36.9	-7.3	-5.1	-2.7	-1.9
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	86.6	73.7	60.8	55.3	50.4	-5.8	-1.4	-3.5	-1.9
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	69.2	60.1	51.9	48.6	45.6	-7.4	-3.6	-2.8	-1.3
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.9	32.7	31.4	29.5	28.7	4.0	2.5	-0.5	-0.9
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.6	58.7	57.2	55.2	55.1	7.5	4.2	-0.1	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.45	0.37	0.33	0.30	0.28	1.8	-2.1	-3.0	-1.7
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.90	1.83	1.76	1.71	1.65	-2.6	-1.4	-0.7	-0.7
Industry	3.03	2.38	2.51	2.21	2.10	1.98	1.89	1.80	1.63	-1.8	-1.8	-1.1	-1.5
Residential	2.78	1.84	1.50	1.16	1.13	1.07	1.02	0.99	0.99	-6.0	-2.8	-1.0	-0.3
Tertiary	2.51	1.89	1.51	1.21	1.00	0.88	0.82	0.75	0.74	-5.0	-4.0	-1.9	-1.1
Transport	2.68	2.71	2.85	2.90	2.79	2.74	2.65	2.63	2.61	0.6	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	10.0	11.4	13.8	14.7	16.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.9	7.2	11.0	11.7	12.4				
Gross Electricity generation by source (in GWh)													
			72898	81916	94342	99048	103248	115913	124721		2.6	0.9	1.9
Nuclear energy			13588	24724	28995	29433	35583	45105	52902		7.9	2.1	4.0
Solids			50038	47938	53556	56482	55092	57768	59683		0.7	0.3	0.8
Oil (including refinery gas)			528	447	118	29	21	12	12		-13.9	-15.8	-5.7
Gas (including derived gases)			6087	5565	7516	8698	6284	5564	4000		2.1	-1.8	-4.4
Biomass-waste			899	841	1026	793	2438	3382	3701		1.3	9.0	4.3
Hydro (pumping excluded)			1758	2380	2458	2466	2532	2564	2677		3.4	0.3	0.6
Wind			0	22	671	1144	1290	1502	1726			6.7	3.0
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	15858	17825	18350	19012	19264		2.8	1.5	0.5
<u>Nuclear energy</u>			1661	3504	3519	3534	4141	5241	6126		7.8	1.6	4.0
<u>Renewable energy</u>			1148	1227	1737	2073	2188	2354	2529		4.2	2.3	1.5
Hydro (pumping excluded)			1142	1196	1244	1246	1251	1256	1262		0.9	0.1	0.1
Wind			7	30	492	821	925	1076	1237		53.4	6.5	3.0
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	10602	12218	12021	11416	10610		1.4	1.3	-1.2
of which cogeneration units			3030	3110	3371	4223	4654	5309	5556		1.1	3.3	1.8
Solids fired			7747	7661	8755	10467	9936	9253	8431		1.2	1.3	-1.6
Gas fired			1208	1302	1497	1430	1450	1387	1361		2.2	-0.3	-0.6
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.2
Biomass-waste fired			165	165	225	203	577	746	807		3.1	9.9	3.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	63.2	59.6	60.4	65.5	69.4				
Efficiency of gross thermal power generation (%)			31.2	30.2	35.3	44.3	44.4	46.0	47.1				
% of gross electricity from CHP			21.1	16.7	21.1	28.0	27.2	27.4	26.9				
Carbon free gross electricity generation (%)			22.3	34.1	35.1	34.2	40.5	45.4	48.9				
- nuclear			18.6	30.2	30.7	29.7	34.5	38.9	42.4				
- renewable energy forms			3.6	4.0	4.4	4.4	6.1	6.4	6.5				
Transport sector													
Passenger transport activity (Gpkm)													
	92.9	95.4	101.3	105.1	116.4	128.7	143.4	157.0	168.2	0.9	1.4	2.1	1.6
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.2	17.3	18.0	-3.7	-0.8	0.8	1.1
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	90.0	100.9	111.0	119.2	3.7	1.8	2.3	1.7
Rail	20.6	15.7	15.4	15.6	15.9	16.7	17.8	18.8	19.6	-2.9	0.4	1.1	0.9
Aviation	1.9	2.1	2.5	3.5	5.0	6.6	8.4	9.9	11.4	2.8	7.1	5.4	3.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	64.2	53.9	55.6	59.3	64.7	69.7	75.3	81.3	87.2	-1.4	1.5	1.5	1.5
Trucks	26.3	31.3	37.3	43.4	51.5	57.5	62.8	68.2	73.4	3.6	3.3	2.0	1.6
Rail	38.0	22.6	17.5	14.8	12.9	12.0	12.4	13.1	13.7	-7.5	-3.0	-0.4	1.0
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.0	-5.0
Energy demand in transport (ktoe)													
	2804	2840	4721	6569	7559	8295	8800	9119	9642	5.3	4.8	1.5	0.9
Public road transport	132	110	98	111	112	112	112	108	104	-2.9	1.3	0.1	-0.8
Private cars and motorcycles	1271	1373	2257	2850	3193	3461	3660	3761	3959	5.9	3.5	1.4	0.8
Trucks	956	971	1868	2987	3536	3913	4127	4316	4653	6.9	6.6	1.6	1.2
Rail	272	200	295	271	235	215	210	201	185	0.8	-2.2	-1.1	-1.3
Aviation	174	185	197	346	481	593	690	732	741	1.3	9.3	3.7	0.7
Inland navigation	0	0	5	5	2	1	1	0	0	-11.0	-8.1	-5.1	

Source: PRIMES

Denmark: High Oil & Gas prices Baseline						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	28826	23113	19030	18330	17190	10.6	0.4	-4.1	-1.0
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	9000	5456	3830	3689	3027	10.3	2.0	-8.2	-2.3
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3326	3657	4200	4641	5162	5.6	4.9	2.4	2.1
Hydro	2	3	3	2	3	3	3	3	3	1.1	-0.1	0.5	0.4
Biomass & Waste	1140	1423	1687	2313	2599	2849	3292	3540	3849	4.0	4.4	2.4	1.6
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	43	93	135	167	190	12.5	19.3	12.2	3.5
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.9	1.3	0.4
Net Imports	8605	7534	-7076	-10498	-7776	-2336	1590	2179	2720				5.5
Solids	6216	7664	3784	3505	3722	4695	5039	4873	4453	-4.8	-0.2	3.1	-1.2
Oil	2711	1429	-8094	-9381	-7581	-5052	-2321	-1627	-964				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8707	-6186	-3315	-2462	-1625				
- Oil products	679	627	1512	1804	1126	1134	994	835	661	8.3	-2.9	-1.2	-4.0
Natural gas	-928	-1496	-2882	-5010	-4121	-2498	-1754	-1689	-1386				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	20200	19908	19735	19605	18984	1.0	0.3	-0.2	-0.4
Solids	6088	6498	3987	3715	3722	4695	5039	4873	4453	-4.1	-0.7	3.1	-1.2
Oil	8144	9105	9043	8133	8070	8078	7794	7468	7110	1.1	-1.1	-0.3	-0.9
Natural gas	1818	3170	4449	4399	4879	2958	2076	2000	1641	9.4	0.9	-8.2	-2.3
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3630	3990	4586	5056	5613	5.9	5.5	2.4	2.0
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	18.4	23.6	25.5	24.9	23.5				
Oil	45.6	45.0	46.0	41.6	39.9	40.6	39.5	38.1	37.5				
Natural gas	10.2	15.7	22.6	22.5	24.2	14.9	10.5	10.2	8.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	18.0	20.0	23.2	25.8	29.6				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	41030	39204	39526	41170	42350	3.4	1.3	-0.4	0.7
Self consumption and grid losses	3290	4659	4046	3775	4008	4142	4370	4756	4876	2.1	-0.1	0.9	1.1
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	7004	6565	6504	6388	6164	2.7	-1.1	-0.7	-0.5
Solids	5541	6061	3667	3444	3477	4419	4471	4300	3870	-4.0	-0.5	2.5	-1.4
Oil (including refinery gas)	237	1008	1344	344	280	330	314	101	136	19.0	-14.5	1.1	-8.0
Gas (including derived gases)	174	975	2112	2003	2101	604	259	104	24	28.4	-0.1	-18.9	-21.1
Biomass & Waste	65	378	699	1338	1146	1213	1460	1883	2134	26.9	5.1	2.4	3.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8688	8829	8906	8613	8406	-0.1	-0.3	0.2	-0.6
Refineries	8027	9958	8452	7821	7793	7814	7685	7538	7375	0.5	-0.8	-0.1	-0.4
Biofuels and hydrogen production	0	0	0	0	199	370	638	696	759			12.3	1.8
District heating	1005	761	515	509	695	645	583	379	273	-6.5	3.0	-1.7	-7.3
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1301	998	860	852	777	4.7	1.2	-4.1	-1.0
Non-Energy Uses	293	291	292	276	275	274	269	267	268	-0.1	-0.6	-0.2	0.0
Final Energy Demand	13492	14720	14610	15324	15904	16158	16235	16308	15986	0.8	0.9	0.2	-0.2
by sector													
Industry	2711	3026	2935	2831	2924	3000	3024	3002	3024	0.8	0.0	0.3	0.0
- energy intensive industries	1076	1121	1243	1152	1177	1197	1185	1160	1149	1.5	-0.5	0.1	-0.3
- other industrial sectors	1636	1905	1692	1679	1746	1803	1839	1842	1875	0.3	0.3	0.5	0.2
Residential	3946	4468	4154	4398	4511	4495	4491	4494	4493	0.5	0.8	0.0	0.0
Tertiary	2822	2779	2801	2840	2932	2946	2925	2940	2909	-0.1	0.5	0.0	-0.1
Transport	4012	4447	4720	5254	5538	5717	5795	5872	5559	1.6	1.6	0.5	-0.4
by fuel													
Solids	396	405	290	236	244	276	568	573	583	-3.1	-1.7	8.8	0.3
Oil	7097	7132	6950	7204	7140	7140	6969	6968	6563	-0.2	0.3	-0.2	-0.6
Gas	1159	1691	1667	1701	1869	1792	1419	1511	1350	3.7	1.1	-2.7	-0.5
Electricity	2517	2655	2791	2882	3050	3169	3231	3307	3356	1.0	0.9	0.6	0.4
Heat (from CHP and District Heating)	1758	2242	2255	2408	2437	2408	2472	2379	2339	2.5	0.8	0.1	-0.6
Renewable energy forms	566	595	657	892	1163	1373	1575	1570	1792	1.5	5.9	3.1	1.3
Other	0	0	0	0	0	1	2	2	2			13.8	4.0
RES in Gross Final Energy Consumption ^(A)			1919	2512	3233	3538	3896	4132	4709		5.4	1.9	1.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	65.7	64.9	63.4	60.6	56.5	0.1	-0.7	-0.4	-1.2
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	49.2	48.7	47.2	45.4	41.9	0.1	-0.6	-0.4	-1.2
Power generation/District heating	24.5	30.2	24.0	19.7	19.8	20.0	19.3	17.5	15.7	-0.2	-1.9	-0.3	-2.0
Energy Branch	1.5	2.0	2.4	2.5	2.5	1.8	1.3	1.0	0.8	4.9	0.7	-6.7	-4.1
Industry	5.4	6.0	5.4	5.0	4.9	4.9	5.4	5.4	5.1	-0.1	-0.9	0.9	-0.5
Residential	4.9	4.9	3.9	3.5	3.4	3.2	3.0	3.1	3.0	-2.3	-1.3	-1.2	0.0
Tertiary	3.6	3.1	2.9	2.7	2.7	2.6	2.6	2.6	2.6	-2.1	-0.7	-0.5	-0.1
Transport	11.9	13.1	13.9	15.5	15.9	16.1	15.7	15.7	14.6	1.6	1.4	-0.2	-0.7
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.8	2.7	2.6	5.4	-0.2	-0.7	-0.4
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	13.4	13.5	12.5	11.9	-0.7	-1.2	0.0	-1.2
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	94.1	93.0	90.8	86.8	80.9				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	86.0	76.8	70.1	65.0	59.1	-1.6	-1.6	-2.0	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.44	2.44	2.39	2.31	2.21	-0.8	-0.9	-0.2	-0.8
Import Dependency %	45.7	34.5	-33.7	-51.6	-36.9	-11.2	7.7	10.6	13.7				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	19.1	21.7	24.5	26.6	27.9		2.2	2.5	1.3
as % of GDP			7.8	8.0	8.1	8.4	8.7	8.8	8.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.6	87.1	81.5	75.9	72.0	-1.1	-0.8	-1.3	-1.2
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	87.5	80.0	74.3	69.8	65.8	-1.4	-1.3	-1.6	-1.2
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	85.3	77.5	70.8	66.3	61.5	-2.7	-1.6	-1.8	-1.4
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.8	37.9	36.6	35.3	30.3	0.0	0.7	-0.6	-1.9
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	73.5	72.8	71.9	70.8	69.3	0.1	0.6	-0.2	-0.4
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.26	0.27	0.26	0.24	0.22	-3.1	-2.9	0.1	-1.9
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.69	1.66	1.64	1.65	1.58	-0.7	-0.5	-0.3	-0.4
Industry	2.00	1.98	1.83	1.76	1.67	1.65	1.78	1.82	1.69	-0.9	-0.9	0.6	-0.5
Residential	1.24	1.09	0.93	0.80	0.75	0.72	0.67	0.68	0.67	-2.8	-2.1	-1.1	0.0
Tertiary	1.27	1.12	1.04	0.94	0.93	0.90	0.88	0.88	0.88	-2.0	-1.1	-0.5	0.0
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.70	2.68	2.63	0.0	-0.2	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	19.2	20.8	22.9	24.3	28.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.6	11.3	12.2	13.4				
Gross Electricity generation by source (in GWh)													
			36043	36269	41030	39204	39526	41170	42350		1.3	-0.4	0.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			14345	13553	15085	18815	19955	19276	17989		0.5	2.8	-1.0
Oil (including refinery gas)			5222	1525	1555	1846	1969	1081	1389		-11.4	2.4	-3.4
Gas (including derived gases)			9658	9549	12252	5768	2681	1878	310		2.4	-14.1	-19.4
Biomass-waste			2548	5006	4174	4453	5909	8047	9568		5.1	3.5	4.9
Hydro (pumping excluded)			30	23	30	30	31	32	32		-0.1	0.5	0.4
Wind			4240	6613	7928	8279	8957	10822	13019		6.5	1.2	3.8
Solar			0	0	6	13	24	34	42			15.8	5.8
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			11888	12794	13156	12751	12013	12719	13488		1.0	-0.9	1.2
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			2311	3014	3700	3780	4023	4627	5271		4.8	0.8	2.7
Hydro (pumping excluded)			10	11	11	11	11	11	11		1.5	0.0	0.0
Wind			2300	3000	3673	3732	3944	4520	5140		4.8	0.7	2.7
Solar			2	3	16	37	68	97	120		24.9	15.8	5.8
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9577	9781	9456	8971	7990	8092	8217		-0.1	-1.7	0.3
of which cogeneration units			7504	8538	6242	5407	4705	4727	4605		-1.8	-2.8	-0.2
Solids fired			5528	5566	4819	4425	3541	3394	2963		-1.4	-3.0	-1.8
Gas fired			2328	2485	2759	2775	2496	2356	2218		1.7	-1.0	-1.2
Oil fired			1271	1236	1182	1040	1009	1039	1066		-0.7	-1.6	0.6
Biomass-waste fired			450	494	696	731	944	1303	1970		4.5	3.1	7.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			32.7	30.4	33.6	33.1	35.4	34.8	33.9				
Efficiency of gross thermal power generation (%)			34.9	35.8	40.6	40.5	40.3	40.8	40.8				
% of gross electricity from CHP			63.9	68.3	58.9	60.0	59.5	54.1	52.9				
Carbon free gross electricity generation (%)			18.9	32.1	29.6	32.6	37.8	46.0	53.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	29.6	32.6	37.8	46.0	53.5				
Transport sector													
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	87.0	90.6	93.3	96.2	98.7	1.1	1.1	0.7	0.6
Public road transport	6.4	7.3	7.4	7.4	7.4	7.5	7.7	7.9	8.2	1.4	0.0	0.4	0.6
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.6	58.8	59.4	60.4	61.3	0.8	1.0	0.3	0.3
Rail	5.1	4.9	5.5	6.2	6.6	7.2	7.7	8.2	8.5	0.9	1.8	1.6	0.9
Aviation	5.5	7.0	9.0	9.8	11.6	13.3	14.4	15.5	16.4	5.0	2.6	2.2	1.3
Inland navigation	5.2	4.7	3.9	3.7	3.8	3.9	4.0	4.2	4.4	-2.9	-0.4	0.7	0.9
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.4	31.4	33.1	35.0	37.0	2.4	0.7	1.2	1.1
Trucks	18.1	22.4	24.0	23.3	25.4	27.0	28.4	30.0	31.7	2.9	0.6	1.1	1.1
Rail	1.7	2.0	2.0	2.0	2.1	2.3	2.4	2.6	2.8	1.6	0.4	1.5	1.2
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	-2.4	2.4	1.8	1.4
Energy demand in transport (ktoe)	4012	4447	4720	5254	5538	5717	5795	5872	5559	1.6	1.6	0.5	-0.4
Public road transport	57	76	78	83	80	79	79	76	72	3.1	0.3	-0.1	-1.0
Private cars and motorcycles	1628	1709	1788	2034	2077	2046	1978	1930	1816	0.9	1.5	-0.5	-0.8
Trucks	1374	1690	1816	1952	2066	2184	2281	2383	2510	2.8	1.3	1.0	1.0
Rail	113	117	103	106	107	108	106	99	56	-1.0	0.4	0.0	-6.2
Aviation	690	675	820	944	1069	1157	1201	1228	946	1.7	2.7	1.2	-2.4
Inland navigation	150	181	115	136	138	143	149	156	159	-2.6	1.8	0.8	0.7

Source: PRIMES

Estonia: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	6249	3618	3332	4304	3348	3562	3778	3909	4145	-6.1	0.0	1.2	0.9	
Solids	5798	3129	2830	3261	2516	2707	2808	2816	2826	-6.9	-1.2	1.1	0.1	
Oil	0	0	2	331	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	450	489	500	712	832	855	970	1093	1320	1.1	5.2	1.5	3.1	
Hydro	0	0	0	2	2	2	2	3	3		16.3	2.3	0.4	
Biomass & Waste	450	488	500	706	777	798	898	994	1203	1.0	4.5	1.5	3.0	
Wind	0	0	0	5	52	52	65	91	107		89.6	2.4	5.0	
Solar and others	0	0	0	0	1	2	4	6	7			10.9	5.4	
Geothermal	0	0	0	0	0	0	0	0	0			2.1	0.8	
Net Imports	4456	1987	1447	1463	2359	2304	2053	2040	2045	-10.6	5.0	-1.4	0.0	
Solids	697	292	244	27	127	137	150	161	142	-10.0	-6.3	1.7	-0.5	
Oil	3139	1178	626	867	1536	1566	1528	1478	1514	-14.9	9.4	0.0	-0.1	
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			0.1	0.1	
- Oil products	3139	1178	626	867	1535	1565	1527	1476	1513	-14.9	9.4	0.0	-0.1	
Natural gas	1222	583	662	800	948	806	612	653	695	-5.9	3.7	-4.3	1.3	
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Gross Inland Consumption	10642	5630	4712	5627	5555	5695	5649	5761	5998	-7.8	1.7	0.2	0.6	
Solids	6703	3598	3119	3255	2643	2844	2958	2977	2968	-7.4	-1.6	1.1	0.0	
Oil	2858	1032	510	1090	1384	1396	1346	1289	1321	-15.8	10.5	-0.3	-0.2	
Natural gas	1222	583	662	800	948	806	612	653	695	-5.9	3.7	-4.3	1.3	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Renewable energy forms	460	483	501	621	731	751	853	964	1164	0.9	3.8	1.6	3.2	
as % in Gross Inland Consumption														
Solids	63.0	63.9	66.2	57.8	47.6	49.9	52.4	51.7	49.5					
Oil	26.9	18.3	10.8	19.4	24.9	24.5	23.8	22.4	22.0					
Natural gas	11.5	10.3	14.1	14.2	17.1	14.2	10.8	11.3	11.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	8.6	10.6	11.0	13.2	13.2	15.1	16.7	19.4					
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	12142	13039	14957	16034	17526	-6.8	3.6	2.1	1.6	
Self consumption and grid losses	2615	1409	1247	1422	1588	1691	2083	2279	2601	-7.1	2.4	2.7	2.2	
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	3002	2929	2915	3013	3129	-8.0	2.0	-0.3	0.7	
Solids	5085	2499	2213	2297	2480	2648	2751	2760	2771	-8.0	1.1	1.0	0.1	
Oil (including refinery gas)	210	80	12	10	23	6	28	17	0	-25.2	7.3	1.7	-47.0	
Gas (including derived gases)	357	100	226	227	273	236	86	106	110	-4.5	1.9	-10.9	2.5	
Biomass & Waste	2	2	2	5	226	39	51	130	248	-0.3	59.8	-13.8	17.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2285	1007	783	769	403	428	368	313	395	-10.2	-6.4	-0.9	0.7	
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.2	0.1	0.1	
Biofuels and hydrogen production	0	0	0	0	47	77	115	123	139			9.5	1.9	
District heating	1755	527	485	511	341	341	245	183	251	-12.1	-3.5	-3.3	0.3	
Derived gases, cokeries etc.	529	479	297	257	15	9	7	5	5	-5.6	-26.0	-7.4	-3.8	
Energy Branch Consumption	295	148	179	209	219	220	243	251	268	-4.9	2.0	1.0	1.0	
Non-Energy Uses	69	225	219	230	224	215	206	205	203	12.2	0.3	-0.8	-0.1	
Final Energy Demand	6392	2627	2445	2854	3274	3546	3707	3855	3983	-9.2	3.0	1.2	0.7	
by sector														
Industry	2742	794	531	654	767	851	920	985	1027	-15.1	3.7	1.8	1.1	
- energy intensive industries	738	430	203	215	226	249	269	284	292	-12.1	1.1	1.8	0.8	
- other industrial sectors	2004	364	328	440	541	602	651	700	735	-16.6	5.1	1.9	1.2	
Residential	1482	1054	984	977	984	994	1001	1040	1056	-4.0	0.0	0.2	0.5	
Tertiary	1330	289	353	498	631	699	753	785	815	-12.4	6.0	1.8	0.8	
Transport	839	490	577	725	893	1002	1033	1045	1086	-3.7	4.5	1.5	0.5	
by fuel														
Solids	1059	201	122	102	107	110	118	124	121	-19.5	-1.3	1.0	0.2	
Oil	1803	855	748	960	1152	1244	1221	1223	1255	-8.4	4.4	0.6	0.3	
Gas	439	202	134	207	303	288	310	352	406	-11.2	8.5	0.2	2.7	
Electricity	608	510	506	584	722	838	950	1022	1097	-1.8	3.6	2.8	1.5	
Heat (from CHP and District Heating)	2086	593	511	547	548	530	504	524	511	-13.1	0.7	-0.8	0.1	
Renewable energy forms	397	265	424	453	443	535	604	610	592	0.7	0.4	3.2	-0.2	
Other	0	0	0	0	0	0	0	0	0			12.9	3.1	
RES in Gross Final Energy Consumption ^(A)			538	564	641	711	804	902	1069		1.8	2.3	2.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	20.4	21.1	21.3	20.7	20.5	-9.1	1.7	0.4	-0.4	
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	16.7	17.3	17.2	17.2	17.4	-9.7	1.7	0.3	0.1	
Power generation/District heating	27.9	12.3	10.9	11.2	11.9	12.2	12.1	12.0	12.0	-9.0	0.9	0.2	-0.1	
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.4	-0.9	-0.9	
Industry	4.6	1.7	0.8	0.8	1.2	1.2	1.2	1.2	1.4	-16.0	3.9	-0.1	1.6	
Residential	2.0	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-17.7	1.5	0.0	0.3	
Tertiary	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.7	-17.6	7.7	0.4	0.9	
Transport	2.4	1.4	1.7	2.1	2.5	2.8	2.8	2.8	2.8	-3.6	4.1	1.0	0.3	
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.3	1.4	1.4	-5.3	9.7	3.5	1.3	
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.7	2.8	2.1	1.7	-5.7	-0.3	0.2	-5.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	45.3	46.9	47.2	46.0	45.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: High Oil & Gas prices Baseline													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	342.6	286.3	239.7	212.1	200.3	-7.1	-6.0	-3.5	-1.8	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.01	3.04	3.04	2.98	2.90	-2.1	0.1	0.1	-0.5	
Import Dependency %	41.2	34.8	30.0	25.5	41.3	39.3	35.2	34.3	33.0					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.6	3.2	3.8	4.3	4.7		4.6	3.9	2.2	
as % of GDP			22.2	16.8	16.0	16.1	16.1	15.8	15.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.3	51.0	46.6	43.1	40.6	-12.1	-5.6	-1.9	-1.4	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	47.2	39.3	33.7	30.6	28.3	-3.6	-7.2	-3.3	-1.7	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	85.0	76.9	70.1	63.3	59.4	-12.4	-1.6	-1.9	-1.6	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.4	29.2	27.3	25.9	26.2	0.2	-0.7	-0.7	-0.4	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.3	21.7	21.9	21.8	22.2	-7.9	1.2	0.8	0.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.60	0.60	0.56	0.52	0.50	0.5	-1.3	-0.8	-1.1	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.40	1.37	1.31	1.29	1.31	-3.1	1.2	-0.7	0.0	
Industry	1.67	2.20	1.51	1.28	1.54	1.35	1.27	1.24	1.33	-1.0	0.2	-1.9	0.5	
Residential	1.33	0.44	0.29	0.36	0.33	0.34	0.33	0.33	0.32	-14.2	1.5	-0.1	-0.2	
Tertiary	1.42	0.87	0.77	0.94	0.91	0.84	0.79	0.82	0.80	-5.9	1.6	-1.3	0.1	
Transport	2.89	2.90	2.92	2.94	2.82	2.77	2.68	2.66	2.62	0.1	-0.4	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	18.3	18.8	20.4	22.0	25.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.6	6.7	9.7	10.3	11.3					
Gross Electricity generation by source (in GWh)														
			8511	10203	12142	13039	14957	16034	17526		3.6	2.1	1.6	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9452	10715	13147	13506	15110		2.2	3.4	1.4	
Oil (including refinery gas)			51	42	102	25	114	73	1		7.2	1.1	-35.7	
Gas (including derived gases)			787	1000	1128	1427	604	787	396		3.7	-6.1	-4.1	
Biomass-waste			57	158	837	238	305	583	747		30.8	-9.6	9.4	
Hydro (pumping excluded)			5	22	23	26	29	29	30		16.3	2.3	0.4	
Wind			1	54	600	608	758	1055	1241		89.6	2.4	5.0	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2745	3112	2753	3036	3295		-0.9	0.0	1.8	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	249	251	308	421	467		62.2	2.2	4.2	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	242	244	301	414	460		75.5	2.2	4.3	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2497	2861	2445	2615	2827		-1.8	-0.2	1.5	
of which cogeneration units			477	513	462	458	600	736	687		-0.3	2.6	1.4	
Solids fired			2738	2672	2159	2397	1899	1706	1901		-2.3	-1.3	0.0	
Gas fired			175	200	234	413	425	725	689		2.9	6.1	4.9	
Oil fired			65	65	66	12	59	54	54		0.2	-1.2	-0.8	
Biomass-waste fired			19	21	37	39	62	130	184		6.9	5.4	11.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	45.6	43.5	55.9	54.3	54.4					
Efficiency of gross thermal power generation (%)			29.8	34.3	33.0	36.4	41.8	42.7	44.7					
% of gross electricity from CHP			17.6	33.1	21.8	23.5	19.8	21.1	13.5					
Carbon free gross electricity generation (%)			0.7	2.3	12.0	6.7	7.3	10.4	11.5					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	12.0	6.7	7.3	10.4	11.5					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.9	16.8	17.5	18.1	18.3	-0.3	3.4	0.9	0.5	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.4	2.4	-5.1	-0.1	-0.5	-0.2	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.2	12.9	13.4	13.8	13.9	4.2	4.6	1.0	0.3	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.7	2.1	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	2.5	3.4	5.3	4.4	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	1.0	0.7	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.9	23.6	25.4	26.5	27.2	0.5	5.7	2.0	0.7	
Trucks	4.5	1.5	3.9	5.8	8.6	10.6	12.1	13.1	13.7	-1.4	8.2	3.4	1.3	
Rail	7.0	3.8	8.1	10.6	12.2	12.9	13.3	13.5	13.6	1.5	4.2	0.8	0.2	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	893	1002	1033	1045	1086	-3.7	4.5	1.5	0.5	
Public road transport	44	21	25	23	21	20	19	17	16	-5.5	-1.7	-1.1	-1.7	
Private cars and motorcycles	273	263	307	338	386	400	391	376	382	1.2	2.3	0.1	-0.2	
Trucks	414	139	167	263	371	455	505	533	578	-8.7	8.3	3.1	1.4	
Rail	65	44	51	48	54	56	51	45	27	-2.4	0.6	-0.6	-6.3	
Aviation	36	18	20	42	50	59	55	62	70	-5.9	9.8	1.0	2.5	
Inland navigation	7	4	7	11	11	11	12	12	13	0.0	4.5	0.9	0.4	

Source: PRIMES

Finland: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	11860	13166	15001	16461	16721	20010	22248	23979	24924	2.4	1.1	2.9	1.1	
Solids	1581	2061	1207	2129	1643	1679	1753	1790	1810	-2.7	3.1	0.7	0.3	
Oil	0	15	37	205	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	5006	4957	5799	6003	6054	8994	10482	11044	10439	1.5	0.4	5.6	0.0	
Renewable energy sources	5273	6133	7959	8124	9025	9337	10014	11145	12675	4.2	1.3	1.0	2.4	
Hydro	934	1111	1261	1185	1188	1194	1202	1220	1234	3.0	-0.6	0.1	0.3	
Biomass & Waste	4338	5021	6691	6924	7773	8076	8714	9673	10976	4.4	1.5	1.1	2.3	
Wind	0	1	7	15	58	58	76	223	427		24.0	2.9	18.8	
Solar and others	0	0	1	1	6	9	21	28	38	3.8	26.2	14.1	6.1	
Geothermal	0	0	0	0	0	0	0	0	0			1.4	0.5	
Net Imports	18031	15542	18512	19163	19408	18202	16523	15413	14033	0.3	0.5	-1.6	-1.6	
Solids	4378	3774	3533	3338	3882	3915	3982	3869	3716	-2.1	0.9	0.3	-0.7	
Oil	10477	8205	10535	10844	9889	9152	8519	8279	8144	0.1	-0.6	-1.5	-0.4	
- Crude oil and Feedstocks	8890	8548	12115	11017	11670	11224	10832	10680	10596	3.1	-0.4	-0.7	-0.2	
- Oil products	1587	-343	-1580	-173	-1780	-2073	-2313	-2401	-2452					
Natural gas	2261	2839	3422	3598	4344	4056	3501	2830	1671	4.2	2.4	-2.1	-7.1	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Gross Inland Consumption	28956	28959	32483	34515	35628	37717	38284	38907	38476	1.2	0.9	0.7	0.1	
Solids	5327	5950	5087	4925	5524	5594	5734	5659	5526	-0.5	0.8	0.4	-0.4	
Oil	9939	8344	9195	10482	9388	8656	8031	7795	7663	-0.8	0.2	-1.5	-0.5	
Natural gas	2261	2839	3422	3598	4344	4056	3501	2830	1671	4.2	2.4	-2.1	-7.1	
Nuclear	5006	4957	5799	6003	6054	8994	10482	11044	10439	1.5	0.4	5.6	0.0	
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1	
Renewable energy forms	5508	6146	7959	8046	8937	9246	9916	11036	12551	3.8	1.2	1.0	2.4	
as % in Gross Inland Consumption														
Solids	18.4	20.5	15.7	14.3	15.5	14.8	15.0	14.5	14.4					
Oil	34.3	28.8	28.3	30.4	26.4	23.0	21.0	20.0	19.9					
Natural gas	7.8	9.8	10.5	10.4	12.2	10.8	9.1	7.3	4.3					
Nuclear	17.3	17.1	17.9	17.4	17.0	23.8	27.4	28.4	27.1					
Renewable energy forms	19.0	21.2	24.5	23.3	25.1	24.5	25.9	28.4	32.6					
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	81393	90064	101574	106321	108501	2.6	1.5	2.2	0.7	
Self consumption and grid losses	5547	6510	5449	5710	6868	7791	9011	10127	10640	-0.2	2.3	2.8	1.7	
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	7685	6938	7538	7567	7794	2.4	1.0	-0.2	0.3	
Solids	3216	3882	3168	2974	3642	3803	3925	3924	3948	-0.1	1.4	0.7	0.1	
Oil (including refinery gas)	294	257	131	107	72	0	0	0	0	-7.8	-5.8			
Gas (including derived gases)	1015	1581	2106	2384	2709	2263	1981	1240	248	7.6	2.5	-3.1	-18.8	
Biomass & Waste	926	996	1518	2073	1261	872	1632	2402	3597	5.1	-1.8	2.6	8.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	12055	14028	15309	15473	15449	15605	15114	14947	14534	2.4	0.1	-0.2	-0.4	
Refineries	10689	12029	13200	13194	12101	11661	11266	11110	11019	2.1	-0.9	-0.7	-0.2	
Biofuels and hydrogen production	0	0	0	0	105	266	418	489	571			14.8	3.2	
District heating	573	548	803	954	2009	2566	2469	2472	2155	3.4	9.6	2.1	-1.3	
Derived gases, cokeries etc.	793	1451	1306	1325	1234	1112	961	876	789	5.1	-0.6	-2.5	-2.0	
Energy Branch Consumption	781	965	1285	1228	1234	1240	1275	1342	1366	5.1	-0.4	0.3	0.7	
Non-Energy Uses	1441	1152	896	1095	1173	1200	1196	1199	1196	-4.6	2.7	0.2	0.0	
Final Energy Demand	21727	22041	24159	25121	26573	26880	26768	27076	27163	1.1	1.0	0.1	0.1	
by sector														
Industry	9618	9988	12053	11988	12651	12792	12723	12812	12877	2.3	0.5	0.1	0.1	
- energy intensive industries	7351	7628	9456	9067	9445	9458	9343	9381	9417	2.6	0.0	-0.1	0.1	
- other industrial sectors	2267	2359	2596	2921	3206	3334	3380	3431	3460	1.4	2.1	0.5	0.2	
Residential	5321	5418	4536	4846	5101	5137	5109	5176	5153	-1.6	1.2	0.0	0.1	
Tertiary	2479	2484	3127	3471	3699	3766	3748	3787	3762	2.3	1.7	0.1	0.0	
Transport	4309	4151	4443	4816	5122	5186	5189	5301	5371	0.3	1.4	0.1	0.3	
by fuel														
Solids	1621	1277	1099	966	1004	1027	1035	1018	966	-3.8	-0.9	0.3	-0.7	
Oil	8100	7563	7507	7890	7313	6903	6503	6461	6423	-0.8	-0.3	-1.2	-0.1	
Gas	1501	1523	1328	1156	1416	1175	858	835	832	-1.2	0.6	-4.9	-0.3	
Electricity	5068	5608	6487	6959	7711	8168	8504	8740	8965	2.5	1.7	1.0	0.5	
Heat (from CHP and District Heating)	1915	2126	2780	3597	3911	4219	4640	4774	4679	3.8	3.5	1.7	0.1	
Renewable energy forms	3522	3944	4957	4552	5217	5386	5227	5247	5296	3.5	0.5	0.0	0.1	
Other	0	0	0	0	0	1	1	2	2			13.4	2.2	
RES in Gross Final Energy Consumption ^(A)			7701	7458	8431	8669	9129	10003	11395		0.9	0.8	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	70.9	68.1	65.2	61.4	56.7	-0.3	0.1	-0.8	-1.4	
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	56.3	53.6	51.1	48.6	45.0	-0.1	0.5	-1.0	-1.3	
Power generation/District heating	17.8	21.8	20.2	20.5	24.1	23.4	23.4	21.6	18.8	1.3	1.8	-0.3	-2.1	
Energy Branch	1.4	1.7	2.7	2.5	2.3	2.2	1.7	1.3	1.0	7.0	-1.6	-2.9	-5.5	
Industry	14.1	12.4	12.5	11.8	10.5	9.4	8.2	7.7	7.2	-1.2	-1.7	-2.4	-1.3	
Residential	6.4	5.9	2.3	2.1	1.7	1.4	1.1	1.1	1.2	-9.6	-2.9	-4.3	0.3	
Tertiary	2.1	1.7	3.0	3.0	2.9	2.6	2.4	2.5	2.5	3.8	-0.5	-1.7	0.3	
Transport	12.7	12.2	13.1	14.2	14.8	14.6	14.3	14.4	14.4	0.3	1.3	-0.4	0.1	
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.8	3.7	3.5	3.4	3.2	0.1	-0.3	-0.9	-0.8	
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	10.8	10.6	9.3	8.4	-1.2	-1.6	-0.2	-2.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	97.7	93.9	89.9	84.7	78.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Finland: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	194.5	186.1	173.0	162.2	150.9	-0.8	-1.8	-1.2	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.58	1.42	1.33	1.25	1.17	-1.3	-0.5	-1.7	-1.3
Import Dependency %	61.1	53.1	55.8	54.7	53.7	47.6	42.6	39.1	36.0				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	20.1	23.2	27.0	30.2	33.7		3.7	3.0	2.2
as % of GDP			10.1	10.5	11.0	11.4	12.2	12.6	13.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.5	66.7	61.0	57.0	54.4	-2.9	-3.0	-1.8	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	84.2	77.8	71.8	67.8	63.8	-2.7	-1.7	-1.6	-1.2
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	93.4	85.9	77.9	72.1	66.8	1.0	-0.7	-1.8	-1.5
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.7	32.8	32.0	32.0	31.8	-0.3	0.4	-0.5	-0.1
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.6	44.2	43.3	42.6	42.0	-1.7	0.5	-0.3	-0.3
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.18	0.16	0.15	0.13	0.11	-1.6	-0.5	-2.2	-2.5
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.13	1.04	0.97	0.95	0.93	-2.3	-1.3	-1.5	-0.4
Industry	1.46	1.24	1.03	0.98	0.83	0.73	0.64	0.60	0.56	-3.4	-2.2	-2.5	-1.4
Residential	1.21	1.09	0.52	0.43	0.34	0.27	0.22	0.21	0.22	-8.1	-4.0	-4.3	0.2
Tertiary	0.84	0.70	0.96	0.86	0.78	0.70	0.64	0.65	0.67	1.4	-2.1	-1.9	0.3
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.68	0.0	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	30.6	31.1	32.8	35.5	40.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.8	7.5	8.5	9.9				
Gross Electricity generation by source (in GWh)													
			69976	70536	81393	90064	101574	106321	108501		1.5	2.2	0.7
Nuclear energy			22475	23267	23470	36243	42834	45381	43726		0.4	6.2	0.2
Solids			10359	9486	14711	14725	14939	14022	13501		3.6	0.2	-1.0
Oil (including refinery gas)			444	419	1172	533	451	247	1		10.2	-9.1	-48.8
Gas (including derived gases)			10776	11400	14504	11222	9999	7858	3575		3.0	-3.7	-9.8
Biomass-waste			11185	12010	13047	12774	18465	22003	28351		1.6	3.5	4.4
Hydro (pumping excluded)			14657	13782	13814	13887	13979	14186	14348		-0.6	0.1	0.3
Wind			78	170	669	669	888	2597	4965		24.0	2.9	18.8
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18734	18932	20149	21361	22594		0.9	0.7	1.2
<u>Nuclear energy</u>			2687	2690	2691	4207	4968	5263	5065		0.0	6.3	0.2
<u>Renewable energy</u>			3057	3104	3337	3358	3466	4092	5002		0.9	0.4	3.7
Hydro (pumping excluded)			3016	3018	3057	3072	3097	3116	3131		0.1	0.1	0.1
Wind			38	82	272	272	346	942	1826		21.8	2.4	18.1
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12706	11367	11715	12006	12527		1.2	-0.8	0.7
of which cogeneration units			7129	7583	7591	7653	9353	9604	10311		0.6	2.1	1.0
Solids fired			5539	5687	5754	5111	3909	3534	3195		0.4	-3.8	-2.0
Gas fired			2479	2444	3145	3056	2988	3055	2731		2.4	-0.5	-0.9
Oil fired			1341	1340	1341	777	727	613	399		0.0	-5.9	-5.8
Biomass-waste fired			1942	2247	2467	2423	4091	4804	6202		2.4	5.2	4.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	47.5	51.9	54.8	53.8	51.8				
Efficiency of gross thermal power generation (%)			40.7	38.0	48.6	48.7	50.0	50.2	50.1				
% of gross electricity from CHP			44.9	45.7	47.2	39.4	42.3	41.1	41.4				
Carbon free gross electricity generation (%)			69.2	69.8	62.7	70.6	75.0	79.2	84.3				
- nuclear			32.1	33.0	28.8	40.2	42.2	42.7	40.3				
- renewable energy forms			37.0	36.8	33.8	30.4	32.8	36.5	44.0				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	95.2	99.3	102.3	105.5	107.9	0.8	1.6	0.7	0.5
Public road transport	8.5	8.0	7.7	7.4	7.5	7.6	8.0	8.2	8.4	-1.0	-0.3	0.6	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	69.1	71.4	72.6	73.9	74.4	0.9	2.0	0.5	0.2
Rail	3.7	3.6	3.9	4.0	4.1	4.4	4.8	5.2	5.7	0.6	0.6	1.6	1.6
Aviation	5.3	6.1	7.9	8.6	9.8	11.1	12.1	13.3	14.5	4.1	2.3	2.1	1.9
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.8	4.9	5.0	-0.8	-0.5	0.2	0.4
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.9	43.6	44.3	45.3	46.1	1.7	0.1	0.3	0.4
Trucks	26.3	24.5	32.0	31.9	32.9	33.3	33.5	33.9	34.1	2.0	0.3	0.2	0.2
Rail	8.4	9.6	10.1	9.7	9.8	10.1	10.7	11.3	11.8	1.9	-0.3	0.8	1.0
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.3
Energy demand in transport (ktoe)	4309	4151	4443	4816	5122	5186	5189	5301	5371	0.3	1.4	0.1	0.3
Public road transport	97	84	55	57	57	57	59	59	59	-5.4	0.4	0.3	0.0
Private cars and motorcycles	1840	1867	1904	2137	2315	2312	2303	2381	2416	0.3	2.0	-0.1	0.5
Trucks	1699	1557	1715	1764	1821	1828	1820	1834	1865	0.1	0.6	0.0	0.2
Rail	99	102	94	97	100	102	102	101	78	-0.6	0.6	0.3	-2.7
Aviation	459	408	505	565	636	694	710	730	758	1.0	2.3	1.1	0.6
Inland navigation	116	134	170	195	192	192	194	196	196	3.9	1.3	0.1	0.1

Source: PRIMES

France: High Oil & Gas prices Baseline											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
										Annual % Change					
Primary Production	110428	126844	131806	135848	138351	146439	170215	155322	157585	1.8	0.5	2.1	-0.8		
Solids	7625	5359	2267	383	412	216	17	18	19	-11.4	-15.7	-27.1	0.6		
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9					
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0					
Nuclear	81018	97308	107093	116474	116590	122274	142821	124711	124534	2.8	0.9	2.1	-1.4		
Renewable energy sources	15778	17903	18065	16695	21349	23948	27376	30593	33032	1.4	1.7	2.5	1.9		
Hydro	4635	6322	5822	4491	5578	5451	5567	6021	6110	2.3	-0.4	0.0	0.9		
Biomass & Waste	11014	11434	12087	11968	14757	16717	19226	20675	22507	0.9	2.0	2.7	1.6		
Wind	0	0	7	82	762	1237	1799	2952	3371		60.7	9.0	6.5		
Solar and others	19	15	26	24	117	399	632	792	894	2.8	16.4	18.4	3.5		
Geothermal	110	132	124	130	135	144	151	152	149	1.2	0.9	1.1	-0.1		
Net Imports	120027	116049	133463	143600	144991	142713	129398	134075	130208	1.1	0.8	-1.1	0.1		
Solids	13004	9010	13201	13660	13911	13699	7686	8399	6342	0.2	0.5	-5.8	-1.9		
Oil	86558	85551	90452	94460	91732	92217	88689	88298	89527	0.4	0.1	-0.3	0.1		
- Crude oil and Feedstocks	76007	78951	84375	84707	84541	84958	83306	83110	84206	1.0	0.0	-0.1	0.1		
- Oil products	10551	6600	6077	9753	7191	7259	5383	5189	5320	-5.4	1.7	-2.9	-0.1		
Natural gas	24371	27493	35778	40720	44646	41974	37390	40422	36415	3.9	2.2	-1.8	-0.3		
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971						
Gross Inland Consumption	226550	239896	258985	275439	280431	286157	296571	286279	284592	1.3	0.8	0.6	-0.4		
Solids	19955	15287	15240	14428	14323	13915	7703	8417	6361	-2.7	-0.6	-6.0	-1.9		
Oil	87673	85826	88790	92086	88821	89222	85648	85180	86326	0.1	0.0	-0.4	0.1		
Natural gas	26032	29577	35766	40996	44646	41974	37390	40422	36415	3.2	2.2	-1.8	-0.3		
Nuclear	81018	97308	107093	116474	116590	122274	142821	124711	124534	2.8	0.9	2.1	-1.4		
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971						
Renewable energy forms	15778	17903	18070	16640	21281	23871	27288	30497	32928	1.4	1.6	2.5	1.9		
as % in Gross Inland Consumption															
Solids	8.8	6.4	5.9	5.2	5.1	4.9	2.6	2.9	2.2						
Oil	38.7	35.8	34.3	33.4	31.7	31.2	28.9	29.8	30.3						
Natural gas	11.5	12.3	13.8	14.9	15.9	14.7	12.6	14.1	12.8						
Nuclear	35.8	40.6	41.4	42.3	41.6	42.7	48.2	43.6	43.8						
Renewable energy forms	7.0	7.5	7.0	6.0	7.6	8.3	9.2	10.7	11.6						
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	618556	634074	669263	651456	656734	2.6	1.4	0.8	-0.2		
Self consumption and grid losses	48047	53203	56438	59733	61636	62358	67105	65884	73861	1.6	0.9	0.9	1.0		
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	16243	13733	5510	9271	5289	1.7	2.2	-10.2	-0.4		
Solids	7334	5441	6231	6402	6828	6880	1300	2280	652	-1.6	0.9	-15.3	-6.7		
Oil (including refinery gas)	1921	605	1272	1653	1	0	1	1	1	-4.0	-51.8	-0.5	-1.5		
Gas (including derived gases)	1423	1216	4062	6291	7848	5190	1783	3620	812	11.1	6.8	-13.8	-7.6		
Biomass & Waste	439	1224	1565	1640	1565	1663	2425	3369	3825	13.6	0.0	4.5	4.7		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	89549	90896	97392	94237	94954	96451	95677	95932	97452	0.8	-0.3	0.1	0.2		
Refineries	79634	83057	90084	87693	86104	86592	84944	84770	85894	1.2	-0.5	-0.1	0.1		
Biofuels and hydrogen production	0	155	328	434	2313	3876	5691	6384	7086		21.6	9.4	2.2		
District heating	1019	605	312	273	267	263	260	273	270	-11.1	-1.5	-0.3	0.4		
Derived gases, cokeries etc.	8896	7079	6668	5837	6268	5720	4782	4504	4203	-2.8	-0.6	-2.7	-1.3		
Energy Branch Consumption	9230	10345	10689	10095	9342	7671	7497	7212	7758	1.5	-1.3	-2.2	0.3		
Non-Energy Uses	13272	16593	15672	15786	16412	16956	17017	17444	17725	1.7	0.5	0.4	0.4		
Final Energy Demand	136214	141436	152315	156523	163167	167419	167547	168263	169701	1.1	0.7	0.3	0.1		
by sector															
Industry	36205	36949	36579	35580	35879	37234	37911	38094	38081	0.1	-0.2	0.6	0.0		
- energy intensive industries	24279	21310	22143	20671	20551	20772	20666	20391	20058	-0.9	-0.7	0.1	-0.3		
- other industrial sectors	11926	15639	14436	14909	15328	16463	17245	17703	18023	1.9	0.6	1.2	0.4		
Residential	36375	36198	42516	45491	47288	47075	46497	46360	45900	1.6	1.1	-0.2	-0.1		
Tertiary	21726	24164	21620	25696	27971	28585	28882	28499	28360	0.0	2.6	0.3	-0.2		
Transport	41908	44125	51599	49756	52029	54524	54257	55309	57360	2.1	0.1	0.4	0.6		
by fuel															
Solids	9017	6905	5775	4685	4193	4096	4082	3946	3648	-4.4	-3.1	-0.3	-1.1		
Oil	67377	67964	71964	71245	71264	71731	68503	67935	68972	0.7	-0.1	-0.4	0.1		
Gas	23400	27098	30880	33902	34529	33857	32221	33117	32609	2.8	1.1	-0.7	0.1		
Electricity	25960	29456	33096	36330	40249	42982	46339	46327	47029	2.5	2.0	1.4	0.1		
Heat (from CHP and District Heating)	774	459	237	207	248	243	245	268	272	-11.1	0.4	-0.1	1.0		
Renewable energy forms	9686	9553	10364	10153	12680	14501	16146	16652	17151	0.7	2.0	2.4	0.6		
Other	0	0	0	0	4	8	11	18	20			11.2	5.9		
RES in Gross Final Energy Consumption (A)			16928	15420	20119	22625	25822	28846	30920		1.7	2.5	1.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	546.5	540.0	493.9	492.2	471.3	-0.1	-0.3	-1.0	-0.5		
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	375.5	367.6	322.3	329.7	315.1	0.6	0.1	-1.5	-0.2		
Power generation/District heating	40.1	27.6	39.6	46.7	46.6	40.6	10.6	18.8	5.8	-0.1	1.6	-13.7	-6.0		
Energy Branch	17.1	19.1	19.6	16.6	14.3	13.3	12.1	11.6	9.5	1.4	-3.1	-1.7	-2.4		
Industry	79.1	76.1	70.1	66.0	64.0	63.9	61.8	60.1	58.8	-1.2	-0.9	-0.4	-0.5		
Residential	55.2	52.2	61.5	64.8	62.9	59.4	55.4	55.2	53.7	1.1	0.2	-1.3	-0.3		
Tertiary	39.2	40.9	32.1	39.2	39.7	38.7	35.9	35.8	34.8	-2.0	2.2	-1.0	-0.3		
Transport	122.1	129.0	150.6	145.2	147.9	151.6	146.5	148.2	152.6	2.1	-0.2	-0.1	0.4		
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.8	29.8	29.0	28.6	28.3	-1.8	0.0	-0.6	-0.3		
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	142.7	142.6	133.9	127.9	-1.1	-1.1	0.2	-1.1		
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	96.8	95.6	87.4	87.1	83.4						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										France: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	145.9	131.3	121.8	106.8	97.9	-0.7	-1.1	-1.8	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.34	1.28	1.09	1.15	1.11	-0.8	-0.7	-2.1	0.2
Import Dependency %	52.4	47.9	50.9	51.6	51.2	49.4	43.2	46.3	45.2				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	171.3	198.3	221.9	242.7	264.7		2.0	2.6	1.8
as % of GDP			8.9	8.6	8.9	9.1	9.1	9.1	9.1				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	82.1	75.1	68.2	62.2	57.4	-1.5	-2.0	-1.8	-1.7
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	90.5	81.3	73.3	67.4	62.2	-0.1	-1.0	-2.1	-1.6
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	106.7	96.1	86.9	77.7	71.2	-2.3	0.7	-2.0	-2.0
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	31.0	30.1	27.4	25.8	25.0	-0.2	-1.7	-1.2	-0.9
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.7	75.9	74.9	73.8	73.1	0.8	0.8	-0.1	-0.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.07	0.06	0.02	0.03	0.01	-2.4	0.2	-14.4	
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.93	1.87	1.79	1.78	1.77	-0.5	-0.7	-0.8	-0.1
Industry	2.18	2.06	1.92	1.85	1.79	1.72	1.63	1.58	1.54	-1.3	-0.7	-0.9	-0.5
Residential	1.52	1.44	1.45	1.43	1.33	1.26	1.19	1.19	1.17	-0.5	-0.8	-1.1	-0.2
Tertiary	1.81	1.69	1.48	1.53	1.42	1.35	1.24	1.26	1.23	-2.0	-0.4	-1.3	-0.1
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.70	2.68	2.66	0.0	-0.3	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	11.9	13.1	14.9	16.6	17.6				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.3	7.0	10.1	11.1	11.8				
Gross Electricity generation by source (in GWh)													
			536004	570542	618556	634074	669263	651456	656734		1.4	0.8	-0.2
Nuclear energy			415087	451448	451980	475395	555032	489938	529403		0.9	2.1	-0.5
Solids			25644	27018	29435	31956	7407	12214	3735		1.4	-12.9	-6.6
Oil (including refinery gas)			6896	7042	3184	1559	232	646	3		-7.4	-23.0	-34.6
Gas (including derived gases)			16214	26341	50996	37917	12669	27661	2785		12.1	-13.0	-14.1
Biomass-waste			4381	5496	9185	8915	7622	15902	9607		7.7	-1.8	2.3
Hydro (pumping excluded)			67698	52224	64861	63387	64737	70009	71050		-0.4	0.0	0.9
Wind			77	959	8859	14383	20921	34326	39197		60.7	9.0	6.5
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	0	463	463	463	463				0.0
Net Generation Capacity in MW_e			111945	113154	118615	120768	121664	120601	124295		0.6	0.3	0.2
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	57045	61410		0.0	0.3	-0.5
<u>Renewable energy</u>			25092	26102	29218	31683	33861	38701	40859		1.5	1.5	1.9
Hydro (pumping excluded)			25016	25313	25351	25405	25470	25607	25889		0.1	0.0	0.2
Wind			66	756	3559	5921	7943	12525	14188		49.0	8.4	6.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	240	240	240			0.0	0.0
<u>Thermal power</u>			24306	24482	26586	24518	23116	24855	22026		0.9	-1.4	-0.5
of which cogeneration units			4205	5546	9965	9138	10248	12031	9544		9.0	0.3	-0.7
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	13561	13444	13956	14855	12149		11.9	0.3	-1.4
Oil fired			9128	8975	7345	5100	2160	2148	2032		-2.1	-11.5	-0.6
Biomass-waste fired			860	1147	1407	1934	3227	4163	5390		5.1	8.7	5.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	57.1	57.7	60.6	59.5	57.9				
Efficiency of gross thermal power generation (%)			34.8	35.5	49.1	50.3	43.6	52.3	26.2				
% of gross electricity from CHP			3.1	2.9	7.8	7.2	3.0	6.8	1.9				
Carbon free gross electricity generation (%)			90.9	89.4	86.5	88.7	97.0	93.8	99.0				
- nuclear			77.4	79.1	73.1	75.0	82.9	75.2	80.6				
- renewable energy forms			13.5	10.3	13.4	13.8	14.0	18.6	18.4				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	1001.9	1059.8	1112.0	1170.6	1229.1	1.7	1.2	1.0	1.0
Public road transport	41.3	41.6	42.4	44.0	46.2	49.2	53.3	57.3	61.2	0.3	0.9	1.4	1.4
Private cars and motorcycles	599.7	654.3	713.2	749.5	790.8	819.6	841.9	870.5	897.6	1.7	1.0	0.6	0.6
Rail	73.9	64.6	80.7	89.7	98.1	111.7	125.6	137.3	149.2	0.9	2.0	2.5	1.7
Aviation	26.1	34.1	46.0	53.1	63.0	75.5	87.1	101.2	116.5	5.8	3.2	3.3	2.9
Inland navigation	4.9	5.1	4.1	3.9	3.8	3.8	4.0	4.3	4.6	-1.7	-0.9	0.7	1.3
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	276.6	297.9	317.6	340.2	363.8	2.4	0.3	1.4	1.4
Trucks	153.5	178.2	204.0	205.3	233.1	254.0	271.6	291.3	311.3	2.9	1.3	1.5	1.4
Rail	50.7	48.1	55.3	40.7	34.6	35.1	37.2	39.8	43.2	0.9	-4.6	0.7	1.5
Inland navigation	7.6	6.6	9.1	8.9	8.8	8.7	8.9	9.1	9.2	1.8	-0.3	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	52029	54524	54257	55309	57360	2.1	0.1	0.4	0.6
Public road transport	384	403	417	424	421	439	462	461	449	0.8	0.1	0.9	-0.3
Private cars and motorcycles	23233	22171	24945	23052	23074	23168	22658	22250	22395	0.7	-0.8	-0.2	-0.1
Trucks	12587	14909	17407	18419	19903	21593	22801	24155	25740	3.3	1.3	1.4	1.2
Rail	1150	1220	1373	1264	1151	1163	1136	1072	974	1.8	-1.7	-0.1	-1.5
Aviation	3839	4690	6683	6291	7182	7865	6894	7052	7471	5.7	0.7	-0.4	0.8
Inland navigation	714	731	775	305	298	295	307	320	329	0.8	-9.1	0.3	0.7

Source: PRIMES

Germany: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	119119	111355	92093	82649	83871	-3.3	-1.1	-2.5	-0.9	
Solids	125210	78868	59628	56514	46756	44559	38161	37667	37215	-7.2	-2.4	-2.0	-0.3	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	22283	26128	31936	34982	38156	5.4	7.7	3.7	1.8	
Hydro	1498	1873	1869	1684	1696	1788	1800	1843	1889	2.2	-1.0	0.6	0.5	
Biomass & Waste	4797	5351	7877	12190	15972	18841	22311	23790	25682	5.1	7.3	3.4	1.4	
Wind	6	147	804	2341	3660	4177	6191	7494	8585	62.9	16.4	5.4	3.3	
Solar and others	11	41	96	365	790	1133	1417	1618	1754	24.3	23.5	6.0	2.2	
Geothermal	7	9	10	138	165	189	216	237	247	3.4	32.7	2.8	1.3	
Net Imports	164822	195060	204678	214351	213873	217731	223786	226866	219509	2.2	0.4	0.5	-0.2	
Solids	2881	10931	21576	26781	32852	39242	48314	50914	49565	22.3	4.3	3.9	0.3	
Oil	120126	130810	125974	122228	110755	108142	103541	102451	97804	0.5	-1.3	-0.7	-0.6	
- Crude oil and Feedstocks	88505	101168	101801	113120	109581	108409	106379	106970	104596	1.4	0.7	-0.3	-0.2	
- Oil products	31621	29643	24173	9108	1174	-267	-2838	-4518	-6791	-2.7	-26.1			
Natural gas	41747	52904	56865	65734	69732	69409	70568	72067	70689	3.1	2.1	0.1	0.0	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	330437	326489	313252	306846	300675	-0.4	-0.3	-0.5	-0.4	
Solids	131510	92177	83727	82805	79607	83801	86474	88580	86780	-4.4	-0.5	0.8	0.0	
Oil	124248	133627	129918	123409	111059	108076	103114	99783	95099	0.4	-1.6	-0.7	-0.8	
Natural gas	54976	67298	71853	80856	83232	81409	81568	82067	79189	2.7	1.5	-0.2	-0.3	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	22283	26128	31936	34982	38156	5.4	7.7	3.7	1.8	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	24.1	25.7	27.6	28.9	28.9					
Oil	35.0	39.5	38.2	35.7	33.6	33.1	32.9	32.5	31.6					
Natural gas	15.5	19.9	21.1	23.4	25.2	24.9	26.0	26.7	26.3					
Nuclear	10.6	11.0	12.9	12.2	10.2	8.0	2.8	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	6.7	8.0	10.2	11.4	12.7					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	643518	668950	674742	683894	691164	0.4	1.3	0.5	0.2	
Self consumption and grid losses	65998	62673	74099	72965	74421	76043	77203	79942	80611	1.2	0.0	0.4	0.4	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	82913	89394	95973	100017	96650	-0.9	-0.3	1.5	0.1	
Solids	75843	69147	68066	66172	63923	65853	72029	75277	72999	-1.1	-0.6	1.2	0.1	
Oil (including refinery gas)	2871	2083	1108	2038	676	112	114	48	18	-9.1	-4.8	-16.3	-16.7	
Gas (including derived gases)	12676	11982	12906	19233	14108	16065	18045	17438	14955	0.2	0.9	2.5	-1.9	
Biomass & Waste	1824	2665	3174	5102	4196	4614	5749	7198	8614	5.7	2.8	3.2	4.1	
Geothermal heat	0	0	0	0	10	21	36	56	63			14.0	5.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	139255	138325	136279	133332	130680	-1.8	0.2	-0.2	-0.4	
Refineries	106658	116715	119856	127082	119473	117750	114804	112727	109916	1.2	0.0	-0.4	-0.4	
Biofuels and hydrogen production	0	31	222	1942	4478	6466	8673	8961	9289		35.0	6.8	0.7	
District heating	6389	3638	1435	873	2691	2692	2585	2476	3101	-13.9	6.5	-0.4	1.8	
Derived gases, cokeries etc.	51565	19819	15423	14625	12614	11416	10218	9168	8374	-11.4	-2.0	-2.1	-2.0	
Energy Branch Consumption	15384	14906	14242	15144	13553	13043	12122	11228	10631	-0.8	-0.5	-1.1	-1.3	
Non-Energy Uses	23249	22912	25272	24779	24728	24609	23845	23302	22736	0.8	-0.2	-0.4	-0.5	
Final Energy Demand	228372	223379	220163	216010	223523	223018	220179	219914	217524	-0.4	0.2	-0.2	-0.1	
by sector														
Industry	72116	61981	59715	56706	56563	54927	53242	52465	52148	-1.9	-0.5	-0.6	-0.2	
- energy intensive industries	49422	42778	40359	38652	38077	36552	34928	33773	33077	-2.0	-0.6	-0.9	-0.5	
- other industrial sectors	22693	19203	19356	18053	18486	18375	18315	18692	19072	-1.6	-0.5	-0.1	0.4	
Residential	58400	62212	61905	65931	68047	67212	66422	67115	67562	0.6	1.0	-0.2	0.2	
Tertiary	39361	35275	32547	33416	35028	35110	34424	34161	33863	-1.9	0.7	-0.2	-0.2	
Transport	58494	62910	65997	61958	63885	65769	66090	66173	63951	1.2	-0.3	0.3	-0.3	
by fuel														
Solids	38693	14917	10951	9639	9780	9898	9705	8946	8254	-11.9	-1.1	-0.1	-1.6	
Oil	96422	104474	98052	87411	79865	78097	75422	73950	70927	0.2	-2.0	-0.6	-0.6	
Gas	42724	52595	58030	61814	66849	62749	60501	61029	60848	3.1	1.4	-1.0	0.1	
Electricity	38391	38912	41496	44497	48081	50654	51769	52552	53157	0.8	1.5	0.7	0.3	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7660	7993	7547	7711	7887	-2.9	1.2	-0.1	0.4	
Renewable energy forms	2991	2734	4804	7222	11284	13619	15222	15703	16428	4.9	8.9	3.0	0.8	
Other	0	0	0	0	5	8	12	23	24			10.0	7.1	
RES in Gross Final Energy Consumption (A)			8812	13195	20284	23888	28880	32000	35159		8.7	3.6	2.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	958.9	960.8	954.5	933.1	899.4	-1.7	-0.8	0.0	-0.7	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	765.8	771.1	771.0	773.2	748.3	-1.5	-0.7	0.1	-0.3	
Power generation/District heating	375.1	328.9	316.2	325.0	302.4	323.9	341.7	352.7	341.5	-1.7	-0.4	1.2	0.0	
Energy Branch	26.2	27.7	27.1	28.9	23.8	22.7	19.4	17.3	16.1	0.3	-1.3	-2.0	-1.9	
Industry	170.5	130.6	118.3	105.6	97.7	89.5	83.4	78.7	74.9	-3.6	-1.9	-1.6	-1.1	
Residential	134.3	127.4	117.7	120.0	116.9	111.1	108.2	107.6	106.8	-1.3	-0.1	-0.8	-0.1	
Tertiary	84.7	64.1	53.1	51.1	50.7	48.7	46.7	45.2	44.6	-4.6	-0.5	-0.8	-0.5	
Transport	168.9	181.9	190.9	174.3	174.3	175.2	171.6	171.6	164.5	1.2	-0.9	-0.2	-0.4	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	73.4	73.1	72.0	71.6	70.2	-0.2	-1.2	-0.2	-0.3	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	116.6	111.5	88.4	70.9	-3.7	-1.1	-0.7	-4.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	77.3	77.5	77.0	75.2	71.7					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Germany: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2	
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1	
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	133.7	120.4	107.0	98.4	91.7	-2.1	-1.6	-2.2	-1.5	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.32	2.36	2.46	2.52	2.49	-1.1	-0.4	0.6	0.1	
Import Dependency %	46.1	57.3	59.8	61.6	64.2	66.2	70.8	73.3	72.4					
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	267.9	303.9	341.8	359.8	373.1		3.0	2.5	0.9	
as % of GDP			9.2	10.5	10.8	11.2	11.7	11.5	11.4					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.2	70.1	62.6	57.6	54.2	-2.8	-2.3	-2.3	-1.4	
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	99.7	90.7	83.6	79.6	76.2	-1.3	0.0	-1.7	-0.9	
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	91.9	82.9	74.9	69.4	65.2	-4.3	-0.8	-2.0	-1.4	
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.2	36.8	34.8	33.0	30.1	-1.2	-1.5	-0.9	-1.4	
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	33.0	32.0	31.4	30.9	30.5	0.6	-2.3	-0.5	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.41	0.42	0.44	0.45	0.43	-1.4	-1.7	0.8	-0.2	
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	1.97	1.90	1.86	1.83	1.80	-1.1	-1.0	-0.5	-0.4	
Industry	2.36	2.11	1.98	1.86	1.73	1.63	1.57	1.50	1.44	-1.8	-1.4	-1.0	-0.9	
Residential	2.30	2.05	1.90	1.82	1.72	1.65	1.63	1.60	1.58	-1.9	-1.0	-0.5	-0.3	
Tertiary	2.15	1.82	1.63	1.53	1.45	1.39	1.36	1.32	1.32	-2.7	-1.2	-0.6	-0.3	
Transport	2.89	2.89	2.89	2.81	2.73	2.66	2.60	2.59	2.57	0.0	-0.6	-0.5	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	8.8	10.4	12.7	14.1	15.6					
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	7.1	10.0	13.3	13.7	14.3					
Gross Electricity generation by source (in GWh)														
			567219	613054	643518	668950	674742	683894	691164		1.3	0.5	0.2	
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6		
Solids			286571	262420	325395	352974	377304	400383	401221		1.3	1.5	0.6	
Oil (including refinery gas)			5476	23814	9633	7023	7057	6607	6253		5.8	-3.1	-1.2	
Gas (including derived gases)			64676	96524	92871	110436	129174	127552	114004		3.7	3.4	-1.2	
Biomass-waste			9782	19186	20101	24437	30141	36232	42936		7.5	4.1	3.6	
Hydro (pumping excluded)			21728	19577	19726	20790	20933	21435	21960		-1.0	0.6	0.5	
Wind			9350	27224	42553	48573	71993	87135	99826		16.4	5.4	3.3	
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0	
Geothermal and other renewables			0	0	11	24	42	65	73			14.0	5.6	
Net Generation Capacity in MW_e			112509	122874	139001	144396	154440	159943	162761		2.1	1.1	0.5	
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5		
<u>Renewable energy</u>			9611	23545	30352	33062	42966	49055	52116		12.2	3.5	1.9	
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2	
Wind			6113	18428	23993	25707	34873	40397	42988		14.7	3.8	2.1	
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			81597	78649	93041	99168	107368	110889	110645		1.3	1.4	0.3	
of which cogeneration units			40073	37870	33154	36386	39809	41383	41356		-1.9	1.8	0.4	
Solids fired			47883	45326	51376	54352	56451	60601	59702		0.7	0.9	0.6	
Gas fired			24817	24439	30874	36952	42553	41228	41378		2.2	3.3	-0.3	
Oil fired			7114	6403	6750	3451	2709	2037	1880		-0.5	-8.7	-3.6	
Biomass-waste fired			1783	2481	4039	4408	5648	7010	7671		8.5	3.4	3.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	2	5	8	12	14			13.8	5.6	
Avg. Load factor of net power capacity (%)			53.7	53.1	49.3	49.6	46.7	45.7	45.4					
Efficiency of gross thermal power generation (%)			37.0	37.4	46.5	47.6	48.7	49.1	50.2					
% of gross electricity from CHP			16.9	15.5	20.4	24.3	28.6	29.0	29.3					
Carbon free gross electricity generation (%)			37.1	37.6	33.5	29.7	23.9	21.8	24.6					
- nuclear			29.9	26.6	20.3	15.1	5.1	0.0	0.0					
- renewable energy forms			7.2	11.0	13.2	14.5	18.8	21.8	24.6					
Transport sector														
Passenger transport activity (Gpkm)														
Public road transport	889.5	1041.7	1081.9	1142.4	1235.6	1322.0	1388.8	1452.5	1503.8	2.0	1.3	1.2	0.8	
Private cars and motorcycles	73.1	68.5	69.0	68.2	66.3	69.5	74.7	79.3	83.6	-0.6	-0.4	1.2	1.1	
Rail	702.1	838.2	858.2	911.1	988.9	1047.6	1083.4	1114.1	1135.0	2.0	1.4	0.9	0.5	
Aviation	76.1	85.4	90.0	90.2	92.7	99.1	109.0	122.8	137.6	1.7	0.3	1.6	2.4	
Inland navigation	34.3	46.2	62.0	70.5	85.3	103.2	119.1	133.6	144.8	6.1	3.2	3.4	2.0	
Freight transport activity (Gtkm)	3.8	3.4	2.7	2.5	2.4	2.5	2.6	2.7	2.8	-3.6	-0.9	0.7	0.8	
Freight transport activity (Gtkm)														
Trucks	352.9	371.3	424.7	463.9	503.8	536.1	562.9	588.4	610.7	1.9	1.7	1.1	0.8	
Rail	196.4	237.8	280.7	310.1	336.3	356.3	374.7	393.6	410.5	3.6	1.8	1.1	0.9	
Inland navigation	101.7	69.5	77.5	89.7	100.9	112.7	115.1	116.6	116.6	-2.7	2.7	1.1	0.3	
Energy demand in transport (ktoe)	54.8	64.0	66.5	64.1	66.6	70.8	75.4	79.7	83.6	1.9	0.0	1.3	1.0	
Energy demand in transport (ktoe)														
Public road transport	58494	62910	65997	61958	63885	65769	66090	66173	63951	1.2	-0.3	0.3	-0.3	
Private cars and motorcycles	656	611	612	529	475	476	496	501	513	-0.7	-2.5	0.4	0.3	
Trucks	38247	40001	39981	36421	36615	36616	35647	35070	34198	0.4	-0.9	-0.3	-0.4	
Rail	11518	13643	15834	14528	14636	15063	15678	16377	17093	3.2	-0.8	0.7	0.9	
Aviation	2111	2126	1946	1858	1981	2031	1918	1726	1447	-0.8	0.2	-0.3	-2.8	
Inland navigation	5307	5975	7345	8304	9851	11239	11988	12120	10305	3.3	3.0	2.0	-1.5	
Inland navigation	656	554	279	318	327	344	363	380	395	-8.2	1.6	1.0	0.9	

Source: PRIMES

Greece: High Oil & Gas prices Baseline				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
													Annual % Change	
Primary Production	9152	9740	10010	10315	11135	11032	12696	12944	13584	0.9	1.1	1.3	0.7	
Solids	7077	7911	8222	8538	8694	8009	8884	8731	8752	1.5	0.6	0.2	-0.1	
Oil	832	459	280	100	97	100	99	0	0	-10.3	-10.0	0.2		
Natural gas	138	44	42	18	37	0	0	0	0	-11.2	-1.4			
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1105	1326	1466	1659	2307	2923	3713	4214	4832	2.9	4.6	4.9	2.7	
Hydro	152	303	318	431	418	426	431	435	439	7.6	2.8	0.3	0.2	
Biomass & Waste	893	935	1010	1015	1481	1795	2252	2565	2931	1.2	3.9	4.3	2.7	
Wind	0	3	39	109	254	458	675	799	960	74.8	20.7	10.3	3.6	
Solar and others	56	82	99	102	151	229	293	329	387	5.8	4.3	6.9	2.8	
Geothermal	3	3	2	1	3	16	62	85	115	-4.7	4.9	37.4	6.4	
Net Imports	15415	18207	21982	23336	25998	27238	26565	25858	25051	3.6	1.7	0.2	-0.6	
Solids	988	925	768	371	255	1109	1171	1343	1801	-2.5	-10.4	16.4	4.4	
Oil	14366	17214	19527	20307	20784	21606	21202	20721	20551	3.1	0.6	0.2	-0.3	
- Crude oil and Feedstocks	14757	16955	20439	19352	20551	21322	21116	20927	20843	3.3	0.1	0.3	-0.1	
- Oil products	-391	259	-912	955	233	284	86	-206	-293			-9.5		
Natural gas	0	0	1689	2332	4692	4283	3976	3599	2524		10.8	-1.6	-4.4	
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Gross Inland Consumption	22278	24174	28140	31240	34026	34992	35870	35312	35073	2.4	1.9	0.5	-0.2	
Solids	8091	8783	9040	8952	8949	9119	10055	10074	10553	1.1	-0.1	1.2	0.5	
Oil	12883	13952	15929	17951	17775	18427	17910	17231	16988	2.1	1.1	0.1	-0.5	
Natural gas	138	44	1705	2354	4728	4283	3976	3599	2524	28.6	10.7	-1.7	-4.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1	
Renewable energy forms	1105	1326	1466	1659	2307	2923	3713	4214	4832	2.9	4.6	4.9	2.7	
as % in Gross Inland Consumption														
Solids	36.3	36.3	32.1	28.7	26.3	26.1	28.0	28.5	30.1					
Oil	57.8	57.7	56.6	57.5	52.2	52.7	49.9	48.8	48.4					
Natural gas	0.6	0.2	6.1	7.5	13.9	12.2	11.1	10.2	7.2					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	5.0	5.5	5.2	5.3	6.8	8.4	10.4	11.9	13.8					
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	69185	74078	78029	83543	87679	4.4	2.6	1.2	1.2	
Self consumption and grid losses	5818	6451	8431	10125	10928	11627	12516	14226	15424	3.8	2.6	1.4	2.1	
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	13182	12898	13107	12306	11801	3.0	1.3	-0.1	-1.0	
Solids	6890	7810	8234	8693	8565	8725	9650	9660	10132	1.8	0.4	1.2	0.5	
Oil (including refinery gas)	1708	2075	2036	2053	1213	1449	1168	716	650	1.8	-5.0	-0.4	-5.7	
Gas (including derived gases)	18	14	1280	1605	3347	2653	2125	1680	600	53.1	10.1	-4.4	-11.9	
Biomass & Waste	0	38	64	52	56	56	104	167	306		-1.4	6.5	11.4	
Geothermal heat	0	0	0	0	1	14	60	83	113			47.9	6.5	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	16698	17913	22435	21508	21337	22351	22437	22278	22299	3.0	-0.5	0.5	-0.1	
Refineries	16621	17860	22404	21415	20999	21780	21584	21290	21200	3.0	-0.6	0.3	-0.2	
Biofuels and hydrogen production	0	0	0	0	261	501	791	932	1045			11.7	2.8	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	77	52	30	93	77	69	61	57	53	-8.8	9.7	-2.3	-1.3	
Energy Branch Consumption	1196	1174	1637	1758	1669	1704	1740	1826	1886	3.2	0.2	0.4	0.8	
Non-Energy Uses	651	441	689	711	704	695	695	698	687	0.6	0.2	-0.1	-0.1	
Final Energy Demand	14509	15801	18513	20742	23009	24319	24957	25364	25653	2.5	2.2	0.8	0.3	
by sector														
Industry	3942	4107	4437	4132	4067	4179	4225	4195	4237	1.2	-0.9	0.4	0.0	
- energy intensive industries	2534	2489	2693	2526	2524	2604	2644	2628	2629	0.6	-0.6	0.5	-0.1	
- other industrial sectors	1408	1618	1744	1607	1543	1576	1581	1567	1607	2.2	-1.2	0.2	0.2	
Residential	3048	3323	4470	5467	6373	6789	6996	7090	7070	3.9	3.6	0.9	0.1	
Tertiary	1711	1940	2410	3075	3452	3675	3769	3919	4001	3.5	3.7	0.9	0.6	
Transport	5808	6431	7196	8068	9117	9675	9967	10160	10345	2.2	2.4	0.9	0.4	
by fuel														
Solids	1053	1074	888	446	360	372	386	396	405	-1.7	-8.6	0.7	0.5	
Oil	10041	10799	12584	14219	15007	15431	15427	15323	15185	2.3	1.8	0.3	-0.2	
Gas	15	14	257	585	990	1222	1225	1267	1279	33.0	14.4	2.2	0.4	
Electricity	2448	2931	3710	4377	5095	5424	5661	5965	6197	4.2	3.2	1.1	0.9	
Heat (from CHP and District Heating)	0	0	28	49	40	43	48	59	52		3.7	1.7	0.8	
Renewable energy forms	952	982	1046	1066	1517	1826	2209	2351	2533	0.9	3.8	3.8	1.4	
Other	0	0	0	0	1	1	2	2	2			11.3	2.9	
RES in Gross Final Energy Consumption ^(A)			1439	1626	2244	2791	3460	3808	4327		4.5	4.4	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	132.2	133.9	135.6	132.0	130.1	2.0	0.5	0.3	-0.4	
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	99.6	101.1	102.6	99.6	98.2	2.3	1.1	0.3	-0.4	
Power generation/District heating	34.1	39.0	43.7	46.3	47.3	46.9	48.6	46.1	45.2	2.5	0.8	0.3	-0.7	
Energy Branch	2.6	2.3	3.4	3.6	3.2	3.3	3.1	2.8	2.7	2.9	-0.6	-0.4	-1.3	
Industry	9.4	10.0	10.1	8.6	7.7	7.5	7.2	7.0	6.8	0.7	-2.7	-0.7	-0.5	
Residential	4.6	4.7	7.4	9.6	10.9	11.7	11.8	11.6	11.1	4.9	4.0	0.8	-0.6	
Tertiary	3.3	3.2	3.4	4.2	4.2	4.3	4.4	4.2	4.2	0.1	2.2	0.4	-0.3	
Transport	17.2	19.0	21.2	23.8	26.3	27.4	27.6	27.9	28.1	2.1	2.1	0.5	0.2	
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.9	9.2	9.6	9.6	9.6	1.2	0.8	0.7	0.0	
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	23.7	23.6	23.5	22.8	22.3	22.3	1.3	-1.6	-0.1	-0.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	128.4	130.1	131.7	128.3	126.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: High Oil & Gas prices Baseline													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	158.0	139.7	126.2	111.9	102.8	0.0	-2.0	-2.2	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.93	2.89	2.86	2.82	2.80	-0.1	-0.8	-0.2	-0.2	
Import Dependency %	62.1	65.7	69.3	68.5	70.0	71.2	67.7	66.6	64.8					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	24.1	29.3	34.4	38.0	40.7		4.6	3.6	1.7	
as % of GDP			10.5	10.2	11.2	11.7	12.1	12.0	11.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.7	64.8	59.3	55.2	52.8	1.1	-3.4	-1.7	-1.2	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	100.6	93.3	85.6	78.6	72.9	1.6	0.1	-1.6	-1.6	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	98.3	90.2	81.7	76.3	71.9	1.2	-0.2	-1.8	-1.3	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	33.0	31.7	30.6	29.5	29.1	-2.0	-0.8	-0.8	-0.5	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	100.6	97.6	93.8	91.9	91.1	-1.1	-1.3	-0.7	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.63	0.62	0.55	0.51	-1.9	-1.8	-0.9	-1.9	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.13	2.09	2.04	2.00	1.96	-0.4	-0.6	-0.4	-0.4	
Industry	2.39	2.43	2.28	2.09	1.89	1.80	1.70	1.66	1.61	-0.5	-1.8	-1.1	-0.5	
Residential	1.51	1.43	1.66	1.76	1.71	1.72	1.68	1.64	1.57	0.9	0.3	-0.2	-0.7	
Tertiary	1.96	1.65	1.40	1.36	1.21	1.18	1.16	1.08	1.05	-3.3	-1.4	-0.5	-0.9	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.72	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	9.4	11.0	13.3	14.3	16.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.9	7.4	8.4	9.1					
Gross Electricity generation by source (in GWh)														
			53415	59416	69185	74078	78029	83543	87679		2.6	1.2	1.2	
Nuclear energy			0	0	0	0	0	0	0					
Solids			33790	35982	35900	38507	43661	51174	59527		0.6	2.0	3.1	
Oil (including refinery gas)			8979	8858	5621	7574	6260	4709	4290		-4.6	1.1	-3.7	
Gas (including derived gases)			5960	8114	19517	16915	13591	10821	4046		12.6	-3.6	-11.4	
Biomass-waste			543	179	259	390	950	1530	1997		-7.1	13.9	7.7	
Hydro (pumping excluded)			3692	5016	4855	4950	5013	5057	5105		2.8	0.3	0.2	
Wind			451	1266	2957	5322	7850	9295	11165		20.7	10.3	3.6	
Solar			0	1	73	397	606	832	1075			23.6	5.9	
Geothermal and other renewables			0	0	2	23	98	124	473			47.9	17.0	
Net Generation Capacity in MW_e			11361	13277	15882	18837	20651	24465	27153		3.4	2.7	2.8	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			3233	3744	4521	5725	7022	7757	9151		3.4	4.5	2.7	
Hydro (pumping excluded)			3043	3165	3235	3386	3461	3514	3549		0.6	0.7	0.3	
Wind			189	573	1226	2016	3067	3565	4576		20.6	9.6	4.1	
Solar			1	5	60	324	494	678	877		46.8	23.6	5.9	
Other renewables (tidal etc.)			0	0	0	0	0	0	150					
<u>Thermal power</u>			8128	9533	11361	13111	13630	16708	18002		3.4	1.8	2.8	
of which cogeneration units			340	381	470	504	597	757	1107		3.3	2.4	6.4	
Solids fired			4505	4798	4796	4389	4993	7705	9404		0.6	0.4	6.5	
Gas fired			1134	1876	3344	5639	5610	5342	5328		11.4	5.3	-0.5	
Oil fired			2487	2827	3145	2996	2849	3458	2961		2.4	-1.0	0.4	
Biomass-waste fired			2	31	68	79	150	171	205		45.6	8.2	3.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	8	8	28	33	103			13.3	13.9	
Avg. Load factor of net power capacity (%)			49.7	47.4	46.7	42.2	40.4	36.1	34.0					
Efficiency of gross thermal power generation (%)			36.5	36.8	40.0	42.3	42.4	47.8	51.0					
% of gross electricity from CHP			1.2	1.5	3.3	4.8	4.9	5.5	5.1					
Carbon free gross electricity generation (%)			8.8	10.9	11.8	15.0	18.6	20.2	22.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			8.8	10.9	11.8	15.0	18.6	20.2	22.6					
Transport sector														
Passenger transport activity (Gpkm)	75.3	91.5	116.2	141.2	160.1	174.1	184.0	190.9	195.2	4.4	3.3	1.4	0.6	
Public road transport	17.7	20.2	21.7	21.4	21.4	21.5	22.1	22.4	22.6	2.0	-0.2	0.3	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	94.1	103.6	109.5	113.5	115.3	6.2	4.8	1.5	0.5	
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.8	5.2	5.6	0.9	2.0	2.5	1.5	
Aviation	15.5	19.9	24.1	27.7	32.0	35.7	38.6	40.6	42.4	4.5	2.9	1.9	1.0	
Inland navigation	7.0	7.9	8.7	8.7	8.9	8.9	9.1	9.2	9.3	2.1	0.2	0.3	0.2	
Freight transport activity (Gtkm)	19.8	22.0	26.6	32.7	38.1	42.6	46.3	49.2	51.3	3.0	3.6	2.0	1.0	
Trucks	12.5	14.6	17.5	22.0	26.0	29.1	31.7	33.9	35.8	3.4	4.0	2.0	1.2	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.2	-3.5	6.2	3.2	1.3	
Inland navigation	6.6	7.1	8.7	10.1	11.4	12.6	13.6	14.1	14.3	2.8	2.7	1.8	0.5	
Energy demand in transport (ktoe)	5808	6431	7196	8068	9117	9675	9967	10160	10345	2.2	2.4	0.9	0.4	
Public road transport	154	175	175	153	149	142	144	140	131	1.3	-1.6	-0.3	-1.0	
Private cars and motorcycles	1404	1704	2243	2913	3337	3459	3522	3542	3583	4.8	4.1	0.5	0.2	
Trucks	2345	2726	2902	3120	3610	3911	4074	4244	4399	2.2	2.2	1.2	0.8	
Rail	75	57	60	58	63	68	77	78	73	-2.2	0.5	2.0	-0.5	
Aviation	1264	1226	1325	1181	1291	1411	1447	1447	1453	0.5	-0.3	1.1	0.0	
Inland navigation	566	544	491	643	668	684	704	709	707	-1.4	3.1	0.5	0.0	

Source: PRIMES

Hungary: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	14146	13456	11207	10514	10297	10220	10543	12789	15419	-2.3	-0.8	0.2	3.9	
Solids	3948	3095	2893	1748	1720	1725	1734	1738	1741	-3.1	-5.1	0.1	0.0	
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2	
Natural gas	3812	3788	2475	2331	2200	2000	1900	1800	1594	-4.2	-1.2	-1.5	-1.7	
Nuclear	3544	3618	3658	3569	3787	3863	3940	6213	8792	0.3	0.3	0.4	8.4	
Renewable energy sources	523	626	516	1212	1389	1633	1969	2138	2492	-0.1	10.4	3.5	2.4	
Hydro	15	14	15	17	16	16	17	17	17	0.0	0.4	0.4	0.4	
Biomass & Waste	422	526	415	1105	1252	1493	1768	1893	2191	-0.2	11.7	3.5	2.2	
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8	
Solar and others	0	0	0	2	13	23	88	123	167			20.7	6.6	
Geothermal	86	86	86	87	103	93	79	73	70	0.0	1.8	-2.6	-1.3	
Net Imports	14436	12629	14011	17558	18408	19443	20000	19750	19012	-0.3	2.8	0.8	-0.5	
Solids	1686	1395	1081	1340	1170	1174	1286	1119	1276	-4.3	0.8	0.9	-1.1	
Oil	6621	5496	5352	5875	6443	7165	7273	7411	7808	-2.1	1.9	1.2	0.7	
- Crude oil and Feedstocks	6475	5937	5866	6167	6521	7214	7317	7455	7840	-1.0	1.1	1.2	0.7	
- Oil products	146	-441	-514	-291	-77	-49	-45	-45	-32					
Natural gas	5170	5532	7283	9807	10256	10753	11139	11000	9741	3.5	3.5	0.8	-1.3	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Gross Inland Consumption	28641	25864	25000	27920	28705	29663	30542	32540	34431	-1.4	1.4	0.6	1.2	
Solids	5969	4549	3967	3090	2890	2899	3019	2857	3016	-4.0	-3.1	0.4	0.0	
Oil	8734	7689	6907	7420	7643	8165	8273	8311	8608	-2.3	1.0	0.8	0.4	
Natural gas	8913	9175	9657	12094	12456	12753	13039	12800	11335	0.8	2.6	0.5	-1.4	
Nuclear	3544	3618	3658	3569	3787	3863	3940	6213	8792	0.3	0.3	0.4	8.4	
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7	
Renewable energy forms	523	626	516	1212	1389	1633	1969	2138	2492	-0.1	10.4	3.5	2.4	
as % in Gross Inland Consumption														
Solids	20.8	17.6	15.9	11.1	10.1	9.8	9.9	8.8	8.8					
Oil	30.5	29.7	27.6	26.6	26.6	27.5	27.1	25.5	25.0					
Natural gas	31.1	35.5	38.6	43.3	43.4	43.0	42.7	39.3	32.9					
Nuclear	12.4	14.0	14.6	12.8	13.2	13.0	12.9	19.1	25.5					
Renewable energy forms	1.8	2.4	2.1	4.3	4.8	5.5	6.4	6.6	7.2					
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	40678	46448	50919	57463	63487	2.2	1.5	2.3	2.2	
Self consumption and grid losses	5478	6171	6295	5979	6144	6361	6620	7210	7978	1.4	-0.2	0.7	1.9	
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5144	5651	6095	5414	4464	1.9	-1.5	1.7	-3.1	
Solids	2871	2977	2731	1924	1965	1980	2036	2007	2142	-0.5	-3.2	0.4	0.5	
Oil (including refinery gas)	440	1447	1052	122	0	0	10	0	0	9.1			-49.5	
Gas (including derived gases)	1636	1634	2140	3078	2890	3355	3754	3078	1952	2.7	3.0	2.7	-6.3	
Biomass & Waste	24	55	62	534	288	315	295	329	370	10.2	16.6	0.2	2.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11679	10680	9226	9831	10263	10999	11247	11300	11599	-2.3	1.1	0.9	0.3	
Refineries	8831	8500	7588	8390	8903	9536	9620	9619	9871	-1.5	1.6	0.8	0.3	
Biofuels and hydrogen production	0	0	0	0	215	339	573	653	721			10.3	2.3	
District heating	1145	789	471	629	447	510	528	559	563	-8.5	-0.5	1.7	0.6	
Derived gases, cokeries etc.	1704	1392	1168	813	698	615	527	469	445	-3.7	-5.0	-2.8	-1.7	
Energy Branch Consumption	1402	1310	1162	1581	1642	1706	1739	1871	2041	-1.9	3.5	0.6	1.6	
Non-Energy Uses	1569	1609	1586	2282	2502	2639	2630	2642	2653	0.1	4.7	0.5	0.1	
Final Energy Demand	19258	15814	15998	16098	19706	20165	20849	21584	22094	-1.8	2.1	0.6	0.6	
by sector														
Industry	6523	3808	3489	3427	3478	3603	3711	3901	4016	-6.1	0.0	0.7	0.8	
- energy intensive industries	4160	2691	2563	2328	2266	2291	2305	2402	2438	-4.7	-1.2	0.2	0.6	
- other industrial sectors	2364	1116	926	1099	1212	1313	1406	1498	1578	-8.9	2.7	1.5	1.2	
Residential	6437	5911	5465	6411	7070	6847	6976	7096	7134	-1.6	2.6	-0.1	0.2	
Tertiary	3273	3442	3792	4085	4460	4567	4707	4859	4938	1.5	1.6	0.5	0.5	
Transport	3024	2653	3252	4175	4699	5148	5456	5729	6005	0.7	3.7	1.5	1.0	
by fuel														
Solids	2502	965	793	692	607	557	491	476	466	-10.9	-2.6	-2.1	-0.5	
Oil	6009	4147	4173	4792	5095	5484	5603	5808	6004	-3.6	2.0	1.0	0.7	
Gas	5941	6370	6503	7852	8220	8040	8066	8186	7990	0.9	2.4	-0.2	-0.1	
Electricity	2811	2500	2658	2823	3232	3519	3835	4186	4513	-0.6	2.0	1.7	1.6	
Heat (from CHP and District Heating)	1570	1287	1440	1297	1529	1395	1419	1373	1296	-0.9	0.6	-0.7	-0.9	
Renewable energy forms	425	545	430	642	1023	1168	1435	1552	1822	0.1	9.0	3.4	2.4	
Other	0	0	0	0	0	1	1	2	3			12.1	8.3	
RES in Gross Final Energy Consumption ^(A)			482	869	1184	1395	1743	1932	2301		9.4	3.9	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	80.8	83.5	85.7	84.1	81.9	-2.1	0.5	0.6	-0.5	
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	55.6	57.5	59.0	58.0	56.1	-2.0	0.4	0.6	-0.5	
Power generation/District heating	20.5	23.0	21.0	17.3	16.1	17.4	18.8	17.0	15.0	0.2	-2.6	1.6	-2.2	
Energy Branch	2.5	2.2	1.5	1.9	2.4	2.5	2.5	2.6	2.6	-4.9	4.7	0.5	0.2	
Industry	14.7	8.7	6.4	6.3	5.6	5.9	5.8	5.9	6.0	-7.9	-1.4	0.3	0.3	
Residential	13.7	9.9	9.0	10.5	11.4	10.4	10.2	10.0	9.6	-4.1	2.4	-1.1	-0.6	
Tertiary	5.6	5.5	6.2	6.7	6.9	7.0	7.2	7.3	7.2	1.1	1.1	0.3	0.0	
Transport	8.6	7.6	9.4	12.2	13.2	14.3	14.6	15.3	15.9	0.9	3.4	1.0	0.8	
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.3	3.5	3.7	3.8	-3.6	-0.4	1.3	0.7	
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	22.6	23.2	22.3	21.9	-2.2	1.0	0.5	-0.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	84.9	87.7	90.1	88.4	86.1					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	274.0	236.2	207.1	191.6	179.7	-2.5	-2.4	-2.8	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.94	1.94	1.93	1.78	1.63	-0.7	-1.0	0.0	-1.7
Import Dependency %	50.4	48.8	56.0	62.9	64.1	65.5	65.5	60.7	55.2				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	18.6	23.0	27.5	30.5	32.5		3.6	4.0	1.7
as % of GDP			18.2	16.1	17.7	18.3	18.7	18.0	17.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.6	62.9	57.0	53.1	49.8	-9.6	-3.4	-2.1	-1.3
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	80.7	65.5	57.0	50.5	45.2	-1.9	-2.1	-3.4	-2.3
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	79.7	68.6	60.2	53.9	48.4	1.6	-2.2	-2.8	-2.2
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	35.0	34.7	33.6	32.4	31.9	2.1	2.3	-0.4	-0.5
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.4	39.1	38.1	37.3	36.8	0.5	0.8	-0.3	-0.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.26	0.26	0.26	0.22	0.18	-0.8	-3.9	0.2	-3.7
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.89	1.87	1.81	1.78	1.75	-1.3	-0.3	-0.4	-0.4
Industry	2.25	2.28	1.85	1.84	1.62	1.65	1.56	1.52	1.48	-2.0	-1.3	-0.3	-0.5
Residential	2.13	1.68	1.64	1.64	1.61	1.52	1.46	1.41	1.34	-2.6	-0.2	-1.0	-0.8
Tertiary	1.70	1.59	1.64	1.64	1.56	1.54	1.52	1.51	1.45	-0.3	-0.5	-0.2	-0.5
Transport	2.84	2.85	2.90	2.92	2.81	2.77	2.68	2.66	2.65	0.2	-0.3	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	5.8	6.7	8.1	8.7	10.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.1	5.9	9.5	10.3	10.9				
Gross Electricity generation by source (in GWh)													
			35185	35749	40678	46448	50919	57463	63487		1.5	2.3	2.2
Nuclear energy			14177	13832	14678	14971	15271	25543	37284		0.3	0.4	9.3
Solids			8350	5838	7108	8275	8951	8843	9444		-1.6	2.3	0.5
Oil (including refinery gas)			4243	497	79	98	574	0	0		-32.9	22.0	-61.0
Gas (including derived gases)			8040	13021	16825	21079	23983	20683	13953		7.7	3.6	-5.3
Biomass-waste			197	2348	1737	1731	1725	1786	1969		24.3	-0.1	1.3
Hydro (pumping excluded)			178	203	185	191	192	196	199		0.4	0.4	0.4
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	10498	10680	10104	10171	11560		3.0	-0.4	1.4
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	2966	4322		0.3	0.2	9.2
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	8633	8738	7998	6649	6354		3.6	-0.8	-2.3
of which cogeneration units			1915	2391	2715	3140	2616	2494	2230		3.5	-0.4	-1.6
Solids fired			1683	1592	1929	1654	1105	1114	1074		1.4	-5.4	-0.3
Gas fired			3516	4572	6032	6497	6235	4840	4617		5.5	0.3	-3.0
Oil fired			762	313	322	258	233	248	158		-8.3	-3.2	-3.8
Biomass-waste fired			76	316	350	329	425	447	505		16.6	1.9	1.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	41.8	47.3	54.9	61.5	59.6				
Efficiency of gross thermal power generation (%)			29.9	33.0	43.1	47.5	49.7	49.7	48.9				
% of gross electricity from CHP			24.5	28.3	35.0	30.9	31.9	25.9	21.3				
Carbon free gross electricity generation (%)			41.4	45.9	41.0	36.6	34.2	48.6	63.1				
- nuclear			40.3	38.7	36.1	32.2	30.0	44.5	58.7				
- renewable energy forms			1.1	7.2	4.9	4.4	4.2	4.2	4.4				
Transport sector													
Passenger transport activity (Gpkm)	82.0	75.2	80.0	80.3	86.9	94.5	102.9	111.5	119.5	-0.2	0.8	1.7	1.5
Public road transport	19.3	16.6	18.7	18.2	17.6	16.6	16.0	15.4	14.9	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	54.0	61.7	69.7	77.4	84.5	-0.1	1.5	2.6	1.9
Rail	13.9	10.9	12.3	12.2	12.0	12.1	12.1	12.4	12.4	-1.2	-0.2	0.1	0.2
Aviation	1.6	1.9	2.4	2.7	3.3	4.2	5.2	6.3	7.7	4.3	3.1	4.6	4.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	34.0	22.2	27.9	35.8	42.1	47.7	52.5	56.8	59.7	-1.9	4.2	2.2	1.3
Trucks	15.2	13.8	19.1	25.2	30.9	35.8	39.9	43.6	46.0	2.4	4.9	2.6	1.4
Rail	16.8	8.4	8.8	8.6	8.8	9.2	9.6	10.0	10.3	-6.3	0.0	0.9	0.7
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.3	3.4			2.2	1.4
Energy demand in transport (ktoe)	3024	2653	3252	4175	4699	5148	5456	5729	6005	0.7	3.7	1.5	1.0
Public road transport	160	124	149	167	156	140	128	113	101	-0.7	0.4	-2.0	-2.3
Private cars and motorcycles	1482	1462	1824	2321	2572	2787	2929	3050	3220	2.1	3.5	1.3	1.0
Trucks	938	695	886	1297	1552	1756	1892	2017	2120	-0.6	5.8	2.0	1.1
Rail	271	190	175	159	148	142	137	128	102	-4.3	-1.6	-0.8	-2.9
Aviation	164	182	219	230	270	321	369	420	459	2.9	2.1	3.2	2.2
Inland navigation	9	0	0	1	1	1	1	2	2			2.0	1.3

Source: PRIMES

Ireland: High Oil & Gas prices Baseline											SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	3353	4020	2175	1650	1993	2449	2670	2899	2978	-4.2	-0.9	3.0	1.1	
Solids	1312	1606	959	789	760	746	731	718	710	-3.1	-2.3	-0.4	-0.3	
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	1873	2249	958	461	518	537	520	536	500	-6.5	-6.0	0.0	-0.4	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	168	165	258	401	714	1166	1419	1644	1768	4.4	10.7	7.1	2.2	
Hydro	60	61	73	54	74	77	80	82	83	2.0	0.2	0.7	0.4	
Biomass & Waste	108	102	164	250	375	469	587	677	764	4.3	8.6	4.6	2.7	
Wind	0	1	21	96	252	581	663	784	809		28.2	10.2	2.0	
Solar and others	0	0	0	0	13	39	89	100	112	14.8	52.1	21.6	2.2	
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-8.0	-0.2	-0.3	
Net Imports	7074	7604	12234	13620	15846	15634	15701	15683	15725	5.6	2.6	-0.1	0.0	
Solids	2064	1823	1789	1969	2090	2243	2401	2125	2002	-1.4	1.6	1.4	-1.8	
Oil	5010	5698	7959	8466	10269	9662	9467	9560	9530	4.7	2.6	-0.8	0.1	
- Crude oil and Feedstocks	2018	2260	3002	3297	3555	3421	3361	3371	3341	4.1	1.7	-0.6	-0.1	
- Oil products	2992	3438	4957	5168	6714	6241	6107	6189	6189	5.2	3.1	-0.9	0.1	
Natural gas	0	85	2478	3010	3385	3508	3396	3500	3636		3.2	0.0	0.7	
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Gross Inland Consumption	10225	10844	14319	15121	17719	17956	18240	18446	18566	3.4	2.2	0.3	0.2	
Solids	3416	2775	2711	2685	2850	2989	3132	2844	2712	-2.3	0.5	1.0	-1.4	
Oil	4768	5571	7906	8390	10149	9535	9335	9424	9393	5.2	2.5	-0.8	0.1	
Natural gas	1873	2334	3436	3470	3904	4045	3917	4036	4136	6.3	1.3	0.0	0.5	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7	
Renewable energy forms	168	165	258	401	737	1301	1761	2038	2213	4.4	11.1	9.1	2.3	
as % in Gross Inland Consumption														
Solids	33.4	25.6	18.9	17.8	16.1	16.6	17.2	15.4	14.6					
Oil	46.6	51.4	55.2	55.5	57.3	53.1	51.2	51.1	50.6					
Natural gas	18.3	21.5	24.0	22.9	22.0	22.5	21.5	21.9	22.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.6	1.5	1.8	2.6	4.2	7.2	9.7	11.0	11.9					
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	31710	34414	36128	38037	38473	5.2	3.0	1.3	0.6	
Self consumption and grid losses	2263	2665	3458	3870	4085	4163	4340	4390	4370	4.3	1.7	0.6	0.1	
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	5188	4715	4710	4518	4482	4.7	0.8	-1.0	-0.5	
Solids	1839	2028	1925	1903	2188	2371	2586	2367	2275	0.5	1.3	1.7	-1.3	
Oil (including refinery gas)	339	622	1019	774	810	61	28	8	0	11.6	-2.3	-28.6	-51.3	
Gas (including derived gases)	841	1060	1825	2040	2121	2191	1972	1994	1988	8.1	1.5	-0.7	0.1	
Biomass & Waste	0	0	24	30	69	92	124	148	219		11.3	6.1	5.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	1939	2429	3481	3472	3783	3796	3954	4024	4043	6.0	0.8	0.4	0.2	
Refineries	1742	2263	3310	3336	3555	3421	3361	3371	3341	6.6	0.7	-0.6	-0.1	
Biofuels and hydrogen production	0	0	0	1	142	306	543	618	677			14.4	2.2	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	197	167	171	135	86	69	50	35	25	-1.4	-6.6	-5.3	-6.8	
Energy Branch Consumption	168	185	246	380	359	346	349	339	332	3.9	3.8	-0.3	-0.5	
Non-Energy Uses	617	545	546	299	411	457	492	523	550	-1.2	-2.8	1.8	1.1	
Final Energy Demand	7355	7903	10678	12346	13687	14248	14509	14923	15087	3.8	2.5	0.6	0.4	
by sector														
Industry	1744	1851	2344	2484	2729	2860	2953	3056	3165	3.0	1.5	0.8	0.7	
- energy intensive industries	869	879	1170	1231	1387	1471	1529	1571	1627	3.0	1.7	1.0	0.6	
- other industrial sectors	875	972	1173	1253	1341	1388	1424	1485	1538	3.0	1.4	0.6	0.8	
Residential	2404	2208	2509	2923	3137	3181	3155	3179	3152	0.4	2.3	0.1	0.0	
Tertiary	1222	1502	1821	1958	2122	2199	2207	2263	2283	4.1	1.5	0.4	0.3	
Transport	1985	2343	4005	4981	5699	6009	6193	6426	6487	7.3	3.6	0.8	0.5	
by fuel														
Solids	1784	933	699	704	646	604	533	464	426	-9.0	-0.8	-1.9	-2.2	
Oil	3874	4796	6894	7990	8588	8710	8618	8731	8708	5.9	2.2	0.0	0.1	
Gas	568	796	1201	1337	1698	1771	1789	1879	1989	7.8	3.5	0.5	1.1	
Electricity	1020	1277	1744	2094	2441	2673	2814	2983	3031	5.5	3.4	1.4	0.7	
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			5.1	0.4	
Renewable energy forms	108	102	141	221	313	488	751	862	929	2.7	8.3	9.2	2.2	
Other	0	0	0	0	1	1	2	3	3			15.2	3.4	
RES in Gross Final Energy Consumption ^(A)			245	382	697	1225	1635	1893	2045		11.0	8.9	2.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	78.2	76.7	76.1	75.9	75.6	2.1	1.2	-0.3	-0.1	
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	49.5	48.3	48.0	47.4	47.0	3.1	1.6	-0.3	-0.2	
Power generation/District heating	10.4	12.6	15.2	14.8	16.3	14.8	15.0	14.2	13.8	3.9	0.7	-0.8	-0.9	
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.5	0.5	0.5	4.0	5.8	-0.8	0.0	
Industry	4.0	3.9	4.8	5.2	5.6	5.8	5.8	5.8	5.8	1.8	1.5	0.3	0.1	
Residential	7.5	6.0	6.1	6.6	6.8	6.6	6.2	6.0	5.9	-2.1	1.2	-0.9	-0.6	
Tertiary	2.9	3.4	3.8	3.6	3.6	3.4	3.3	3.3	3.3	2.8	-0.6	-0.7	0.1	
Transport	5.9	6.9	11.9	14.8	16.6	17.2	17.1	17.6	17.7	7.3	3.4	0.3	0.3	
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.2	5.6	6.1	6.5	7.0	2.1	5.5	1.7	1.4	
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	22.7	22.1	21.9	21.6	0.6	-0.3	-0.6	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	139.3	136.7	135.6	135.1	134.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	87.2	73.7	63.7	56.1	50.8	-3.6	-2.7	-3.1	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.79	2.69	2.63	2.57	2.53	-0.3	-0.5	-0.6	-0.4
Import Dependency %	69.1	69.4	84.5	89.5	88.8	86.5	85.5	84.4	84.1				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	15.2	17.5	20.1	21.8	23.2		4.4	2.8	1.4
as % of GDP			7.9	7.4	7.5	7.2	7.0	6.6	6.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.7	60.7	53.6	48.7	45.8	-4.0	-3.6	-2.6	-1.5
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	85.6	74.4	64.0	57.0	51.4	-4.7	-1.5	-2.9	-2.2
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	73.9	64.4	55.2	49.1	44.3	-2.4	-3.0	-2.9	-2.2
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.9	55.6	50.6	47.7	44.6	-0.2	-0.8	-1.7	-1.3
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	101.5	94.1	90.0	88.1	87.3	2.8	-1.5	-1.2	-0.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.51	0.43	0.42	0.37	0.36	-1.3	-2.2	-2.1	-1.5
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.38	2.31	2.23	2.19	2.17	-1.0	-0.4	-0.6	-0.3
Industry	2.31	2.09	2.05	2.08	2.04	2.02	1.95	1.89	1.85	-1.2	0.0	-0.4	-0.6
Residential	3.11	2.71	2.42	2.27	2.18	2.08	1.97	1.89	1.86	-2.5	-1.0	-1.0	-0.6
Tertiary	2.34	2.28	2.07	1.83	1.68	1.56	1.50	1.45	1.47	-1.2	-2.1	-1.1	-0.2
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.77	2.75	2.73	0.1	-0.2	-0.5	-0.1
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.0	8.4	11.0	12.4	13.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.1	8.8	9.7	10.4				
Gross Electricity generation by source (in GWh)													
			23669	24992	31710	34414	36128	38037	38473		3.0	1.3	0.6
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10560	11596	12902	12872	12516		1.9	2.0	-0.3
Oil (including refinery gas)			4516	3390	3695	239	126	57	0		-2.0	-28.7	-50.9
Gas (including derived gases)			9231	11197	13350	14496	13518	13946	14193		3.8	0.1	0.5
Biomass-waste			96	125	307	421	565	683	965		12.3	6.3	5.5
Hydro (pumping excluded)			846	631	865	898	931	959	969		0.2	0.7	0.4
Wind			244	1112	2930	6752	7712	9122	9406		28.2	10.2	2.0
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	357	371	385				0.8
Net Generation Capacity in MW_e			4627	6052	8302	9055	9914	10981	11255		6.0	1.8	1.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2704	3243	3820	3952		17.3	6.7	2.0
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2435	2769	3316	3410		28.5	6.7	2.1
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	185	192	200				0.8
<u>Thermal power</u>			4284	5338	6611	6352	6671	7161	7304		4.4	0.1	0.9
of which cogeneration units			108	561	589	414	880	944	1042		18.5	4.1	1.7
Solids fired			1282	1367	1361	1453	1631	2305	2363		0.6	1.8	3.8
Gas fired			1974	2937	4116	4664	4803	4676	4734		7.6	1.6	-0.1
Oil fired			1010	995	1030	116	90	33	33		0.2	-21.6	-9.5
Biomass-waste fired			18	39	105	119	147	147	173		19.2	3.4	1.6
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	41.2	41.5	39.8	38.1	37.6				
Efficiency of gross thermal power generation (%)			40.5	42.1	46.3	48.8	49.5	52.5	53.1				
% of gross electricity from CHP			1.1	0.9	5.8	7.5	9.7	10.1	10.8				
Carbon free gross electricity generation (%)			5.0	7.5	12.9	23.5	26.5	29.3	30.6				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	12.9	23.5	26.5	29.3	30.6				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.6	62.3	69.9	76.6	81.3	5.5	3.8	2.5	1.5
Public road transport	3.9	5.2	6.1	6.7	7.2	7.5	8.0	8.3	8.6	4.7	1.6	1.0	0.8
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.8	36.3	40.7	44.1	45.8	5.3	4.2	2.5	1.2
Rail	1.2	1.3	1.4	1.8	2.3	2.8	3.3	3.9	4.6	1.3	5.3	3.5	3.5
Aviation	3.2	5.1	7.9	9.6	11.9	14.2	16.4	18.6	20.5	9.5	4.2	3.3	2.2
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.6	1.6	1.7	0.1	2.0	1.6	0.9
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.9	27.1	29.5	31.5	32.8	8.5	6.0	2.1	1.1
Trucks	5.1	5.5	12.3	17.9	22.9	25.9	28.2	30.0	31.2	9.2	6.4	2.1	1.0
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4	-1.8	-3.7	1.6	1.1
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.2	9.3	1.9	3.0	2.4
Energy demand in transport (ktoe)	1985	2343	4005	4981	5699	6009	6193	6426	6487	7.3	3.6	0.8	0.5
Public road transport	58	76	99	101	97	92	91	91	95	5.5	-0.2	-0.6	0.4
Private cars and motorcycles	993	1146	1695	1915	2114	2168	2172	2214	2177	5.5	2.2	0.3	0.0
Trucks	495	653	1532	2066	2399	2517	2621	2741	2843	12.0	4.6	0.9	0.8
Rail	48	50	42	44	49	49	39	39	28	-1.4	1.7	-2.3	-3.1
Aviation	365	390	613	836	1020	1160	1246	1316	1317	5.3	5.2	2.0	0.6
Inland navigation	26	28	25	18	20	22	24	26	27	-0.5	-2.1	1.8	1.1

Source: PRIMES

Italy: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	25537	29408	27099	28044	31216	32352	33128	34977	36856	0.6	1.4	0.6	1.1	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5974	6254	6000	5800	5500	0.1	2.3	0.0	-0.9	
Natural gas	14030	16347	13622	9886	11266	10000	8000	8000	8000	-0.3	-1.9	-3.4	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	13975	16098	19128	21177	23356	2.9	4.9	3.2	2.0	
Hydro	2719	3249	3812	3101	3243	3146	3100	3069	3068	3.4	-1.6	-0.5	-0.1	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9216	10426	7.3	11.8	4.6	2.4	
Wind	0	1	48	202	464	858	1520	1920	2005	73.3	25.4	12.6	2.8	
Solar and others	5	8	12	23	91	585	1286	1755	2179	9.2	22.1	30.4	5.4	
Geothermal	2971	3167	3103	4791	4920	4937	5008	5218	5678	0.4	4.7	0.2	1.3	
Net Imports	132060	134651	152953	160475	169542	176720	180049	182616	182965	1.5	1.0	0.6	0.2	
Solids	13792	12987	13188	16366	17352	18695	19889	20632	22386	-0.4	2.8	1.4	1.2	
Oil	89885	89684	88458	79421	78120	81979	81011	77024	74275	-0.2	-1.2	0.4	-0.9	
- Crude oil and Feedstocks	84284	82558	90244	94404	92051	96333	95911	93670	92151	0.7	0.2	0.4	-0.4	
- Oil products	5602	7126	-1786	-14983	-13931	-14354	-14900	-16646	-17876					
Natural gas	25311	28530	47008	59840	69247	70769	72786	78408	79398	6.4	3.9	0.5	0.9	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	197218	205485	209626	214061	216323	1.2	1.3	0.6	0.3	
Solids	14621	12272	12659	16477	17352	18695	19889	20632	22386	-1.4	3.2	1.4	1.2	
Oil	89860	93248	88947	83169	80556	84647	83460	79292	76277	-0.1	-1.0	0.4	-0.9	
Natural gas	39001	44652	57940	70651	80514	80769	80786	86408	87398	4.0	3.3	0.0	0.8	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	15005	17425	21635	23989	26537	3.3	5.0	3.7	2.1	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.8	9.1	9.5	9.6	10.3					
Oil	58.7	57.8	51.6	44.5	40.8	41.2	39.8	37.0	35.3					
Natural gas	25.5	27.7	33.6	37.8	40.8	39.3	38.5	40.4	40.4					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	7.6	8.5	10.3	11.2	12.3					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	340624	378621	409535	443973	465628	2.4	2.4	1.9	1.3	
Self consumption and grid losses	30076	32312	36552	38396	36188	40845	44137	47232	49816	2.0	-0.1	2.0	1.2	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	53685	57569	58626	59686	61701	1.7	1.2	0.9	0.5	
Solids	7017	5287	5836	10001	10730	11949	12950	13757	15635	-1.8	6.3	1.9	1.9	
Oil (including refinery gas)	21528	25009	18955	9642	4801	6512	5967	1417	547	-1.3	-12.8	2.2	-21.3	
Gas (including derived gases)	8971	10234	19665	26402	31131	31630	31350	35172	34522	8.2	4.7	0.1	1.0	
Biomass & Waste	39	94	419	2270	2310	2714	3518	4275	5457	26.8	18.6	4.3	4.5	
Geothermal heat	2770	2954	2890	4578	4713	4763	4840	5065	5540	0.4	5.0	0.3	1.4	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	106602	112197	113662	111662	110031	0.3	0.4	0.6	-0.3	
Refineries	91545	92283	96749	102214	99760	104269	103498	100937	99031	0.6	0.3	0.4	-0.4	
Biofuels and hydrogen production	0	0	0	162	2005	3169	5350	6123	6692			10.3	2.3	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	4837	4759	4813	4602	4308	-2.8	-1.8	0.0	-1.1	
Energy Branch Consumption	7045	7362	7289	8620	7949	8240	8310	8295	8209	0.3	0.9	0.4	-0.1	
Non-Energy Uses	9896	13633	10838	11007	11333	11768	11925	11906	11771	0.9	0.4	0.5	-0.1	
Final Energy Demand	107160	113709	123234	134080	145609	151755	155805	161162	162875	1.4	1.7	0.7	0.4	
by sector														
Industry	36221	36430	39489	40729	43019	44111	44949	46316	47740	0.9	0.9	0.4	0.6	
- energy intensive industries	25218	24737	24840	25798	26991	27488	27817	28144	28614	-0.2	0.8	0.3	0.3	
- other industrial sectors	11002	11692	14648	14931	16028	16623	17132	18173	19126	2.9	0.9	0.7	1.1	
Residential	26284	26673	28331	31849	35362	36580	37177	37753	37893	0.8	2.2	0.5	0.2	
Tertiary	11252	12970	14171	17898	20550	21590	22349	23266	23532	2.3	3.8	0.8	0.5	
Transport	33404	37636	41263	43604	46680	49474	51330	53827	53710	2.1	1.2	1.0	0.5	
by fuel														
Solids	4209	4012	3681	4220	4472	4574	4749	4716	4667	-1.3	2.0	0.6	-0.2	
Oil	53623	53099	56147	58196	60459	62263	61249	62151	60407	0.5	0.7	0.1	-0.1	
Gas	29813	34652	37984	43747	47423	47217	47783	49104	50590	2.5	2.2	0.1	0.6	
Electricity	18408	20442	23435	25828	29340	32346	34618	37191	38826	2.4	2.3	1.7	1.2	
Heat (from CHP and District Heating)	0	0	0	0	14	19	22	21	22			4.6	0.1	
Renewable energy forms	1107	1505	2007	2089	3898	5330	7375	7964	8349	6.1	6.9	6.6	1.2	
Other	0	0	0	0	3	6	8	13	14			10.5	5.9	
RES in Gross Final Energy Consumption ^(A)			6472	7301	9557	12306	15950	18000	19821		4.0	5.3	2.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	591.2	606.8	606.3	608.4	608.3	0.7	0.9	0.3	0.0	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	464.2	481.3	481.7	484.2	484.6	0.9	1.0	0.4	0.1	
Power generation/District heating	118.9	126.1	130.7	133.8	132.4	143.8	145.4	142.8	145.7	1.0	0.1	0.9	0.0	
Energy Branch	16.6	17.0	16.6	20.2	18.3	18.6	18.8	18.5	18.0	0.1	0.9	0.3	-0.4	
Industry	79.6	75.4	77.5	81.6	84.9	84.4	84.0	84.9	85.9	-0.3	0.9	-0.1	0.2	
Residential	55.6	52.8	54.7	61.3	67.7	68.3	67.5	67.5	67.0	-0.2	2.2	0.0	-0.1	
Tertiary	19.1	21.2	22.0	27.2	29.2	28.9	28.5	27.5	26.9	1.4	2.9	-0.3	-0.6	
Transport	97.1	108.9	119.7	126.8	131.6	137.2	137.4	142.9	141.1	2.1	1.0	0.4	0.3	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.4	37.6	38.0	38.4	38.9	-1.6	2.1	0.1	0.2	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	87.8	86.6	85.8	84.8	0.8	-0.2	-0.3	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	116.6	119.6	119.5	119.9	119.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Italy: High Oil & Gas prices Baseline				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	127.9	120.5	112.4	105.8	99.8	-0.4	0.2	-1.3	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.35	2.34	2.30	2.26	2.24	-0.3	-0.4	-0.2	-0.3	
Import Dependency %	84.8	82.3	87.3	84.4	84.5	84.5	84.5	83.9	83.2					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	177.4	213.2	250.1	273.0	292.6		2.7	3.5	1.6	
as % of GDP			9.9	10.3	11.5	12.5	13.4	13.5	13.5					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	106.8	98.7	91.3	85.6	81.6	-0.3	0.7	-1.6	-1.1	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	112.5	106.0	99.0	93.1	87.6	-0.9	1.2	-1.3	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	126.8	120.3	113.7	109.0	102.8	0.4	2.4	-1.1	-1.0	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	31.0	31.8	32.3	33.2	32.2	-0.5	0.0	0.4	0.0	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	55.1	56.2	56.3	56.8	56.9	-1.1	1.5	0.2	0.1	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.39	0.38	0.35	0.32	0.31	-1.4	-2.2	-0.9	-1.3	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.15	2.10	2.04	2.00	1.97	-0.5	-0.3	-0.6	-0.3	
Industry	2.20	2.07	1.96	2.00	1.97	1.91	1.87	1.83	1.80	-1.1	0.1	-0.5	-0.4	
Residential	2.11	1.98	1.93	1.93	1.92	1.87	1.82	1.79	1.77	-0.9	-0.1	-0.5	-0.3	
Tertiary	1.70	1.63	1.55	1.52	1.42	1.34	1.27	1.18	1.14	-0.9	-0.9	-1.1	-1.1	
Transport	2.91	2.89	2.90	2.91	2.82	2.77	2.68	2.66	2.63	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	6.4	7.9	10.0	10.9	11.9					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	6.2	10.2	11.2	12.0					
Gross Electricity generation by source (in GWh)														
			270016	296786	340624	378621	409535	443973	465628		2.4	1.9	1.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	51282	61494	70430	77384	91047		7.2	3.2	2.6	
Oil (including refinery gas)			82354	43300	23520	32092	30108	7368	2956		-11.8	2.5	-20.7	
Gas (including derived gases)			109707	154992	204660	217697	227771	267233	269568		6.4	1.1	1.7	
Biomass-waste			2685	7485	10292	12642	16077	19043	24325		14.4	4.6	4.2	
Hydro (pumping excluded)			44328	36061	37714	36583	36048	35682	35678		-1.6	-0.5	-0.1	
Wind			563	2344	5398	9980	17670	22325	23308		25.4	12.6	2.8	
Solar			18	31	84	378	3417	6548	10102		16.6	44.9	11.4	
Geothermal and other renewables			4682	7417	7674	7756	8014	8389	8645		5.1	0.4	0.8	
Net Generation Capacity in MW_e			69851	76966	100405	97364	109634	127722	135989		3.7	0.9	2.2	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17234	20002	27101	32465	36003		1.7	4.6	2.9	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3005	5520	10540	13781	14767		21.5	13.4	3.4	
Solar			26	38	93	344	2353	4471	6976		13.6	38.2	11.5	
Other renewables (tidal etc.)			0	0	0	0	69	74	120				5.7	
<u>Thermal power</u>			55264	61156	83171	77362	82533	95258	99986		4.2	-0.1	1.9	
of which cogeneration units			9682	10847	11376	14823	18458	19632	20928		1.6	5.0	1.3	
Solids fired			9621	9715	11851	9931	9629	10002	12710		2.1	-2.1	2.8	
Gas fired			27466	33995	53630	55130	61695	75617	79057		6.9	1.4	2.5	
Oil fired			16795	15253	15327	8445	6408	3878	1202		-0.9	-8.4	-15.4	
Biomass-waste fired			597	1223	1392	2885	3830	4791	5911		8.8	10.7	4.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	971	971	971	971	1105		2.1	0.0	1.3	
Avg. Load factor of net power capacity (%)			41.7	41.7	37.4	42.8	41.1	38.4	37.8					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.6	49.5	51.7	54.6	55.2					
% of gross electricity from CHP			11.6	8.1	16.4	21.1	25.5	26.0	25.7					
Carbon free gross electricity generation (%)			19.4	18.0	18.0	17.8	19.8	20.7	21.9					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	18.0	17.8	19.8	20.7	21.9					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	1003.3	1027.8	1053.6	1081.5	1104.6	3.0	0.3	0.5	0.5	
Public road transport	84.0	87.1	93.6	101.3	105.5	108.2	111.3	113.1	113.7	1.1	1.2	0.5	0.2	
Private cars and motorcycles	561.6	660.7	779.1	777.9	788.8	800.2	811.6	826.8	839.7	3.3	0.1	0.3	0.3	
Rail	48.9	49.1	52.7	52.3	51.0	51.0	53.9	58.0	62.0	0.8	-0.3	0.6	1.4	
Aviation	21.3	27.9	38.2	43.1	52.1	62.4	70.7	77.4	82.8	6.0	3.2	3.1	1.6	
Inland navigation	6.4	6.1	5.9	5.8	5.9	5.9	6.1	6.2	6.4	-0.8	0.0	0.3	0.5	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	282.3	298.9	307.5	315.0	319.2	2.5	1.7	0.9	0.4	
Trucks	130.9	174.4	184.7	211.8	233.8	248.5	254.1	258.8	260.6	3.5	2.4	0.8	0.3	
Rail	19.4	21.7	22.8	20.1	20.6	22.1	23.9	25.7	27.4	1.7	-1.0	1.5	1.4	
Inland navigation	35.8	35.4	30.2	28.1	27.9	28.3	29.5	30.5	31.2	-1.7	-0.8	0.6	0.6	
Energy demand in transport (ktoe)	33404	37636	41263	43604	46680	49474	51330	53827	53710	2.1	1.2	1.0	0.5	
Public road transport	684	599	656	701	746	778	805	800	767	-0.4	1.3	0.8	-0.5	
Private cars and motorcycles	20584	23615	25521	24557	25374	26196	27017	28546	29197	2.2	-0.1	0.6	0.8	
Trucks	9137	9737	10559	13327	14842	16056	16560	17135	17440	1.5	3.5	1.1	0.5	
Rail	738	819	834	907	905	904	882	866	846	1.2	0.8	-0.3	-0.4	
Aviation	1872	2418	3491	3863	4565	5292	5810	6219	5197	6.4	2.7	2.4	-1.1	
Inland navigation	389	448	202	248	247	248	255	260	263	-6.3	2.0	0.3	0.3	

Source: PRIMES

Latvia: High Oil & Gas prices Baseline						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	1245	1639	1576	2304	2656	3014	3416	3575	3875	2.4	5.4	2.5	1.3		
Solids	182	234	49	6	4	4	4	3	3	-12.3	-22.6	-0.6	-0.4		
Oil	1	0	0	7	0	0	0	0	0						
Natural gas	0	0	0	0	0	0	0	0	0						
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	1062	1405	1527	2291	2652	3010	3412	3572	3872	3.7	5.7	2.6	1.3		
Hydro	387	253	242	286	261	244	261	262	260	-4.6	0.7	0.0	-0.1		
Biomass & Waste	675	1153	1284	2001	2360	2688	3035	3157	3425	6.6	6.3	2.5	1.2		
Wind	0	0	0	4	30	76	112	147	179		56.5	14.0	4.8		
Solar and others	0	0	0	0	0	2	4	6	8			23.5	7.5		
Geothermal	0	0	0	0	0	0	0	0	0			3.2	0.6		
Net Imports	7440	3358	2253	2783	3148	3587	3689	4004	4065	-11.3	3.4	1.6	1.0		
Solids	627	170	62	76	81	77	88	92	98	-20.7	2.8	0.8	1.0		
Oil	3944	2086	1096	1662	1917	2210	2317	2499	2579	-12.0	5.7	1.9	1.1		
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.7	2.5	0.8		
- Oil products	3942	2084	1003	1658	1915	2209	2315	2497	2577	-12.8	6.7	1.9	1.1		
Natural gas	2561	999	1113	1434	1654	1889	1929	2009	2060	-8.0	4.0	1.5	0.7		
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3		
Gross Inland Consumption	8059	4854	4007	4720	5479	6211	6662	7090	7419	-6.7	3.2	2.0	1.1		
Solids	867	456	252	83	85	81	92	96	101	-11.6	-10.3	0.8	0.9		
Oil	3458	1885	1155	1376	1592	1820	1874	2010	2058	-10.4	3.3	1.6	0.9		
Natural gas	2380	1010	1092	1358	1654	1889	1929	2009	2060	-7.5	4.2	1.5	0.7		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3		
Renewable energy forms	1045	1309	1354	1718	1976	2240	2543	2667	2891	2.6	3.9	2.6	1.3		
as % in Gross Inland Consumption															
Solids	10.8	9.4	6.3	1.8	1.6	1.3	1.4	1.4	1.4						
Oil	42.9	38.8	28.8	29.2	29.1	29.3	28.1	28.3	27.7						
Natural gas	29.5	20.8	27.3	28.8	30.2	30.4	29.0	28.3	27.8						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	13.0	27.0	33.8	36.4	36.1	36.1	38.2	37.6	39.0						
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6717	8034	8872	9354	10469	-4.6	5.0	2.8	1.7		
Self consumption and grid losses	1248	732	720	783	511	603	678	754	838	-5.4	-3.4	2.9	2.1		
Fuel Inputs to Thermal Power Generation	926	722	607	591	649	816	850	870	975	-4.1	0.7	2.7	1.4		
Solids	59	194	142	0	0	0	0	0	0	9.2					
Oil (including refinery gas)	177	242	77	13	0	6	0	0	0	-8.0					
Gas (including derived gases)	690	286	388	541	622	754	798	802	859	-5.6	4.8	2.5	0.7		
Biomass & Waste	0	0	0	37	27	56	51	68	115			6.8	8.5		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	2601	941	645	591	708	734	800	838	856	-13.0	0.9	1.2	0.7		
Refineries	1	1	1	1	1	2	2	2	2	0.0	1.8	2.5	0.8		
Biofuels and hydrogen production	0	0	0	3	53	93	175	209	239			12.6	3.2		
District heating	2573	930	643	587	653	639	624	627	616	-12.9	0.2	-0.5	-0.1		
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3					
Energy Branch Consumption	130	149	151	102	109	123	128	134	138	1.5	-3.2	1.6	0.8		
Non-Energy Uses	77	46	77	91	102	110	117	125	127	0.1	2.8	1.4	0.8		
Final Energy Demand	6445	3880	3332	4046	4857	5507	5941	6373	6664	-6.4	3.8	2.0	1.2		
by sector															
Industry	1972	701	614	827	1089	1345	1540	1753	1907	-11.0	5.9	3.5	2.2		
- energy intensive industries	707	305	219	282	448	529	551	581	597	-11.1	7.4	2.1	0.8		
- other industrial sectors	1265	396	396	545	641	816	989	1172	1311	-11.0	4.9	4.4	2.9		
Residential	1632	1663	1368	1476	1587	1643	1681	1747	1761	-1.7	1.5	0.6	0.5		
Tertiary	1747	804	606	744	893	990	1035	1076	1100	-10.0	4.0	1.5	0.6		
Transport	1094	712	744	999	1287	1529	1685	1798	1895	-3.8	5.6	2.7	1.2		
by fuel															
Solids	330	126	58	73	81	76	82	87	93	-16.0	3.4	0.2	1.2		
Oil	2047	1119	1003	1220	1455	1673	1749	1840	1884	-6.9	3.8	1.9	0.7		
Gas	672	366	329	508	606	700	739	976	988	-6.9	6.3	2.0	2.9		
Electricity	768	470	443	537	703	817	927	1045	1135	-5.3	4.7	2.8	2.0		
Heat (from CHP and District Heating)	2013	905	590	598	615	631	643	690	695	-11.5	0.4	0.5	0.8		
Renewable energy forms	616	894	909	1111	1397	1609	1800	1734	1869	4.0	4.4	2.6	0.4		
Other	0	0	0	0	0	0	0	1	1			15.0	5.6		
RES in Gross Final Energy Consumption ^(A)			1305	1787	1899	2146	2406	2514	2723		3.8	2.4	1.2		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	13.5	15.3	16.2	16.1	16.0	-9.3	2.8	1.9	-0.1		
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.6	9.8	10.1	10.7	11.0	-9.7	2.2	1.6	0.8		
Power generation/District heating	10.0	4.5	2.8	2.1	2.4	2.7	2.7	2.4	2.5	-12.0	-1.5	1.4	-1.1		
Energy Branch	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	5.0	-3.3	-6.6	9.5		
Industry	2.5	1.3	0.9	1.0	1.2	1.4	1.5	2.1	2.0	-9.7	2.9	2.2	3.0		
Residential	1.2	0.5	0.3	0.5	0.6	0.6	0.7	0.8	0.9	-13.7	7.7	1.2	2.6		
Tertiary	2.1	0.8	0.5	0.6	0.6	0.6	0.6	0.6	0.5	-12.8	1.1	-0.4	-0.5		
Transport	3.2	2.1	2.2	2.9	3.7	4.3	4.5	4.7	4.9	-3.7	5.4	2.1	0.7		
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	0.9	1.1	1.3	1.4	-8.5	11.3	5.1	2.4		
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	4.5	5.0	4.1	3.6	-8.3	3.0	1.9	-3.1		
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	49.7	56.5	59.9	59.6	59.2						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: High Oil & Gas prices Baseline										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4	
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1	
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	290.2	244.5	209.4	185.3	171.1	-3.4	-4.5	-3.2	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.58	1.58	1.52	1.51	1.48	-3.1	-0.9	-0.4	-0.2	
Import Dependency %	87.3	67.1	56.1	55.9	54.2	54.3	51.9	52.8	51.2					
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.5	4.6	5.7	6.5	7.3		6.9	5.0	2.5	
as % of GDP			20.5	18.8	18.4	18.1	17.9	17.0	16.8					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	81.0	72.6	65.4	61.6	59.1	-3.7	-2.1	-2.1	-1.0	
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	52.4	40.7	33.4	29.1	25.9	1.7	-6.3	-4.4	-2.5	
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	67.8	55.6	46.4	40.0	35.9	-10.7	-3.8	-3.7	-2.5	
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.4	32.2	29.9	28.1	28.3	1.4	-0.5	-1.1	-0.5	
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.6	18.2	18.5	18.3	18.1	-2.5	0.2	0.5	-0.2	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.15	0.16	0.15	0.13	0.12	-3.0	-3.3	0.0	-2.0	
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.25	1.26	1.22	1.28	1.25	-1.8	0.7	-0.2	0.2	
Industry	1.28	1.88	1.48	1.26	1.11	1.05	0.98	1.17	1.06	1.5	-2.8	-1.3	0.8	
Residential	0.75	0.31	0.21	0.33	0.37	0.38	0.40	0.45	0.49	-12.1	6.1	0.6	2.1	
Tertiary	1.21	1.02	0.89	0.85	0.67	0.60	0.55	0.52	0.50	-3.0	-2.7	-1.9	-1.1	
Transport	2.90	2.89	2.92	2.94	2.85	2.80	2.69	2.63	2.57	0.1	-0.3	-0.6	-0.4	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	37.9	37.9	39.5	38.6	40.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.8	5.6	9.5	10.7	11.7					
Gross Electricity generation by source (in GWh)														
			4135	4904	6717	8034	8872	9354	10469		5.0	2.8	1.7	
Nuclear energy			0	0	0	0	0	0	0					
Solids			91	0	0	0	0	0	0					
Oil (including refinery gas)			117	0	0	22	0	0	0					
Gas (including derived gases)			1104	1490	3217	4026	4285	4271	4793		11.3	2.9	1.1	
Biomass-waste			0	43	111	266	240	325	563			8.0	8.9	
Hydro (pumping excluded)			2818	3324	3034	2840	3039	3042	3022		0.7	0.0	-0.1	
Wind			4	47	353	879	1305	1711	2083		56.5	14.0	4.8	
Solar			0	0	0	2	3	5	7			21.7	7.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2062	2144	2770	3071	3239	3195	3537		3.0	1.6	0.9	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1519	1578	1737	2009	2231	2419	2682		1.3	2.5	1.9	
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0	
Wind			2	24	177	442	658	839	1094		56.6	14.0	5.2	
Solar			0	0	1	4	7	11	14			21.4	7.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			543	565	1033	1062	1008	775	856		6.6	-0.2	-1.6	
of which cogeneration units			542	564	569	565	570	733	750		0.5	0.0	2.8	
Solids fired			29	2	2	2	2	0	0		-23.3	1.1		
Gas fired			414	502	949	957	902	713	762		8.7	-0.5	-1.7	
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0	
Biomass-waste fired			2	16	22	42	42	47	78		25.3	6.6	6.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			20.4	23.5	27.2	29.3	30.7	32.9	33.3					
Efficiency of gross thermal power generation (%)			18.6	22.3	44.1	45.5	45.8	45.4	47.3					
% of gross electricity from CHP			24.0	11.8	46.9	42.2	41.0	46.1	43.8					
Carbon free gross electricity generation (%)			68.3	69.6	52.1	49.6	51.7	54.3	54.2					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			68.3	69.6	52.1	49.6	51.7	54.3	54.2					
Transport sector														
Passenger transport activity (Gpkm)														
Public road transport	17.7	9.0	12.3	15.8	19.7	22.6	24.9	26.9	28.2	-3.6	4.8	2.4	1.3	
Private cars and motorcycles	5.9	1.8	2.3	2.8	3.0	3.1	3.2	3.3	3.3	-8.7	2.6	0.7	0.3	
Rail	5.8	5.1	8.7	11.6	14.8	17.4	19.2	20.9	22.0	4.2	5.5	2.6	1.4	
Aviation	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.3	-15.5	3.1	2.9	1.6	
Inland navigation	0.1	0.2	0.2	0.2	0.3	0.5	0.5	0.6	0.7	2.3	6.3	4.4	2.1	
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4				
Freight transport activity (Gtkm)														
Trucks	24.8	12.0	18.1	26.3	35.8	44.0	51.0	56.9	60.5	-3.1	7.1	3.6	1.7	
Rail	5.9	1.8	4.8	8.4	12.3	16.4	20.2	23.8	26.6	-2.0	9.9	5.1	2.8	
Inland navigation	18.5	9.8	13.3	17.9	23.5	27.5	30.8	33.1	33.9	-3.3	5.9	2.7	1.0	
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
Public road transport	1094	712	744	999	1287	1529	1685	1798	1895	-3.8	5.6	2.7	1.2	
Private cars and motorcycles	111	41	23	25	26	26	26	25	24	-14.6	1.2	-0.1	-0.5	
Trucks	317	284	373	451	547	607	634	647	688	1.7	3.9	1.5	0.8	
Rail	370	240	241	371	517	671	808	938	1035	-4.2	7.9	4.6	2.5	
Aviation	188	90	75	93	118	134	135	105	65	-8.7	4.6	1.3	-7.1	
Inland navigation	73	26	27	59	78	92	82	83	83	-9.6	11.4	0.5	0.1	
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7				

Source: PRIMES

Lithuania: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1154	1358	6127	6954	8003	-3.9	-9.7	18.2	2.7	
Solids	42	43	35	39	10	7	6	5	5	-1.7	-12.1	-4.6	-2.4	
Oil	12	130	347	239	232	256	255	254	257	40.0	-3.9	0.9	0.1	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	4397	4966	5552	-6.8			2.4	
Renewable energy sources	321	501	656	777	912	1095	1469	1729	2189	7.4	3.4	4.9	4.1	
Hydro	36	32	29	39	33	36	36	36	37	-2.0	1.3	0.7	0.4	
Biomass & Waste	285	469	627	735	867	1033	1406	1664	2123	8.2	3.3	5.0	4.2	
Wind	0	0	0	0	11	24	24	24	23			7.8	-0.3	
Solar and others	0	0	0	0	1	1	3	4	5			17.9	7.1	
Geothermal	0	0	0	3	0	0	0	0	0			2.9	1.1	
Net Imports	11666	5643	4327	5096	6818	7493	5509	5556	5530	-9.4	4.7	-2.1	0.0	
Solids	758	157	84	190	381	373	240	186	191	-19.8	16.4	-4.5	-2.3	
Oil	7260	3686	2299	2677	2785	3056	3016	2984	3011	-10.9	1.9	0.8	0.0	
- Crude oil and Feedstocks	9531	3609	4827	9054	9790	10765	10708	10657	10760	-6.6	7.3	0.9	0.0	
- Oil products	-2271	77	-2528	-6377	-7006	-7708	-7691	-7673	-7749					
Natural gas	4678	2029	2065	2492	3651	4161	2707	2843	2803	-7.9	5.9	-2.9	0.3	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7803	8663	11438	12306	13330	-7.9	1.0	3.9	1.5	
Solids	831	285	121	215	391	381	247	191	196	-17.5	12.5	-4.5	-2.3	
Oil	6878	3080	2190	2746	2848	3125	3073	3034	3065	-10.8	2.7	0.8	0.0	
Natural gas	4678	2029	2064	2476	3651	4161	2707	2843	2803	-7.9	5.9	-2.9	0.3	
Nuclear	4394	3050	2172	2666	0	0	4397	4966	5552	-6.8			2.4	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	889	1068	1432	1685	2133	7.3	3.2	4.9	4.1	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	5.0	4.4	2.2	1.6	1.5					
Oil	42.8	35.4	30.9	31.9	36.5	36.1	26.9	24.7	23.0					
Natural gas	29.1	23.3	29.1	28.8	46.8	48.0	23.7	23.1	21.0					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	38.4	40.4	41.7					
Renewable energy forms	2.0	5.7	9.2	8.8	11.4	12.3	12.5	13.7	16.0					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	12022	14580	22204	24106	26274	-9.0	0.8	6.3	1.7	
Self consumption and grid losses	3486	2241	1906	1788	946	1114	1926	2217	2573	-5.9	-6.8	7.4	2.9	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2453	2883	795	768	743	-10.0	10.4	-10.7	-0.7	
Solids	0	0	0	0	191	191	59	2	2			-11.1	-27.9	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.6	-33.8		
Gas (including derived gases)	1543	433	716	1044	2229	2655	694	689	570	-7.4	12.0	-11.0	-1.9	
Biomass & Waste	0	0	0	5	32	37	43	77	171			3.1	14.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10297	11245	11770	11677	11800	-6.6	6.0	1.3	0.0	
Refineries	9561	3392	5086	9418	9965	10988	10946	10903	11013	-6.1	7.0	0.9	0.1	
Biofuels and hydrogen production	0	0	0	3	15	59	177	199	216			28.3	2.0	
District heating	1823	1079	657	522	313	196	645	573	570	-9.7	-7.1	7.5	-1.2	
Derived gases, cokeries etc.	24	18	12	8	4	3	2	2	2	-7.0	-9.8	-7.4	-1.4	
Energy Branch Consumption	991	601	655	915	777	866	976	1020	1088	-4.1	1.7	2.3	1.1	
Non-Energy Uses	852	540	648	775	964	1098	1167	1287	1410	-2.7	4.1	1.9	1.9	
Final Energy Demand	9696	4728	3820	4527	5155	5641	6106	6501	6983	-8.9	3.0	1.7	1.4	
by sector														
Industry	3334	1025	782	996	1133	1328	1474	1661	1876	-13.5	3.8	2.7	2.4	
- energy intensive industries	1678	482	362	436	533	622	683	766	859	-14.2	3.9	2.5	2.3	
- other industrial sectors	1656	543	420	560	600	705	791	895	1017	-12.8	3.6	2.8	2.6	
Residential	1854	1733	1402	1437	1525	1589	1741	1872	2017	-2.8	0.8	1.3	1.5	
Tertiary	2518	933	589	697	798	827	935	989	1034	-13.5	3.1	1.6	1.0	
Transport	1990	1037	1048	1397	1698	1898	1956	1979	2056	-6.2	4.9	1.4	0.5	
by fuel														
Solids	760	241	96	197	187	179	178	181	186	-18.7	6.9	-0.5	0.4	
Oil	4055	1666	1348	1599	1933	2134	2110	2128	2209	-10.4	3.7	0.9	0.5	
Gas	1483	510	363	503	574	555	505	520	577	-13.1	4.7	-1.3	1.3	
Electricity	1048	670	606	749	903	1008	1208	1344	1486	-5.3	4.1	3.0	2.1	
Heat (from CHP and District Heating)	2078	1193	828	905	931	902	898	908	940	-8.8	1.2	-0.4	0.5	
Renewable energy forms	272	448	579	574	627	863	1206	1419	1585	7.9	0.8	6.8	2.8	
Other	0	0	0	0	0	0	0	1	1			13.4	2.0	
RES in Gross Final Energy Consumption ^(A)			671	726	863	1041	1384	1572	1820		2.5	4.8	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	22.4	24.0	20.3	18.2	16.8	-9.1	2.6	-1.0	-1.9	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	15.9	17.5	13.3	12.9	12.6	-10.8	4.4	-1.8	-0.5	
Power generation/District heating	12.0	5.6	3.9	4.0	6.3	7.2	3.2	2.9	2.6	-10.5	4.8	-6.7	-1.9	
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	2.0	1.8	1.4	-3.3	4.3	0.8	-3.5	
Industry	6.1	1.7	1.1	1.3	1.6	1.6	1.5	1.5	1.6	-15.9	3.9	-0.5	0.8	
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.7	0.8	0.9	-13.2	1.0	1.6	2.7	
Tertiary	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.5	-19.8	2.2	-1.0	-0.5	
Transport	5.8	3.0	3.1	4.1	4.9	5.4	5.3	5.3	5.5	-6.2	4.9	0.7	0.3	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	6.5	7.1	5.3	4.2	-5.7	-0.6	0.8	-5.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	49.9	53.4	45.2	40.6	37.5					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	277.8	240.5	256.1	226.1	206.2	-5.1	-5.7	-0.8	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	2.04	2.02	1.16	1.05	0.95	-3.2	3.4	-5.5	-2.0
Import Dependency %	72.2	63.8	60.3	58.3	85.5	84.7	47.3	44.4	40.9				
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	4.9	6.5	7.8	9.0	10.1		6.0	4.8	2.6
as % of GDP			19.0	15.2	17.3	17.9	17.5	16.5	15.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.7	56.5	49.8	46.2	43.9	-9.4	-4.4	-2.4	-1.3
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	54.4	44.8	40.1	35.7	32.7	0.0	-5.9	-3.0	-2.0
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	76.4	62.5	57.1	49.4	43.3	-13.8	-2.7	-2.9	-2.7
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.3	25.2	24.3	25.3	0.4	-2.6	-0.6	0.1
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.3	16.5	15.7	15.4	-7.6	-2.1	-0.6	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.25	0.26	0.09	0.08	0.07	-2.7	4.3	-9.5	-2.9
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.51	1.47	1.33	1.26	1.23	-3.5	1.0	-1.3	-0.8
Industry	1.83	1.70	1.38	1.35	1.40	1.21	1.03	0.91	0.88	-2.8	0.1	-3.0	-1.6
Residential	1.26	0.47	0.41	0.46	0.41	0.42	0.42	0.45	0.47	-10.8	0.1	0.2	1.2
Tertiary	1.80	1.66	0.85	0.83	0.78	0.72	0.60	0.56	0.52	-7.2	-0.8	-2.5	-1.5
Transport	2.93	2.91	2.93	2.92	2.91	2.86	2.71	2.68	2.65	0.0	-0.1	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	16.0	17.7	21.7	23.2	25.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.9	3.2	9.3	10.4	10.9				
Gross Electricity generation by source (in GWh)													
			11118	14410	12022	14580	22204	24106	26274		0.8	6.3	1.7
Nuclear energy			8417	10335	0	0	19473	22050	24721				2.4
Solids			0	0	1012	1012	319	8	6			-10.9	-33.2
Oil (including refinery gas)			603	379	4	1	0	0	0		-40.0	-30.7	
Gas (including derived gases)			1759	3226	10342	12699	1674	1310	819		19.4	-16.6	-6.9
Biomass-waste			0	19	145	173	40	32	24			-12.2	-5.1
Hydro (pumping excluded)			339	451	387	414	415	423	431		1.3	0.7	0.4
Wind			0	0	133	282	282	282	273			7.8	-0.3
Solar			0	0	0	0	0	0	0				
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			4839	3827	3602	3690	5972	5678	5373		-2.9	5.2	-1.1
<u>Nuclear energy</u>			2291	1200	0	0	2249	2547	2855				2.4
<u>Renewable energy</u>			98	115	214	325	353	365	366		8.2	5.1	0.4
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	98	204	204	198	198			7.6	-0.3
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2451	2512	3388	3365	3371	2766	2152		3.3	-0.1	-4.4
of which cogeneration units			2442	2498	2536	2249	1836	1546	1269		0.4	-3.2	-3.6
Solids fired			0	0	118	118	118	118	118			0.0	0.0
Gas fired			1838	1877	2644	2634	2634	2319	1913		3.7	0.0	-3.1
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-58.3
Biomass-waste fired			0	5	22	25	29	54	121			3.1	15.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			23.0	39.4	36.8	43.6	40.3	46.0	52.9				
Efficiency of gross thermal power generation (%)			22.3	25.6	40.3	41.4	22.0	15.1	9.8				
% of gross electricity from CHP			18.5	22.7	72.8	68.9	7.8	5.6	3.2				
Carbon free gross electricity generation (%)			78.8	75.0	5.5	6.0	91.0	94.5	96.9				
- nuclear			75.7	71.7	0.0	0.0	87.7	91.5	94.1				
- renewable energy forms			3.0	3.3	5.5	6.0	3.3	3.1	2.8				
Transport sector													
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.8	42.0	44.1	45.7	47.2	-0.8	7.0	1.3	0.7
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.9	5.1	5.2	-10.0	4.6	1.3	0.5
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.6	36.2	37.7	39.0	40.0	5.6	7.6	1.2	0.6
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.8	0.9	-16.3	-3.0	3.3	3.9
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.9	5.6	4.8	3.6
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	2.1	1.0
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.5	45.7	51.4	55.2	55.8	-4.6	8.4	3.2	0.8
Trucks	7.3	5.2	7.8	15.9	21.5	26.1	29.0	31.0	31.2	0.6	10.7	3.1	0.7
Rail	19.3	7.2	8.9	12.5	16.0	19.6	22.4	24.2	24.6	-7.4	6.0	3.4	1.0
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
1990	1037	1048	1397	1698	1898	1956	1979	2056	-6.2	4.9	1.4	0.5	
Public road transport	164	50	25	30	34	36	36	36	-17.1	3.0	0.7	0.0	
Private cars and motorcycles	396	485	630	823	940	990	981	983	1066	4.8	4.1	0.4	0.8
Trucks	1159	374	288	414	558	674	725	753	755	-13.0	6.8	2.6	0.4
Rail	132	86	75	79	100	119	123	118	108	-5.5	2.9	2.2	-1.4
Aviation	135	41	27	46	61	73	84	82	84	-14.9	8.6	3.3	0.0
Inland navigation	5	1	3	5	5	6	7	7	7	-5.0	5.9	2.0	0.7

Source: PRIMES

Luxembourg: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	151	182	227	247	266	1.9	10.3	4.2	1.6	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	151	182	227	247	266	1.9	10.3	4.2	1.6	
Hydro	6	7	10	8	9	9	9	9	10	5.8	-1.2	0.2	0.2	
Biomass & Waste	41	39	44	59	89	111	139	153	171	0.7	7.3	4.6	2.1	
Wind	0	0	2	5	12	12	19	20	16		17.7	5.0	-1.8	
Solar and others	0	0	0	2	41	49	59	65	69			3.7	1.5	
Geothermal	0	0	0	0	0	0	0	0	0			1.9	0.3	
Net Imports	3520	3257	3620	4606	4970	5195	5071	5083	5080	0.3	3.2	0.2	0.0	
Solids	1134	514	125	82	55	50	47	37	31	-19.8	-8.0	-1.5	-4.1	
Oil	1620	1756	2332	3066	3332	3374	3115	3054	3009	3.7	3.6	-0.7	-0.3	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3332	3374	3115	3054	3009	3.7	3.6	-0.7	-0.3	
Natural gas	430	557	670	1179	1182	1287	1329	1354	1333	4.6	5.8	1.2	0.0	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	5121	5377	5298	5330	5346	0.2	3.5	0.3	0.1	
Solids	1134	514	125	82	55	50	47	37	31	-19.8	-8.0	-1.5	-4.1	
Oil	1609	1788	2283	3084	3332	3374	3115	3054	3009	3.6	3.9	-0.7	-0.3	
Natural gas	430	557	670	1179	1182	1287	1329	1354	1333	4.6	5.8	1.2	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	200	322	477	522	573	1.9	13.4	9.1	1.9	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.9	0.7	0.6					
Oil	45.2	53.6	62.9	65.6	65.1	62.7	58.8	57.3	56.3					
Natural gas	12.1	16.7	18.5	25.1	23.1	23.9	25.1	25.4	24.9					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	3.9	6.0	9.0	9.8	10.7					
Gross Electricity Generation in GWh_e	627	498	433	3344	2933	3563	4023	3963	3832	-3.6	21.1	3.2	-0.5	
Self consumption and grid losses	410	497	439	448	215	224	238	252	263	0.7	-6.9	1.0	1.0	
Fuel Inputs to Thermal Power Generation	190	132	75	568	495	582	620	613	596	-8.8	20.7	2.3	-0.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	0	0	0	0	0					
Gas (including derived gases)	162	106	47	525	446	531	566	550	507	-11.6	25.2	2.4	-1.1	
Biomass & Waste	25	24	28	43	49	51	54	64	89	1.0	5.8	0.9	5.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	72	184	319	350	377			16.0	1.7	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	72	184	319	350	377			16.0	1.7	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	8	8	8	8	9	-1.8	-10.6	0.1	0.2	
Non-Energy Uses	20	23	14	20	25	28	29	31	32	-3.9	6.4	1.3	1.1	
Final Energy Demand	3329	3165	3549	4424	4875	5078	4968	5004	5029	0.6	3.2	0.2	0.1	
by sector														
Industry	1729	1196	958	937	984	1063	1102	1161	1215	-5.7	0.3	1.1	1.0	
- energy intensive industries	1525	900	501	470	478	500	496	498	494	-10.5	-0.5	0.4	0.0	
- other industrial sectors	204	296	457	467	506	563	607	662	721	8.4	1.0	1.8	1.7	
Residential	519	563	596	649	696	682	662	669	665	1.4	1.6	-0.5	0.1	
Tertiary	74	99	118	130	143	150	155	158	156	4.7	1.9	0.8	0.0	
Transport	1007	1307	1877	2708	3052	3182	3049	3016	2993	6.4	5.0	0.0	-0.2	
by fuel														
Solids	756	369	125	82	55	50	47	37	31	-16.5	-7.9	-1.5	-4.1	
Oil	1581	1752	2266	3065	3306	3346	3086	3023	2976	3.7	3.8	-0.7	-0.4	
Gas	622	585	623	678	736	756	762	803	825	0.0	1.7	0.3	0.8	
Electricity	355	430	491	529	587	630	657	682	707	3.3	1.8	1.1	0.7	
Heat (from CHP and District Heating)	0	14	27	55	77	80	82	93	100		11.0	0.6	2.1	
Renewable energy forms	15	15	16	16	115	215	335	364	388	0.4	21.8	11.3	1.5	
Other	0	0	0	0	0	1	1	2	2			14.9	6.7	
RES in Gross Final Energy Consumption ^(A)			34	48	179	281	411	450	492		18.0	8.7	1.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.5	14.8	14.1	14.0	13.7	-2.1	3.4	-0.2	-0.3	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	13.0	13.3	12.6	12.5	12.2	-1.8	3.9	-0.3	-0.3	
Power generation/District heating	0.7	0.4	0.1	1.2	1.0	1.2	1.3	1.3	1.2	-17.0	25.2	2.4	-1.1	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.6	1.7	-11.5	-1.2	0.7	0.6	
Residential	1.3	1.3	1.4	1.4	1.4	1.3	1.2	1.2	1.2	1.1	-0.3	-1.0	-0.3	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.7	1.5	-0.6	
Transport	3.0	3.9	5.6	8.1	9.0	9.1	8.4	8.2	8.1	6.5	4.9	-0.7	-0.4	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.6	-7.6	-0.6	-0.1	-0.4	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.8	0.8	0.8	2.4	0.6	0.1	0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	112.7	115.7	110.1	108.9	107.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: High Oil & Gas prices Baseline													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567		1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1		6.5	3.8	3.4	2.6
Gross Inl. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	140.0	122.8	103.4	90.6	80.8		-5.9	-0.2	-3.0	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.53	2.48	2.38	2.34	2.29		-2.0	0.4	-0.6	-0.4
Import Dependency %	99.0	97.7	99.8	98.0	97.1	96.6	95.7	95.4	95.0					
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.4	5.2	6.0	6.5	7.0		5.3	3.1	1.5	
as % of GDP			10.4	11.4	12.0	12.0	11.7	11.0	10.5					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	87.2	80.1	72.0	66.6	62.7		-9.0	-1.4	-1.9	-1.4
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	84.6	71.5	60.8	54.6	49.0		-2.2	-1.7	-3.2	-2.1
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	83.2	73.2	64.6	57.2	50.5		-0.5	-1.8	-2.5	-2.4
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	167.3	160.7	139.4	127.3	116.0		1.8	1.1	-1.8	-1.8
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	144.5	141.0	133.2	126.7	122.4		0.0	4.5	-0.8	-0.8
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.27	0.27	0.26	0.25	0.23		-18.4	6.1	-0.2	-1.1
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.45	2.38	2.27	2.23	2.20		-1.9	-0.1	-0.7	-0.3
Industry	3.28	2.58	1.74	1.63	1.51	1.47	1.44	1.41	1.39		-6.1	-1.4	-0.5	-0.3
Residential	2.45	2.39	2.37	2.21	1.97	1.93	1.87	1.82	1.81		-0.3	-1.8	-0.5	-0.3
Tertiary	0.21	0.34	0.65	0.48	0.45	0.45	0.48	0.48	0.45		12.0	-3.6	0.7	-0.6
Transport	2.95	2.96	2.97	3.00	2.95	2.87	2.76	2.73	2.71		0.1	-0.1	-0.7	-0.2
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	3.7	5.5	8.2	8.9	9.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	5.7	10.0	11.0	11.9					
Gross Electricity generation by source (in GWh)														
			433	3344	2933	3563	4023	3963	3832		21.1	3.2	-0.5	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1	0	0	0	0	0	0					
Gas (including derived gases)			222	3083	2481	3082	3444	3334	3142		27.3	3.3	-0.9	
Biomass-waste			63	97	188	208	222	262	365		11.6	1.7	5.1	
Hydro (pumping excluded)			120	93	106	108	109	110	112		-1.2	0.2	0.2	
Wind			27	53	138	144	225	232	187		17.7	5.0	-1.8	
Solar			0	18	20	21	23	25	26				1.7	1.0
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			275	722	901	1007	1177	1211	1217		12.6	2.7	0.3	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			167	214	260	267	308	316	297		4.5	1.7	-0.4	
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0	
Wind			10	35	80	84	123	129	109		23.0	4.4	-1.2	
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			108	509	641	740	869	895	919		19.5	3.1	0.6	
of which cogeneration units			61	112	244	265	254	293	300		14.8	0.4	1.7	
Solids fired			0	0	0	0	0	0	0					
Gas fired			87	477	537	638	782	799	807		20.0	3.8	0.3	
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5	
Biomass-waste fired			15	25	96	96	83	92	109		20.6	-1.5	2.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			16.8	52.5	36.2	39.4	38.1	36.4	35.0					
Efficiency of gross thermal power generation (%)			32.7	48.1	46.4	48.6	50.8	50.4	50.6					
% of gross electricity from CHP			53.7	11.8	30.4	28.7	29.3	31.3	34.2					
Carbon free gross electricity generation (%)			48.5	7.8	15.4	13.5	14.4	15.9	18.0					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			48.5	7.8	15.4	13.5	14.4	15.9	18.0					
Transport sector														
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.1	9.6	9.9	10.3	10.6		3.5	2.1	0.8	0.7
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1		2.6	3.7	0.7	1.0
Private cars and motorcycles	4.2	4.9	5.8	6.4	7.0	7.3	7.4	7.7	7.9		3.4	1.9	0.7	0.6
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4		4.8	-2.1	0.8	1.9
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.2	1.3	1.3		5.8	3.9	2.3	0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.6	11.6	12.5	13.5	14.4		8.0	2.5	1.7	1.4
Trucks	3.2	5.5	7.6	8.8	10.2	11.3	12.2	13.2	14.1		9.0	3.0	1.8	1.4
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.2		0.3	-5.7	-2.8	-0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1007	1307	1877	2708	3052	3182	3049	3016	2993		6.4	5.0	0.0	-0.2
Public road transport	18	18	24	29	31	31	29	28	27		2.9	2.9	-0.7	-0.7
Private cars and motorcycles	500	609	760	916	985	977	931	866	805		4.3	2.6	-0.6	-1.4
Trucks	345	482	757	1323	1519	1632	1661	1704	1756		8.2	7.2	0.9	0.6
Rail	13	9	15	9	8	7	6	6	5		2.0	-6.1	-2.8	-1.4
Aviation	131	189	320	431	508	535	421	413	399		9.3	4.7	-1.9	-0.5
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	0	0	0	0	2	10	25	34	40				27.0	4.8
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	0	0	0	0	2	10	25	34	40			27.0	4.8	
Hydro	0	0	0	0	0	0	0	0	0					
Biomass & Waste	0	0	0	0	0	0	0	0	0					
Wind	0	0	0	0	0	1	9	13	17				7.1	
Solar and others	0	0	0	0	2	9	16	20	23			21.8	3.4	
Geothermal	0	0	0	0	0	0	0	0	0			1.0	-1.6	
Net Imports	611	890	818	953	955	846	798	808	817	3.0	1.6	-1.8	0.2	
Solids	0	0	0	0	0	0	0	0	0					
Oil	611	890	818	953	868	671	508	499	496	3.0	0.6	-5.2	-0.2	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	611	890	818	953	868	671	508	499	496	3.0	0.6	-5.2	-0.2	
Natural gas	0	0	0	0	85	90	188	193	187			8.2	-0.1	
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Gross Inland Consumption	581	808	769	953	957	857	823	842	857	2.8	2.2	-1.5	0.4	
Solids	0	0	0	0	0	0	0	0	0					
Oil	581	808	769	953	868	671	508	499	496	2.8	1.2	-5.2	-0.2	
Natural gas	0	0	0	0	85	90	188	193	187			8.2	-0.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	0	0	0	0	0	73	85	95	108				2.4	
Renewable energy forms	0	0	0	0	4	22	41	54	66			27.3	4.8	
as % in Gross Inland Consumption														
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Oil	100.0	100.0	100.0	100.0	90.7	78.3	61.8	59.4	57.9					
Natural gas	0.0	0.0	0.0	0.0	8.9	10.5	22.9	23.0	21.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	0.0	0.0	0.0	0.0	0.4	2.6	5.0	6.5	7.7					
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	2172	1519	1575	1650	1664	5.7	1.3	-3.2	0.6	
Self consumption and grid losses	190	373	350	438	179	135	139	148	157	6.3	-6.5	-2.5	1.3	
Fuel Inputs to Thermal Power Generation	321	463	494	580	524	314	236	228	223	4.4	0.6	-7.7	-0.6	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	321	463	494	580	438	215	37	21	19	4.4	-1.2	-21.9	-6.5	
Gas (including derived gases)	0	0	0	0	85	90	188	193	187			8.2	-0.1	
Biomass & Waste	0	0	0	0	1	8	11	14	18			30.4	5.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	0	0	0	0	1	3	6	7	9			25.5	4.3	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	0	1	3	6	7	8			26.7	4.3	
District heating	0	0	0	0	0	0	0	0	0			-1.5	2.9	
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0					
Energy Branch Consumption	8	19	10	12	8	4	3	3	3	2.5	-1.6	-9.6	-0.1	
Non-Energy Uses	6	0	0	0	0	0	0	0	0					
Final Energy Demand	332	451	408	528	605	660	700	728	744	2.1	4.0	1.5	0.6	
by sector														
Industry	0	42	43	46	50	55	61	68	74		1.4	2.1	1.8	
- energy intensive industries	0	0	0	0	0	0	0	0	0					
- other industrial sectors	0	42	43	46	50	55	61	68	74		1.4	2.1	1.8	
Residential	55	73	76	89	102	113	121	125	129	3.2	3.0	1.7	0.6	
Tertiary	56	32	52	66	75	84	89	92	95	-0.7	3.7	1.8	0.6	
Transport	221	304	237	328	378	407	429	443	447	0.7	4.8	1.3	0.4	
by fuel														
Solids	0	0	0	0	0	0	0	0	0					
Oil	254	342	274	373	430	456	471	478	477	0.8	4.6	0.9	0.1	
Gas	0	0	0	0	0	0	0	0	0			2.6	-0.2	
Electricity	78	108	135	155	171	192	208	224	237	5.6	2.4	2.0	1.3	
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-1.5	2.9	
Renewable energy forms	0	0	0	0	3	12	21	26	30			22.4	3.6	
Other	0	0	0	0	0	0	0	0	0			15.2	2.3	
RES in Gross Final Energy Consumption ^(A)			0	0	3	17	34	45	54			27.0	4.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.3	2.8	2.4	2.5	2.5	2.9	1.9	-3.1	0.1	
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.9	2.3	2.0	1.9	1.9	3.0	1.9	-3.8	-0.2	
Power generation/District heating	1.0	1.5	1.6	1.9	1.6	0.9	0.6	0.5	0.5	4.4	0.2	-10.0	-1.2	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.8	3.6	-0.9	-2.5	
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			5.2	-1.8	
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.3	1.3	1.3	0.7	4.8	1.2	0.4	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.5	0.5	0.5	2.2	1.5	0.3	1.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	159.6	131.3	116.4	117.3	117.2					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Malta: High Oil & Gas prices Baseline				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5	
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8	
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	185.6	140.4	111.0	97.4	87.8	-1.9	0.8	-5.0	-2.3	
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.02	2.64	2.39	2.31	2.24	0.1	-0.3	-2.3	-0.6	
Import Dependency %	100.0	104.5	100.8	100.0	99.8	98.8	97.0	96.0	95.4					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.8	0.8	1.0	1.1	1.2		7.3	2.8	2.1	
as % of GDP			8.3	12.2	14.5	13.7	13.3	12.9	12.5					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	88.1	84.1	79.6	75.4	72.4		-1.3	-1.0	-0.9	
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	115.7	107.6	94.2	83.3	75.7	-1.6	1.5	-2.0	-2.2	
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	131.9	124.2	106.2	93.9	85.5	-5.9	2.8	-2.2	-2.1	
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.2	57.6	57.0	55.7	53.7	-3.8	2.3	-0.2	-0.6	
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	167.5	166.5	160.9	154.7	150.9	2.5	4.9	-0.4	-0.6	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.74	0.59	0.35	0.31	0.30	-1.3	-1.1	-7.1	-1.8	
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.12	2.06	2.01	1.97	1.92	-1.3	0.7	-0.5	-0.5	
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.06	0.93	0.82	0.69	0.60	-4.9	0.6	-2.6	-3.1	
Tertiary	0.00	0.00	0.50	0.49	0.58	0.51	0.41	0.36	0.34		1.5	-3.5	-1.9	
Transport	2.97	2.96	2.98	3.00	3.00	2.98	2.97	2.96	2.95	0.0	0.1	-0.1	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.5	2.5	4.8	6.1	7.2					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.5	1.6	2.1					
Gross Electricity generation by source (in GWh)														
			1917	2240	2172	1519	1575	1650	1664		1.3	-3.2	0.6	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1619	859	148	117	105		-1.7	-21.3	-3.3	
Gas (including derived gases)			0	0	549	596	1267	1300	1263			8.7	0.0	
Biomass-waste			0	0	4	46	59	76	97			30.4	5.0	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	17	100	156	199				7.1	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	547	593	572	634	686		1.5	0.4	1.8	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	8	41	63	81				7.1	
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	8	41	63	81				7.1	
Solar			0	0	0	0	0	0	0					
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	547	585	531	571	605		1.5	-0.3	1.3	
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	73	102	258	270	301			13.4	1.6	
Oil fired			472	483	474	478	266	292	292		0.0	-5.6	0.9	
Biomass-waste fired			0	0	1	6	7	9	12			30.4	5.0	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	43.3	28.4	30.8	29.1	27.1					
Efficiency of gross thermal power generation (%)			33.4	33.2	35.7	41.2	53.7	56.3	56.4					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.2	4.2	10.1	14.1	17.8					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.2	4.2	10.1	14.1	17.8					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.6	6.1	6.6	6.9	5.2	2.4	1.9	1.3	
Public road transport	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	5.9	1.6	1.6	1.4	
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.1	4.4	2.4	1.0	0.5	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.5	3.8	4.1	5.6	2.5	2.6	1.7	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.1	0.1	-0.1	
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.1	0.1	-0.1	
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	378	407	429	443	447	0.7	4.8	1.3	0.4	
Public road transport	5	11	10	12	14	15	17	17	16	5.8	3.9	1.7	-0.1	
Private cars and motorcycles	87	160	89	142	175	190	206	221	226	0.2	7.0	1.6	1.0	
Trucks	57	59	52	84	84	84	81	78	76	-0.8	4.9	-0.3	-0.7	
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	104	118	125	127	129	1.8	1.9	1.9	0.3	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Netherlands: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	60478	65988	57172	61834	56929	56570	54721	49287	45656	-0.6	0.0	-0.4	-1.8	
Solids	0	0	0	0	0	0	0	0	0					
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0				
Natural gas	54613	60456	51904	56265	53300	51980	49180	40100	32670	-0.5	0.3	-0.8	-4.0	
Nuclear	881	1036	1013	1031	1022	1023	1024	4007	6989	1.4	0.1	0.0	21.2	
Renewable energy sources	956	933	1831	2242	2607	3566	4517	5180	5997	6.7	3.6	5.6	2.9	
Hydro	7	8	12	8	8	9	9	9	9	5.3	-3.6	0.0	0.0	
Biomass & Waste	942	894	1739	2035	2121	2703	3452	3907	4598	6.3	2.0	5.0	2.9	
Wind	5	27	71	178	392	657	745	862	932	30.9	18.6	6.6	2.3	
Solar and others	2	4	9	22	86	197	311	403	457	15.5	25.3	13.7	3.9	
Geothermal	0	0	0	0	0	0	0	0	0			0.5	0.0	
Net Imports	17443	16359	34331	36912	43507	47320	49032	55695	61545	7.0	2.4	1.2	2.3	
Solids	9574	8921	8222	8313	7753	10939	12168	12336	13098	-1.5	-0.6	4.6	0.7	
Oil	30876	32829	41673	47392	49054	49730	48658	49343	49433	3.0	1.6	-0.1	0.2	
- Crude oil and Feedstocks	47956	59277	60955	61302	65477	66291	65880	66576	66848	2.4	0.7	0.1	0.1	
- Oil products	-17080	-26448	-19282	-13910	-16422	-16561	-17222	-17233	-17415					
Natural gas	-23799	-26370	-17191	-20941	-15237	-14852	-13365	-7843	-2862					
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Gross Inland Consumption	67059	73374	75712	80963	82831	85891	85431	86244	88134	1.2	0.9	0.3	0.3	
Solids	9206	9098	8035	8190	7753	10939	12168	12336	13098	-1.4	-0.4	4.6	0.7	
Oil	24415	27242	28496	32027	31449	31731	30337	30605	30366	1.6	1.0	-0.4	0.0	
Natural gas	30810	34085	34711	35324	38063	37128	35815	32257	29808	1.2	0.9	-0.6	-1.8	
Nuclear	881	1036	1013	1031	1022	1023	1024	4007	6989	1.4	0.1	0.0	21.2	
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3	
Renewable energy forms	956	933	1831	2817	3207	4330	5492	6284	7296	6.7	5.8	5.5	2.9	
as % in Gross Inland Consumption														
Solids	13.7	12.4	10.6	10.1	9.4	12.7	14.2	14.3	14.9					
Oil	36.4	37.1	37.6	39.6	38.0	36.9	35.5	35.5	34.5					
Natural gas	45.9	46.5	45.8	43.6	46.0	43.2	41.9	37.4	33.8					
Nuclear	1.3	1.4	1.3	1.3	1.2	1.2	1.2	4.6	7.9					
Renewable energy forms	1.4	1.3	2.4	3.5	3.9	5.0	6.4	7.3	8.3					
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	116547	136128	145208	146712	155142	2.2	2.7	2.2	0.7	
Self consumption and grid losses	5554	6853	7752	8521	9680	11544	12164	13886	15315	3.4	2.2	2.3	2.3	
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	19232	22066	23606	20551	20072	2.2	0.5	2.1	-1.6	
Solids	5698	5900	5114	4958	4480	7697	9084	9401	10294	-1.1	-1.3	7.3	1.3	
Oil (including refinery gas)	702	876	618	640	0	0	71	0	0	-1.3	-66.3	139.3		
Gas (including derived gases)	7651	9466	11071	11913	13008	12437	12228	8500	6439	3.8	1.6	-0.6	-6.2	
Biomass & Waste	570	601	1430	2052	1744	1932	2222	2651	3339	9.6	2.0	2.5	4.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	72281	83698	85058	89914	87328	88563	87840	87879	87717	1.6	0.3	0.1	0.0	
Refineries	68767	80009	82188	86416	83428	84326	83204	83184	82869	1.8	0.1	0.0	0.0	
Biofuels and hydrogen production	0	0	0	0	338	854	1534	1722	1886			16.3	2.1	
District heating	0	0	0	436	522	449	407	418	507			-2.5	2.2	
Derived gases, cokeries etc.	3514	3689	2870	3062	3040	2934	2694	2554	2456	-2.0	0.6	-1.2	-0.9	
Energy Branch Consumption	5410	6247	5484	6580	6495	6543	6348	6409	6421	0.1	1.7	-0.2	0.1	
Non-Energy Uses	9495	9406	9579	12301	13239	13620	13438	13419	13220	0.1	3.3	0.1	-0.2	
Final Energy Demand	42924	47670	50125	51588	53748	55037	54398	54842	55316	1.6	0.7	0.1	0.2	
by sector														
Industry	12643	12714	13812	14597	15409	16067	15903	16176	16202	0.9	1.1	0.3	0.2	
- energy intensive industries	9577	8701	9885	10367	10969	11448	11302	11446	11407	0.3	1.0	0.3	0.1	
- other industrial sectors	3066	4012	3927	4231	4440	4619	4600	4730	4795	2.5	1.2	0.4	0.4	
Residential	9932	11124	10286	10335	10330	10340	10140	9722	9734	0.4	0.0	-0.2	-0.4	
Tertiary	9993	11429	12207	11587	11917	11903	11622	11716	11643	2.0	-0.2	-0.3	0.0	
Transport	10356	12404	13820	15068	16092	16727	16734	17228	17737	2.9	1.5	0.4	0.6	
by fuel														
Solids	1755	1461	1352	1515	1515	1566	1568	1493	1407	-2.6	1.1	0.3	-1.1	
Oil	12790	14685	16469	17366	17585	17774	16827	17486	17551	2.6	0.7	-0.4	0.4	
Gas	21244	22515	21008	20335	20947	20392	19049	18896	18368	-0.1	0.0	-0.9	-0.4	
Electricity	6322	7143	8421	8986	10046	10964	11546	11690	12117	2.9	1.8	1.4	0.5	
Heat (from CHP and District Heating)	439	1568	2558	2981	2872	3031	3445	3106	3530	19.3	1.2	1.8	0.2	
Renewable energy forms	374	298	317	405	782	1308	1959	2166	2338	-1.6	9.4	9.6	1.8	
Other	0	0	0	0	1	2	4	5	6			14.0	2.7	
RES in Gross Final Energy Consumption (A)			940	1828	2804	3886	4908	5611	6496	11.6	5.8	2.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	225.6	229.1	229.3	218.5	213.4	0.1	0.3	0.2	-0.7	
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	172.3	182.7	181.3	174.7	172.1	0.9	0.4	0.5	-0.5	
Power generation/District heating	43.3	49.1	48.9	51.1	50.1	61.2	66.3	58.7	57.6	1.2	0.2	2.8	-1.4	
Energy Branch	13.7	15.8	13.1	14.8	14.3	14.1	13.6	13.4	13.2	-0.4	0.8	-0.5	-0.2	
Industry	27.0	25.1	24.8	25.4	25.9	26.1	23.7	24.3	22.6	-0.8	0.4	-0.9	-0.5	
Residential	19.2	20.6	18.9	17.8	17.3	16.8	15.7	15.6	15.3	-0.2	-0.8	-1.0	-0.3	
Tertiary	18.9	20.7	19.5	18.1	18.0	17.2	16.4	16.1	15.6	0.3	-0.8	-0.9	-0.5	
Transport	30.1	36.2	40.5	44.4	46.6	47.3	45.6	46.7	47.8	3.0	1.4	-0.2	0.5	
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.2	11.3	11.3	11.3	11.4	-1.5	2.0	0.1	0.1	
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	35.1	36.7	32.4	29.9	-2.2	-0.2	-1.4	-2.0	
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	104.2	105.8	105.9	100.9	98.6					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Netherlands: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2	
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5	
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	142.9	133.3	121.6	113.4	108.6	-2.0	-1.0	-1.6	-1.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.08	2.13	2.12	2.03	1.95	-0.4	-0.5	0.2	-0.8	
Import Dependency %	22.4	19.3	38.6	37.8	43.3	45.5	47.3	53.1	57.4					
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	63.7	75.4	87.0	92.8	99.7		3.8	3.2	1.4	
as % of GDP			9.2	10.4	11.0	11.7	12.4	12.2	12.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.7	96.6	89.8	86.1	82.2	-1.1	0.1	-1.1	-0.9	
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	84.8	76.8	69.6	62.1	58.7	-2.9	-1.6	-1.9	-1.7	
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	77.5	69.4	62.3	58.1	54.0	-1.5	-2.5	-2.2	-1.4	
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.7	46.5	42.7	40.9	39.4	1.7	0.4	-1.3	-0.8	
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.8	37.6	36.3	35.3	34.5	0.8	-0.2	-0.7	-0.5	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.32	0.34	0.34	0.31	0.28	-3.4	-2.2	0.8	-1.8	
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.01	1.95	1.86	1.87	1.83	-0.7	-0.3	-0.7	-0.2	
Industry	2.14	1.97	1.80	1.74	1.68	1.63	1.49	1.50	1.40	-1.7	-0.7	-1.2	-0.7	
Residential	1.93	1.85	1.84	1.72	1.68	1.62	1.55	1.61	1.57	-0.5	-0.9	-0.8	0.2	
Tertiary	1.89	1.81	1.60	1.56	1.51	1.44	1.41	1.37	1.34	-1.7	-0.6	-0.7	-0.5	
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.73	2.71	2.69	0.1	-0.1	-0.6	-0.1	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.1	6.9	8.8	10.0	11.4					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.9	10.5	11.3	12.1					
Gross Electricity generation by source (in GWh)														
			89599	100202	116547	136128	145208	146712	155142		2.7	2.2	0.7	
Nuclear energy			3925	3996	3961	3967	3971	18146	31723		0.1	0.0	23.1	
Solids			22115	20959	18017	35906	41852	52444	59900		-2.0	8.8	3.7	
Oil (including refinery gas)			3769	1651	412	375	375	119	22		-19.9	-0.9	-24.7	
Gas (including derived gases)			55039	64687	82493	79631	79950	54479	39698		4.1	-0.3	-6.8	
Biomass-waste			3772	6720	6916	8314	9822	10630	11862		6.3	3.6	1.9	
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.6	0.0	0.0	
Wind			829	2067	4554	7641	8665	10020	10840		18.6	6.6	2.3	
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0	
Geothermal and other renewables			0	0	0	0	136	263	263				6.8	
Net Generation Capacity in MW_e			20113	19871	26399	29262	31151	34398	35902		2.8	1.7	1.4	
<u>Nuclear energy</u>			501	501	507	512	514	2096	3664		0.1	0.2	21.7	
<u>Renewable energy</u>			495	1653	3149	3304	3857	4637	5152		20.3	2.0	2.9	
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0	
Wind			446	1565	2967	2967	3226	3676	3848		20.9	0.8	1.8	
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0	
Other renewables (tidal etc.)			0	0	0	0	71	136	136				6.8	
<u>Thermal power</u>			19116	17718	22744	25446	26780	27666	27086		1.8	1.6	0.1	
of which cogeneration units			9089	9231	10104	10603	10885	10570	10499		1.1	0.7	-0.4	
Solids fired			4171	4171	4174	5926	5483	7001	7198		0.0	2.8	2.8	
Gas fired			13574	11700	16284	17075	18650	18084	16839		1.8	1.4	-1.0	
Oil fired			839	825	826	695	678	489	610		-0.2	-2.0	-1.0	
Biomass-waste fired			533	1022	1460	1751	1969	2092	2440		10.6	3.0	2.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			48.8	55.2	48.4	50.9	51.1	46.2	46.7					
Efficiency of gross thermal power generation (%)			39.9	41.3	48.2	48.4	48.1	49.2	47.8					
% of gross electricity from CHP			32.0	37.6	38.5	36.2	39.0	34.7	29.1					
Carbon free gross electricity generation (%)			9.7	12.9	13.4	14.9	15.9	27.0	35.8					
- nuclear			4.4	4.0	3.4	2.9	2.7	12.4	20.4					
- renewable energy forms			5.3	8.9	10.0	11.9	13.1	14.7	15.3					
Transport sector														
Passenger transport activity (Gpkm)	175.3	177.6	189.5	198.2	215.6	232.9	248.7	266.6	284.9	0.8	1.3	1.4	1.4	
Public road transport	13.0	12.0	11.3	11.7	12.1	12.4	12.8	13.0	13.2	-1.4	0.7	0.6	0.3	
Private cars and motorcycles	138.7	133.2	143.4	149.5	162.0	172.7	182.1	192.4	202.6	0.3	1.2	1.2	1.1	
Rail	12.3	17.7	16.1	16.3	17.2	19.1	21.4	24.3	27.2	2.7	0.7	2.2	2.4	
Aviation	9.8	13.5	17.8	19.7	23.5	27.8	31.4	35.8	40.8	6.2	2.8	2.9	2.7	
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.2	-5.4	0.7	1.1	1.2	
Freight transport activity (Gtkm)	94.8	105.7	125.4	131.6	143.8	156.8	168.8	178.9	188.4	2.8	1.4	1.6	1.1	
Trucks	56.1	67.1	79.6	84.2	93.0	100.7	107.9	115.2	121.2	3.6	1.6	1.5	1.2	
Rail	3.1	3.1	4.5	5.2	5.9	6.6	7.3	7.9	8.5	3.9	2.7	2.1	1.5	
Inland navigation	35.7	35.5	41.3	42.2	44.9	49.5	53.6	55.8	58.7	1.5	0.9	1.8	0.9	
Energy demand in transport (ktoe)	10356	12404	13820	15068	16092	16727	16734	17228	17737	2.9	1.5	0.4	0.6	
Public road transport	104	105	95	91	90	88	87	86	84	-0.9	-0.5	-0.3	-0.3	
Private cars and motorcycles	5043	5525	5286	5999	6271	6330	6288	6552	6702	0.5	1.7	0.0	0.6	
Trucks	2899	3325	4254	4933	5284	5574	5788	5988	6176	3.9	2.2	0.9	0.7	
Rail	147	162	176	172	180	189	186	172	159	1.8	0.2	0.3	-1.6	
Aviation	1608	2589	3343	3670	4051	4310	4133	4169	4342	7.6	1.9	0.2	0.5	
Inland navigation	556	697	667	204	216	235	252	261	273	1.8	-10.6	1.5	0.8	

Source: PRIMES

Poland: High Oil & Gas prices Baseline				SUMMARY ENERGY BALANCE AND INDICATORS (A)										
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68854	67385	67503	71065	78233	-2.1	-1.5	-0.2	1.5	
Solids	94459	91104	71298	68876	57268	53976	51792	48044	44843	-2.8	-2.2	-1.0	-1.4	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	6122	15257					
Renewable energy sources	2369	4763	4256	5016	7636	9609	12010	13450	14833	6.0	6.0	4.6	2.1	
Hydro	139	162	181	189	211	234	261	276	299	2.7	1.5	2.1	1.4	
Biomass & Waste	2230	4600	4072	4806	7209	9011	10945	12214	13460	6.2	5.9	4.3	2.1	
Wind	0	0	0	12	202	325	663	765	829		85.0	12.6	2.3	
Solar and others	0	0	0	0	4	26	128	180	229			39.9	6.0	
Geothermal	0	0	3	9	10	12	13	15	16		12.9	3.0	1.6	
Net Imports	2238	-152	10131	16954	31961	38025	40966	44660	45284	16.3	12.2	2.5	1.0	
Solids	-18913	-21202	-16309	-12482	-3799	-3290	-3492	-2918	-4098					
Oil	14468	15481	20381	21929	25678	29106	30720	31775	32282	3.5	2.3	1.8	0.5	
- Crude oil and Feedstocks	13085	13984	18827	18169	21323	24005	25233	26029	26393	3.7	1.3	1.7	0.5	
- Oil products	1383	1498	1554	3760	4355	5101	5487	5746	5889	1.2	10.9	2.3	0.7	
Natural gas	6773	5810	6607	8531	11024	12528	13945	16256	17589	-0.2	5.3	2.4	2.3	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	100445	105003	108038	115276	123056	-1.0	1.0	0.7	1.3	
Solids	75405	70500	56358	55184	53469	50687	48301	45126	40746	-2.9	-0.5	-1.0	-1.7	
Oil	13399	16003	20759	22525	26059	29399	30989	31975	32421	4.5	2.3	1.7	0.5	
Natural gas	8938	8995	9960	12235	14224	15628	16945	19056	20289	1.1	3.6	1.8	1.8	
Nuclear	0	0	0	0	0	0	0	6122	15257					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7553	9857	12313	13787	15204	6.0	5.9	5.0	2.1	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	53.2	48.3	44.7	39.1	33.1					
Oil	13.4	16.0	22.9	24.0	25.9	28.0	28.7	27.7	26.3					
Natural gas	8.9	9.0	11.0	13.0	14.2	14.9	15.7	16.5	16.5					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	12.4					
Renewable energy forms	2.4	4.8	4.7	5.3	7.5	9.4	11.4	12.0	12.4					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	169123	180265	199293	216936	233401	0.6	1.7	1.7	1.6	
Self consumption and grid losses	21063	28189	27977	28574	29649	30692	34688	35582	36175	2.9	0.6	1.6	0.4	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	38220	37255	36396	33536	29657	-1.9	0.6	-0.5	-2.0	
Solids	41138	35842	34793	35942	35651	33445	31833	29166	25567	-1.7	0.2	-1.1	-2.2	
Oil (including refinery gas)	1236	405	228	179	28	289	92	110	18	-15.6	-18.8	12.4	-14.9	
Gas (including derived gases)	673	488	783	1483	1209	1720	2274	2111	1859	1.5	4.4	6.5	-2.0	
Biomass & Waste	372	114	157	546	1331	1801	2198	2149	2213	-8.3	23.9	5.1	0.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32330	34297	35351	36382	36525	-1.1	-0.5	0.9	0.3	
Refineries	13160	14929	19949	19591	22313	24991	26234	26978	27291	4.2	1.1	1.6	0.4	
Biofuels and hydrogen production	0	0	0	55	471	1018	1949	2311	2490			15.3	2.5	
District heating	9949	5985	4320	3639	3497	3252	3302	3338	3336	-8.0	-2.1	-0.6	0.1	
Derived gases, cokeries etc.	14746	12045	9635	8541	6048	5035	3866	3754	3409	-4.2	-4.5	-4.4	-1.3	
Energy Branch Consumption	6809	7655	7401	7680	9425	9808	10206	10549	10627	0.8	2.4	0.8	0.4	
Non-Energy Uses	4193	3646	4218	4354	5164	6209	6989	7818	8442	0.1	2.0	3.1	1.9	
Final Energy Demand	59583	63489	55720	57169	63690	69943	74622	79018	82390	-0.7	1.3	1.6	1.0	
by sector														
Industry	25252	22720	18883	16373	17768	20052	21947	23629	24860	-2.9	-0.6	2.1	1.3	
- energy intensive industries	16252	15428	13374	11149	11637	12684	13506	14423	15153	-1.9	-1.4	1.5	1.2	
- other industrial sectors	9000	7292	5509	5225	6131	7368	8441	9206	9707	-4.8	1.1	3.2	1.4	
Residential	18126	23284	17516	18375	19472	19945	20342	20968	21298	-0.3	1.1	0.4	0.5	
Tertiary	8867	9229	10136	10334	11559	12495	13333	14215	15101	1.3	1.3	1.4	1.3	
Transport	7338	8256	9185	12087	14890	17451	19000	20206	21131	2.3	4.9	2.5	1.1	
by fuel														
Solids	17066	23299	13728	11262	11865	11874	11558	11093	10810	-2.2	-1.4	-0.3	-0.7	
Oil	9104	11582	15452	17798	20432	22774	24185	25296	25761	5.4	2.8	1.7	0.6	
Gas	7987	7735	7447	8400	10363	10865	11113	12639	13558	-0.7	3.4	0.7	2.0	
Electricity	8233	7703	8317	8498	9699	10881	12277	13461	14767	0.1	1.5	2.4	1.9	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6573	7385	7946	7981	7974	-7.8	-0.5	1.9	0.0	
Renewable energy forms	1631	4408	3889	4156	4757	6161	7539	8544	9514	9.1	2.0	4.7	2.4	
Other	0	0	0	0	1	3	4	5	6			13.6	3.0	
RES in Gross Final Energy Consumption ^(A)			4153	4481	6436	8397	10960	12767	14078		4.5	5.5	2.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	380.3	384.2	385.4	374.6	358.3	-1.4	0.2	0.1	-0.7	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	302.8	303.1	300.5	293.9	279.7	-1.3	0.4	-0.1	-0.7	
Power generation/District heating	209.3	169.9	158.8	162.1	158.1	150.4	144.5	133.4	117.4	-2.7	0.0	-0.9	-2.1	
Energy Branch	5.8	12.7	11.4	10.6	12.1	12.2	12.2	11.8	11.4	6.9	0.6	0.1	-0.7	
Industry	44.0	59.9	46.3	33.2	37.8	39.7	41.9	44.2	45.1	0.5	-2.0	1.1	0.7	
Residential	33.1	44.4	27.9	30.2	31.7	30.6	29.3	28.9	28.0	-1.7	1.3	-0.8	-0.4	
Tertiary	19.4	20.7	20.1	20.4	21.7	22.7	22.9	23.4	23.6	0.4	0.8	0.5	0.3	
Transport	20.5	23.1	25.8	34.3	41.4	47.5	49.6	52.2	54.2	2.3	4.9	1.8	0.9	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.2	17.1	19.6	21.8	4.2	-1.0	4.0	2.4	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	66.9	67.8	61.2	56.9	-2.2	-0.8	0.3	-1.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	88.4	89.4	89.6	87.1	83.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Poland: High Oil & Gas prices Baseline			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	333.4	272.5	228.8	203.8	188.1	-4.6	-2.6	-3.7	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	3.01	2.89	2.78	2.55	2.27	-0.4	-0.6	-0.8	-2.0
Import Dependency %	2.2	-0.2	11.1	18.0	31.7	36.1	37.8	38.6	36.7				
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	51.8	67.7	84.2	96.9	108.1		4.3	5.0	2.5
as % of GDP			16.1	15.8	17.2	17.6	17.8	17.1	16.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.8	51.2	45.0	41.0	38.6	-6.9	-5.0	-2.8	-1.5
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	64.4	52.7	44.4	38.3	33.5	-5.8	-4.3	-3.7	-2.8
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	81.9	69.9	61.1	53.9	48.7	-2.1	-2.0	-2.9	-2.3
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.8	21.9	2.9	-0.2	-0.5	-0.9
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.3	40.0	38.3	36.5	35.1	0.3	3.9	-0.5	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.59	0.52	0.45	0.39	0.33	0.8	-1.3	-2.6	-3.1
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.08	2.01	1.93	1.88	1.83	0.9	-0.3	-0.8	-0.5
Industry	1.74	2.64	2.45	2.02	2.13	1.98	1.91	1.87	1.81	3.5	-1.4	-1.1	-0.5
Residential	1.83	1.90	1.59	1.64	1.63	1.53	1.44	1.38	1.32	-1.4	0.2	-1.2	-0.9
Tertiary	2.19	2.25	1.98	1.97	1.88	1.82	1.72	1.65	1.56	-1.0	-0.5	-0.9	-0.9
Transport	2.80	2.80	2.81	2.84	2.78	2.72	2.61	2.58	2.56	0.0	-0.1	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	9.7	11.6	14.1	15.6	16.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.3	6.0	10.7	12.0	12.5				
Gross Electricity generation by source (in GWh)													
			143147	155331	169123	180265	199293	216936	233401		1.7	1.7	1.6
Nuclear energy			0	0	0	0	0	27724	69310				
Solids			134042	141361	146786	147442	158290	146517	124138		0.9	0.8	-2.4
Oil (including refinery gas)			2936	2964	1204	2220	1868	1526	681		-8.5	4.5	-9.6
Gas (including derived gases)			2979	5603	8790	13425	16207	16913	15721		11.4	6.3	-0.3
Biomass-waste			1080	3068	7549	10668	12185	12138	10392		21.5	4.9	-1.6
Hydro (pumping excluded)			2105	2201	2451	2725	3032	3204	3478		1.5	2.1	1.4
Wind			5	135	2344	3784	7708	8898	9645		85.0	12.6	2.3
Solar			0	0	0	0	3	14	37			25.7	29.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			30194	31711	33316	40392	47261	50050	51266		1.0	3.6	0.8
<u>Nuclear energy</u>			0	0	0	0	0	3200	8000				
<u>Renewable energy</u>			640	1038	2276	3041	5052	5745	6136		13.5	8.3	2.0
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7
Wind			5	124	1298	1968	3892	4495	4861		73.7	11.6	2.2
Solar			0	0	0	0	3	15	40			25.7	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			29554	30673	31039	37351	42209	41104	37129		0.5	3.1	-1.3
of which cogeneration units			6632	6800	6919	8747	10088	10735	10805		0.4	3.8	0.7
Solids fired			28139	28775	28755	33388	37450	33236	27008		0.2	2.7	-3.2
Gas fired			820	1263	1664	2910	3543	4163	5968		7.3	7.9	5.4
Oil fired			472	474	461	593	593	321	201		-0.2	2.6	-10.3
Biomass-waste fired			122	160	160	461	623	3385	3952		2.8	14.6	20.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.2	51.1	53.5	47.2	44.1	45.6	48.1				
Efficiency of gross thermal power generation (%)			33.7	34.5	37.0	40.1	44.6	45.4	43.8				
% of gross electricity from CHP			12.2	12.9	23.2	25.1	27.1	25.4	19.3				
Carbon free gross electricity generation (%)			2.2	3.5	7.3	9.5	11.5	24.0	39.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	12.8	29.7				
- renewable energy forms			2.2	3.5	7.3	9.5	11.5	11.2	10.1				
Transport sector													
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	281.4	327.0	373.5	424.5	473.0	0.5	2.7	2.9	2.4
Public road transport	46.3	34.0	31.7	29.9	28.8	29.3	32.3	35.1	37.4	-3.7	-1.0	1.2	1.5
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	269.1	307.5	348.6	387.6	4.1	4.0	3.1	2.3
Rail	55.4	31.6	28.8	22.3	20.6	22.6	25.8	30.7	35.4	-6.3	-3.3	2.3	3.2
Aviation	2.0	2.3	2.6	3.1	4.1	5.8	7.6	9.8	12.1	3.1	4.5	6.4	4.8
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.8	2.3
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	193.4	231.9	262.5	288.2	306.3	0.6	4.0	3.1	1.6
Trucks	40.3	51.2	75.0	111.8	143.3	171.4	192.2	210.0	222.3	6.4	6.7	3.0	1.5
Rail	81.6	68.2	54.0	43.8	49.7	60.1	69.9	77.7	83.4	-4.0	-0.8	3.5	1.8
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.6	1.3	-11.8	2.5	2.8
Energy demand in transport (ktoe)	7338	8256	9185	12087	14890	17451	19000	20206	21131	2.3	4.9	2.5	1.1
Public road transport	314	229	217	190	183	181	191	195	189	-3.6	-1.7	0.4	-0.1
Private cars and motorcycles	3299	4112	4876	5324	6438	7430	8095	8694	9335	4.0	2.8	2.3	1.4
Trucks	2335	2847	3178	5748	7356	8747	9474	9949	10275	3.1	8.8	2.6	0.8
Rail	1095	667	539	502	530	609	655	666	567	-6.8	-0.2	2.1	-1.4
Aviation	196	371	369	319	381	482	583	698	762	6.5	0.3	4.3	2.7
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.5	2.4

Source: PRIMES

Portugal: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2808	2602	3109	3583	5226	5691	6591	7631	8588	1.0	5.3	2.3	2.7	
Solids	115	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	2692	2602	3109	3583	5226	5691	6591	7631	8588	1.4	5.3	2.3	2.7	
Hydro	787	717	974	407	870	870	871	871	872	2.1	-1.1	0.0	0.0	
Biomass & Waste	1891	1831	2053	2936	3372	3703	4167	4578	5155	0.8	5.1	2.1	2.2	
Wind	0	1	14	152	831	923	1269	1483	1571	66.9	50.0	4.3	2.2	
Solar and others	11	15	18	23	72	109	192	584	812	5.4	14.5	10.3	15.5	
Geothermal	3	37	49	66	82	85	92	115	177	31.4	5.3	1.2	6.7	
Net Imports	15160	17876	21588	24040	23877	25152	25730	25408	25320	3.6	1.0	0.8	-0.2	
Solids	2789	3797	3913	3223	3482	4567	5347	5173	4699	3.4	-1.2	4.4	-1.3	
Oil	12367	14001	15556	16338	15964	16437	16044	15571	15792	2.3	0.3	0.1	-0.2	
- Crude oil and Feedstocks	11360	13547	12022	13459	13377	13758	13604	13408	13591	0.6	1.1	0.2	0.0	
- Oil products	1007	454	3534	2878	2587	2679	2440	2163	2201	13.4	-3.1	-0.6	-1.0	
Natural gas	0	0	2039	3893	4327	3997	4254	4587	4760		7.8	-0.2	1.1	
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Gross Inland Consumption	16890	19611	24108	26677	28498	30208	31668	32364	33215	3.6	1.7	1.1	0.5	
Solids	2580	3493	3803	3347	3482	4567	5347	5173	4699	4.0	-0.9	4.4	-1.3	
Oil	11614	13437	15083	15410	15358	15803	15390	14896	15099	2.6	0.2	0.0	-0.2	
Natural gas	0	0	2034	3751	4327	3997	4254	4587	4760		7.8	-0.2	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1	
Renewable energy forms	2692	2602	3109	3583	5226	5691	6591	7631	8588	1.4	5.3	2.3	2.7	
as % in Gross Inland Consumption														
Solids	15.3	17.8	15.8	12.5	12.2	15.1	16.9	16.0	14.1					
Oil	68.8	68.5	62.6	57.8	53.9	52.3	48.6	46.0	45.5					
Natural gas	0.0	0.0	8.4	14.1	15.2	13.2	13.4	14.2	14.3					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	15.9	13.3	12.9	13.4	18.3	18.8	20.8	23.6	25.9					
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	61001	67385	75561	83393	89705	4.3	3.5	2.2	1.7	
Self consumption and grid losses	4441	4776	5435	6125	6688	7792	8820	10566	11151	2.0	2.1	2.8	2.4	
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	8099	8799	9240	8805	8990	4.2	2.2	1.3	-0.3	
Solids	2027	2919	3198	3319	3477	4563	5344	5170	4697	4.7	0.8	4.4	-1.3	
Oil (including refinery gas)	2105	2371	1670	1884	1340	1223	645	180	393	-2.3	-2.2	-7.1	-4.8	
Gas (including derived gases)	19	18	1234	2309	2480	2049	2213	2288	2436	51.6	7.2	-1.1	1.0	
Biomass & Waste	149	148	356	430	723	882	949	1055	1291	9.1	7.4	2.8	3.1	
Geothermal heat	3	37	49	65	79	82	89	112	174	31.4	4.9	1.2	6.9	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11484	14055	12700	13608	13830	14385	14479	14426	14693	1.0	0.9	0.5	0.1	
Refineries	11152	13579	12251	13608	13635	14001	13826	13617	13790	0.9	1.1	0.1	0.0	
Biofuels and hydrogen production	0	0	0	0	194	384	654	809	903			12.9	3.3	
District heating	0	16	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1				
Energy Branch Consumption	658	870	881	900	847	894	893	939	913	3.0	-0.4	0.5	0.2	
Non-Energy Uses	2103	1875	2330	2405	2578	2661	2732	2853	2950	1.0	1.0	0.6	0.8	
Final Energy Demand	11208	13042	16937	16654	20229	21469	22611	23620	24451	4.2	1.8	1.1	0.8	
by sector														
Industry	4139	4247	5518	5656	5908	6167	6490	6788	6968	2.9	0.7	0.9	0.7	
- energy intensive industries	2497	2646	3437	3757	3876	3996	4169	4328	4430	3.2	1.2	0.7	0.6	
- other industrial sectors	1642	1601	2081	1899	2032	2171	2321	2459	2538	2.4	-0.2	1.3	0.9	
Residential	2290	2569	2804	3206	3638	4013	4377	4667	4920	2.0	2.6	1.9	1.2	
Tertiary	1052	1373	2098	2766	3093	3214	3341	3480	3601	7.2	4.0	0.8	0.8	
Transport	3728	4853	6517	7026	7590	8075	8403	8685	8963	5.7	1.5	1.0	0.6	
by fuel														
Solids	617	546	465	16	4	4	3	3	2	-2.8	-37.7	-3.0	-2.7	
Oil	6683	8187	10469	10492	10710	11181	11308	11204	11119	4.6	0.2	0.5	-0.2	
Gas	103	97	853	1307	1784	1892	1985	2241	2267	23.6	7.7	1.1	1.3	
Electricity	2024	2477	3299	3983	4726	5225	5773	6287	6771	5.0	3.7	2.0	1.6	
Heat (from CHP and District Heating)	28	36	134	328	325	318	317	363	427	16.8	9.2	-0.3	3.0	
Renewable energy forms	1752	1698	1716	2529	2678	2849	3223	3520	3862	-0.2	4.6	1.9	1.8	
Other	0	0	0	0	1	1	2	3	3			11.4	6.3	
RES in Gross Final Energy Consumption ^(A)			2907	3266	4995	5400	6238	7217	8054		5.6	2.2	2.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	85.8	90.0	92.6	90.6	89.4	3.5	0.1	0.8	-0.3	
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	62.6	67.2	69.3	67.3	66.2	4.1	0.7	1.0	-0.5	
Power generation/District heating	14.8	19.2	20.9	24.5	23.8	26.7	28.3	26.3	25.5	3.5	1.3	1.7	-1.1	
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.3	2.2	2.0	2.0	4.3	0.0	-0.4	-1.1	
Industry	8.2	8.4	10.8	7.3	7.8	8.5	8.9	8.7	8.0	2.8	-3.2	1.3	-1.1	
Residential	1.6	1.9	2.0	2.3	2.4	2.5	2.7	2.8	2.8	2.0	1.8	1.1	0.6	
Tertiary	1.9	2.2	3.2	4.2	4.1	4.0	3.8	3.6	3.4	5.4	2.8	-1.0	-1.0	
Transport	11.0	14.4	19.4	21.0	22.2	23.2	23.5	24.0	24.6	5.8	1.4	0.6	0.5	
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.2	6.4	6.6	6.7	4.7	-1.5	0.3	0.5	
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	16.6	17.0	16.7	16.6	1.3	-1.1	0.0	-0.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	142.3	149.2	153.6	150.2	148.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: High Oil & Gas prices Baseline										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	175.1	163.1	148.8	132.8	121.8	0.2	0.4	-1.6	-2.0	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.20	2.22	2.19	2.08	1.99	0.5	-1.0	0.0	-0.9	
Import Dependency %	86.7	89.0	87.2	88.2	82.0	81.5	79.6	76.9	74.7					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	22.9	27.4	32.6	37.2	40.9		4.0	3.6	2.3	
as % of GDP			10.8	12.3	14.1	14.8	15.3	15.3	15.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	103.9	97.7	91.3	85.4	81.7	1.7	0.4	-1.3	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	109.9	107.7	103.4	97.4	92.4	-2.0	1.0	-0.6	-1.1	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	122.9	111.5	101.3	92.6	86.1	3.9	2.1	-1.9	-1.6	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.5	38.0	36.0	33.8	32.4	0.2	-1.0	-0.9	-1.1	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	57.9	56.8	56.0	1.3	-0.3	-0.5	-0.3	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.37	0.38	0.36	0.30	0.27	-1.0	-2.3	-0.3	-2.8	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.80	1.78	1.71	1.65	1.58	0.3	-1.4	-0.5	-0.8	
Industry	1.99	1.97	1.96	1.30	1.31	1.37	1.36	1.28	1.14	-0.1	-3.9	0.4	-1.8	
Residential	0.71	0.74	0.71	0.70	0.66	0.64	0.61	0.60	0.58	0.0	-0.8	-0.8	-0.6	
Tertiary	1.77	1.61	1.50	1.53	1.34	1.24	1.13	1.03	0.95	-1.6	-1.1	-1.7	-1.7	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.79	2.76	2.74	0.1	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	24.0	24.4	26.7	29.4	31.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.6	7.6	9.1	9.9					
Gross Electricity generation by source (in GWh)														
			43364	46180	61001	67385	75561	83393	89705		3.5	2.2	1.7	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15872	22196	26762	29387	27601		0.7	5.4	0.3	
Oil (including refinery gas)			9483	9244	8330	7541	4350	1148	2392		-1.3	-6.3	-5.8	
Gas (including derived gases)			5745	11580	13607	11712	12840	13366	15148		9.0	-0.6	1.7	
Biomass-waste			1802	3434	3178	4775	5756	6794	8315		5.8	6.1	3.7	
Hydro (pumping excluded)			11321	4730	10112	10122	10132	10132	10142		-1.1	0.0	0.0	
Wind			168	1773	9659	10730	14760	17246	18268		50.0	4.3	2.2	
Solar			1	3	114	176	218	4455	6838		60.6	6.7	41.1	
Geothermal and other renewables			80	105	129	133	743	865	1002		4.9	19.1	3.0	
Net Generation Capacity in MW_e			10643	13440	21396	22623	25686	30838	33055		7.2	1.8	2.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	9630	10310	12811	16924	19174		9.0	2.9	4.1	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	5241	5737	7838	9129	9771		48.6	4.1	2.2	
Solar			1	3	80	138	172	2949	4523		66.1	8.0	38.7	
Other renewables (tidal etc.)			0	0	0	0	310	356	389				2.3	
<u>Thermal power</u>			6585	8156	11766	12313	12875	13915	13881		6.0	0.9	0.8	
of which cogeneration units			1372	1373	1850	2199	2195	2403	2855		3.0	1.7	2.7	
Solids fired			1903	1914	1914	2645	3178	3875	3205		0.1	5.2	0.1	
Gas fired			1868	3724	6353	5870	6077	6202	6900		13.0	-0.4	1.3	
Oil fired			2338	2008	1981	2122	1873	1794	1451		-1.6	-0.6	-2.5	
Biomass-waste fired			463	493	1501	1660	1726	2021	2284		12.5	1.4	2.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	16	21	22	41		2.1	2.8	6.8	
Avg. Load factor of net power capacity (%)			44.8	37.8	31.7	33.0	32.5	29.6	29.8					
Efficiency of gross thermal power generation (%)			42.1	42.6	43.7	45.3	46.4	49.7	51.4					
% of gross electricity from CHP			11.3	10.1	10.3	12.9	13.5	13.5	15.6					
Carbon free gross electricity generation (%)			30.8	21.8	38.0	38.5	41.8	47.4	49.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	38.0	38.5	41.8	47.4	49.7					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.9	123.7	133.7	144.4	153.9	5.3	2.5	1.7	1.4	
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	12.0	12.4	12.7	1.4	-0.5	0.7	0.6	
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	88.5	94.6	100.9	106.5	7.7	3.0	1.6	1.2	
Rail	6.3	5.3	4.6	4.6	4.8	5.1	5.7	6.4	7.3	-3.2	0.4	1.7	2.6	
Aviation	7.1	9.1	11.7	13.2	15.5	18.2	21.0	24.2	26.9	5.1	2.8	3.1	2.5	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.6	1.1	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	51.5	57.3	62.1	66.9	71.1	4.7	2.1	1.9	1.4	
Trucks	23.1	27.3	38.9	42.6	47.7	53.0	57.3	61.8	65.7	5.4	2.1	1.8	1.4	
Rail	1.5	2.0	2.2	2.4	2.7	3.1	3.4	3.6	3.9	4.1	2.2	2.2	1.4	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.5	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7590	8075	8403	8685	8963	5.7	1.5	1.0	0.6	
Public road transport	67	90	100	108	103	101	101	97	90	4.2	0.3	-0.1	-1.2	
Private cars and motorcycles	1575	2299	2945	3058	3290	3402	3424	3415	3446	6.5	1.1	0.4	0.1	
Trucks	1387	1717	2551	2872	3062	3301	3515	3721	3913	6.3	1.8	1.4	1.1	
Rail	82	80	88	66	67	65	61	58	50	0.6	-2.7	-0.8	-2.0	
Aviation	574	620	790	881	1023	1154	1244	1334	1401	3.2	2.6	2.0	1.2	
Inland navigation	43	46	43	41	47	52	57	60	62	0.0	0.8	2.0	0.8	

Source: PRIMES

Romania: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	41400	32600	28774	28181	29659	32548	36304	38711	42490	-3.6	0.3	2.0	1.6	
Solids	7935	7889	5879	5793	6234	6567	7226	7551	7439	-3.0	0.6	1.5	0.3	
Oil	7947	7104	6389	6120	5543	6152	6172	6167	6164	-2.2	-1.4	1.1	0.0	
Natural gas	22911	14446	10968	9701	10481	10155	10259	10383	9822	-7.1	-0.5	-0.2	-0.4	
Nuclear	0	0	1407	1433	1474	2869	5002	6222	8680		0.5	13.0	5.7	
Renewable energy sources	2607	3162	4131	5134	5927	6804	7645	8388	10384	4.7	3.7	2.6	3.1	
Hydro	1460	1435	1271	1737	1597	1632	1653	1693	1788	-1.4	2.3	0.3	0.8	
Biomass & Waste	1147	1726	2854	3314	4170	4951	5700	6351	8206	9.5	3.9	3.2	3.7	
Wind	0	0	0	0	46	50	56	67	73			2.0	2.6	
Solar and others	0	0	0	0	8	39	78	112	141			25.5	6.1	
Geothermal	0	0	7	82	105	132	158	164	176		31.7	4.1	1.1	
Net Imports	20360	14542	8099	10719	12545	13931	15162	16827	18097	-8.8	4.5	1.9	1.8	
Solids	2423	2870	1905	2904	3317	4390	4644	4608	4452	-2.4	5.7	3.4	-0.4	
Oil	11194	6852	3542	3874	4950	5509	6459	7172	7897	-10.9	3.4	2.7	2.0	
- Crude oil and Feedstocks	16094	8735	4836	8751	9648	10642	11947	12916	13898	-11.3	7.2	2.2	1.5	
- Oil products	-4900	-1883	-1294	-4877	-4698	-5133	-5488	-5743	-6002					
Natural gas	5928	4794	2712	4190	4582	4439	4484	5487	6219	-7.5	5.4	-0.2	3.3	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Gross Inland Consumption	61492	47109	37069	39147	42205	46479	51465	55538	60587	-4.9	1.3	2.0	1.6	
Solids	10126	10796	7757	8769	9551	10957	11870	12159	11891	-2.6	2.1	2.2	0.0	
Oil	19106	13886	10148	10162	10493	11662	12631	13339	14060	-6.1	0.3	1.9	1.1	
Natural gas	28838	19240	13680	13942	15063	14595	14743	15870	16041	-7.2	1.0	-0.2	0.8	
Nuclear	0	0	1407	1433	1474	2869	5002	6222	8680		0.5	13.0	5.7	
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362					
Renewable energy forms	2607	3162	4137	5090	5872	6739	7569	8304	10275	4.7	3.6	2.6	3.1	
as % in Gross Inland Consumption														
Solids	16.5	22.9	20.9	22.4	22.6	23.6	23.1	21.9	19.6					
Oil	31.1	29.5	27.4	26.0	24.9	25.1	24.5	24.0	23.2					
Natural gas	46.9	40.8	36.9	35.6	35.7	31.4	28.6	28.6	26.5					
Nuclear	0.0	0.0	3.8	3.7	3.5	6.2	9.7	11.2	14.3					
Renewable energy forms	4.2	6.7	11.2	13.0	13.9	14.5	14.7	15.0	17.0					
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	67714	81083	95771	109214	123737	-2.0	2.7	3.5	2.6	
Self consumption and grid losses	14388	11292	8909	10341	10136	10715	12009	13645	15034	-4.7	1.3	1.7	2.3	
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	9755	10332	11527	12259	12823	-7.6	-0.9	1.7	1.1	
Solids	8166	7352	5442	5982	6527	7804	9024	9610	9775	-4.0	1.8	3.3	0.8	
Oil (including refinery gas)	6202	2997	1684	775	63	58	0	15	0	-12.2	-28.0			
Gas (including derived gases)	8984	6090	3507	3343	2998	2226	2168	2188	1415	-9.0	-1.6	-3.2	-4.2	
Biomass & Waste	36	37	4	3	168	244	335	445	1633	-19.0	44.1	7.2	17.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	25764	21571	14558	17946	18905	20350	21299	22152	23068	-5.5	2.6	1.2	0.8	
Refineries	23718	15646	11318	14978	15192	16795	18119	19082	20062	-7.1	3.0	1.8	1.0	
Biofuels and hydrogen production	0	0	0	0	85	196	324	590	1010			14.3	12.0	
District heating	496	1901	1737	823	1173	865	764	654	587	13.4	-3.9	-4.2	-2.6	
Derived gases, cokeries etc.	1551	4024	1503	2144	2455	2495	2093	1826	1409	-0.3	5.0	-1.6	-3.9	
Energy Branch Consumption	3594	5270	4137	4184	4387	4585	4767	5029	5240	1.4	0.6	0.8	1.0	
Non-Energy Uses	908	1326	2291	2448	2427	2605	2841	3106	3356	9.7	0.6	1.6	1.7	
Final Energy Demand	36548	26449	22374	24625	28005	31396	34273	37574	40763	-4.8	2.3	2.0	1.8	
by sector														
Industry	25106	14528	8788	9751	10772	12292	13396	14866	16327	-10.0	2.1	2.2	2.0	
- energy intensive industries	15699	10582	5962	6928	7479	8300	8806	9559	10178	-9.2	2.3	1.6	1.5	
- other industrial sectors	9407	3946	2826	2823	3293	3992	4590	5307	6149	-11.3	1.5	3.4	3.0	
Residential	4190	6461	8557	8093	8583	8984	9553	10284	10889	7.4	0.0	1.1	1.3	
Tertiary	2845	2401	1646	2576	3275	3717	3897	4032	4158	-5.3	7.1	1.8	0.6	
Transport	4407	3058	3384	4204	5376	6403	7426	8392	9410	-2.6	4.7	3.3	2.4	
by fuel														
Solids	2678	1529	703	1429	1744	1832	1734	1526	1275	-12.5	9.5	-0.1	-3.0	
Oil	8030	5234	5292	6547	7575	8763	9744	10483	11142	-4.1	3.7	2.6	1.3	
Gas	20495	10249	6885	7721	8794	9169	9092	9824	10527	-10.3	2.5	0.3	1.5	
Electricity	4355	3282	3122	3481	4178	5128	6220	7203	8284	-3.3	3.0	4.1	2.9	
Heat (from CHP and District Heating)	377	4679	3570	2135	1692	1748	2042	2587	3057	25.2	-7.2	1.9	4.1	
Renewable energy forms	612	1476	2802	3312	4023	4755	5439	5950	6495	16.4	3.7	3.1	1.8	
Other	0	0	0	0	1	1	2	3	3			14.3	4.9	
RES in Gross Final Energy Consumption ^(A)			4197	5132	5734	6564	7449	8111	9830		3.2	2.7	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	157.9	169.2	179.1	180.2	179.1	-6.4	1.4	1.3	0.0	
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	97.3	105.0	111.6	117.0	117.9	-6.7	1.5	1.4	0.5	
Power generation/District heating	75.9	59.2	40.6	37.2	37.1	39.7	44.1	46.3	44.8	-6.1	-0.9	1.7	0.2	
Energy Branch	6.2	7.5	7.4	8.0	8.6	9.0	9.1	9.3	9.5	1.8	1.4	0.6	0.4	
Industry	58.1	30.2	17.6	20.9	22.5	24.1	23.5	23.4	23.4	-11.3	2.5	0.5	0.0	
Residential	7.5	5.2	6.5	7.2	8.2	8.0	8.1	9.0	9.7	-1.4	2.3	-0.1	1.8	
Tertiary	6.7	3.1	1.8	4.4	5.6	6.0	5.9	5.8	5.5	-12.1	11.7	0.6	-0.7	
Transport	12.3	8.6	9.6	12.1	15.4	18.2	20.9	23.1	25.0	-2.4	4.8	3.1	1.8	
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.2	20.1	22.7	25.6	27.7	-5.6	3.0	2.8	2.0	
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	44.1	44.7	37.6	33.5	33.5	-6.0	0.6	0.3	-2.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		51.7	56.2	59.4	63.7	67.4	67.8	67.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	402.4	329.4	278.0	232.9	200.7	-3.3	-4.2	-3.6	-3.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.30	2.26	2.17	2.11	1.95	-1.8	0.2	-0.6	-1.1
Import Dependency %	33.1	30.9	21.8	27.4	29.7	30.0	29.5	30.3	29.9				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	22.3	29.7	38.6	45.9	54.3		4.7	5.6	3.5
as % of GDP			23.4	18.7	21.3	21.1	20.8	19.2	18.0				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	74.2	64.4	55.2	49.0	43.6	-7.5	-2.9	-2.9	-2.3
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	49.5	38.4	31.0	25.9	21.7	8.2	-6.8	-4.6	-3.5
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	110.1	92.2	72.6	57.4	46.2	-4.0	1.0	-4.1	-4.4
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.8	28.6	27.3	25.8	25.7	7.6	-2.6	-0.9	-0.6
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.3	29.6	29.1	28.3	27.5	0.5	-3.1	-0.4	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.38	0.36	0.34	0.31	0.27	-10.1	-0.2	-1.1	-2.5
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.84	1.80	1.71	1.63	1.56	-3.7	1.5	-0.8	-0.9
Industry	2.31	2.08	2.00	2.14	2.08	1.96	1.76	1.57	1.44	-1.4	0.4	-1.7	-2.0
Residential	1.78	0.81	0.76	0.89	0.95	0.90	0.84	0.88	0.89	-8.2	2.3	-1.2	0.5
Tertiary	2.37	1.30	1.12	1.69	1.70	1.62	1.52	1.44	1.33	-7.2	4.2	-1.1	-1.4
Transport	2.79	2.81	2.85	2.89	2.87	2.84	2.81	2.75	2.66	0.2	0.1	-0.2	-0.6
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	19.5	20.1	20.9	20.8	23.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.6	3.8	6.1	9.4				
Gross Electricity generation by source (in GWh)													
			51925	59402	67714	81083	95771	109214	123737		2.7	3.5	2.6
Nuclear energy			5455	5554	6207	11614	21063	26587	37776		1.3	13.0	6.0
Solids			16409	19761	24552	32656	38861	45271	47178		4.1	4.7	2.0
Oil (including refinery gas)			4145	3256	278	259	0	68	0		-23.7		
Gas (including derived gases)			11002	10316	16566	15292	14281	14552	9513		4.2	-1.5	-4.0
Biomass-waste			138	311	998	1689	1680	2238	7568		21.9	5.3	16.2
Hydro (pumping excluded)			14775	20203	18575	18982	19220	19686	20795		2.3	0.3	0.8
Wind			0	0	535	584	655	782	849			2.0	2.6
Solar			0	0	4	7	12	31	58			12.0	17.4
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			19962	19838	23118	22587	22724	21086	22088		1.5	-0.2	-0.3
<u>Nuclear energy</u>			654	650	1330	1342	2439	3077	4369		7.4	6.2	6.0
<u>Renewable energy</u>			5935	6215	6754	7139	7473	7654	7725		1.3	1.0	0.3
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	385	420	471	583	633			2.0	3.0
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			13373	12972	15035	14106	12813	10355	9994		1.2	-1.6	-2.5
of which cogeneration units			5378	5459	2141	2242	3024	4101	4833		-8.8	3.5	4.8
Solids fired			7285	7139	7129	7711	7893	6952	5875		-0.2	1.0	-2.9
Gas fired			3692	3459	5411	4640	3390	2527	2490		3.9	-4.6	-3.0
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	52	53	326	436	1331		9.8	20.1	15.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			27.0	30.8	31.0	38.6	45.4	55.5	60.0				
Efficiency of gross thermal power generation (%)			25.6	28.6	37.4	41.5	40.9	43.6	43.1				
% of gross electricity from CHP			30.2	25.8	20.0	18.2	20.3	23.2	25.2				
Carbon free gross electricity generation (%)			39.2	43.9	38.9	40.5	44.5	45.2	54.2				
- nuclear			10.5	9.3	9.2	14.3	22.0	24.3	30.5				
- renewable energy forms			28.7	34.5	29.7	26.2	22.5	20.8	23.7				
Transport sector													
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	97.2	119.5	145.0	173.4	-2.7	4.1	4.5	3.8
Public road transport	24.0	12.3	7.7	9.4	11.7	14.5	16.9	19.0	21.1	-10.7	4.2	3.8	2.3
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.5	70.5	86.7	105.4	126.6	9.6	5.8	4.6	3.9
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.8	14.3	16.6	-9.2	-3.6	3.9	3.5
Aviation	0.7	0.7	0.8	1.2	1.7	2.5	4.1	6.2	9.0	1.6	7.5	9.2	8.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.9	1.0
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.8	122.3	143.4	164.0	180.1	-8.4	11.8	3.5	2.3
Trucks	29.0	19.7	14.3	51.5	72.2	87.5	102.3	116.3	126.2	-6.8	17.6	3.6	2.1
Rail	48.9	17.9	16.4	16.6	18.1	20.6	23.9	27.6	31.6	-10.4	1.0	2.9	2.8
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.2	17.2	20.1	22.3	2.3	15.9	4.1	2.6
Energy demand in transport (ktoe)	4407	3058	3384	4204	5376	6403	7426	8392	9410	-2.6	4.7	3.3	2.4
Public road transport	329	176	117	93	109	130	147	158	166	-9.9	-0.7	3.0	1.2
Private cars and motorcycles	591	845	1681	1609	1997	2414	2807	3191	3772	11.0	1.7	3.5	3.0
Trucks	2617	1272	893	2130	2836	3344	3840	4289	4598	-10.2	12.2	3.1	1.8
Rail	282	470	449	208	215	234	247	261	256	4.8	-7.1	1.4	0.3
Aviation	275	192	128	113	149	197	285	376	489	-7.3	1.5	6.7	5.5
Inland navigation	312	103	115	51	69	85	101	117	130	-9.5	-4.9	3.8	2.5

Source: PRIMES

Slovak Republic: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	5248	4808	5970	6305	5254	6366	7489	8897	10571	1.3	-1.3	3.6	3.5	
Solids	1397	1017	1018	637	846	845	839	837	837	-3.1	-1.8	-0.1	0.0	
Oil	81	74	59	55	35	35	35	35	36	-3.1	-5.0	-0.1	0.2	
Natural gas	338	264	133	126	131	131	136	138	122	-8.9	-0.1	0.4	-1.0	
Nuclear	3105	2950	4255	4573	3191	4071	4931	5974	7197	3.2	-2.8	4.4	3.9	
Renewable energy sources	328	503	506	914	1051	1285	1549	1912	2378	4.4	7.6	4.0	4.4	
Hydro	162	427	406	399	391	426	432	435	438	9.7	-0.4	1.0	0.1	
Biomass & Waste	166	76	100	507	645	833	1073	1414	1856	-5.0	20.5	5.2	5.6	
Wind	0	0	0	1	8	11	17	25	35			8.7	7.3	
Solar and others	0	0	0	0	5	12	24	35	46			17.6	6.8	
Geothermal	0	0	0	8	2	3	3	4	4			4.7	2.1	
Net Imports	16086	12482	11623	13163	13268	13343	13615	13677	13170	-3.2	1.3	0.3	-0.3	
Solids	6055	4131	3437	3794	3497	3437	3885	4080	4181	-5.5	0.2	1.1	0.7	
Oil	4231	3704	2711	3935	3842	3770	3648	3656	3706	-4.4	3.6	-0.5	0.2	
- Crude oil and Feedstocks	5892	5405	5283	5768	5722	5661	5554	5576	5649	-1.1	0.8	-0.3	0.2	
- Oil products	-1661	-1701	-2573	-1833	-1880	-1891	-1907	-1920	-1943					
Natural gas	5353	4528	5707	5757	6022	5994	6244	6355	5620	0.6	0.5	0.4	-1.0	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Gross Inland Consumption	20967	17692	17483	19407	18523	19709	21104	22574	23740	-1.8	0.6	1.3	1.2	
Solids	7771	5414	4261	4288	4343	4571	4724	4917	5019	-5.8	0.2	0.8	0.6	
Oil	4229	3487	2925	4045	3877	3805	3683	3691	3741	-3.6	2.9	-0.5	0.2	
Natural gas	5088	5217	5776	5925	6154	6124	6380	6493	5742	1.3	0.6	0.4	-1.0	
Nuclear	3105	2950	4255	4573	3191	4071	4931	5974	7197	3.2	-2.8	4.4	3.9	
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245					
Renewable energy forms	328	504	498	858	979	1193	1430	1756	2286	4.3	7.0	3.9	4.8	
as % in Gross Inland Consumption														
Solids	37.1	30.6	24.4	22.1	23.4	23.2	22.4	21.8	21.1					
Oil	20.2	19.7	16.7	20.8	20.9	19.3	17.4	16.4	15.8					
Natural gas	24.3	29.5	33.0	30.5	33.2	31.1	30.2	28.8	24.2					
Nuclear	14.8	16.7	24.3	23.6	17.2	20.7	23.4	26.5	30.3					
Renewable energy forms	1.6	2.8	2.8	4.4	5.3	6.1	6.8	7.8	9.6					
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	32396	37714	43082	51573	56689	2.6	0.6	2.9	2.8	
Self consumption and grid losses	4853	5351	5235	4704	3579	4071	4629	5680	6572	0.8	-3.7	2.6	3.6	
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	3042	3121	3403	3781	3576	-1.9	1.4	1.1	0.5	
Solids	2054	1835	1617	1638	1480	1670	1787	2073	2358	-2.4	-0.9	1.9	2.8	
Oil (including refinery gas)	243	119	37	99	25	26	46	3	0	-17.1	-3.9	6.3		
Gas (including derived gases)	936	1216	1002	845	1415	1175	1224	1127	253	0.7	3.5	-1.4	-14.6	
Biomass & Waste	0	0	0	40	121	251	346	578	965			11.0	10.8	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	9009	7973	8020	9335	9584	9489	9525	9525	9461	-1.2	1.8	-0.1	-0.1	
Refineries	6314	5182	5410	6374	6496	6470	6431	6480	6572	-1.5	1.8	-0.1	0.2	
Biofuels and hydrogen production	0	0	0	11	53	128	242	286	337			16.3	3.4	
District heating	237	731	584	717	737	642	567	551	502	9.4	2.4	-2.6	-1.2	
Derived gases, cokeries etc.	2458	2060	2026	2233	2298	2249	2285	2208	2050	-1.9	1.3	-0.1	-1.1	
Energy Branch Consumption	1154	990	905	2482	2060	2047	2075	2110	2061	-2.4	8.6	0.1	-0.1	
Non-Energy Uses	1203	651	1109	1239	1264	1335	1482	1633	1724	-0.8	1.3	1.6	1.5	
Final Energy Demand	14893	11085	10822	10560	11557	12238	12834	13471	14018	-3.1	0.7	1.1	0.9	
by sector														
Industry	6706	4339	3953	4413	4854	5176	5370	5474	5477	-5.1	2.1	1.0	0.2	
- energy intensive industries	4081	3091	3145	3590	3955	4209	4307	4327	4292	-2.6	2.3	0.9	0.0	
- other industrial sectors	2626	1248	808	823	899	967	1063	1147	1185	-11.1	1.1	1.7	1.1	
Residential	2275	2158	2822	2533	2617	2664	2794	3038	3246	2.2	-0.8	0.7	1.5	
Tertiary	4473	3078	2498	1809	1938	2076	2268	2492	2725	-5.7	-2.5	1.6	1.9	
Transport	1440	1509	1549	1805	2148	2322	2403	2466	2570	0.7	3.3	1.1	0.7	
by fuel														
Solids	4319	2322	1511	1455	1826	1913	1921	1837	1710	-10.0	1.9	0.5	-1.2	
Oil	3294	1873	1870	2195	2418	2510	2471	2484	2526	-5.5	2.6	0.2	0.2	
Gas	4319	3907	4537	3651	3546	3641	3741	3967	4183	0.5	-2.4	0.5	1.1	
Electricity	2013	1868	1893	1965	2390	2760	3174	3584	3944	-0.6	2.4	2.9	2.2	
Heat (from CHP and District Heating)	781	1111	1011	951	1216	1173	1148	1175	1150	2.6	1.9	-0.6	0.0	
Renewable energy forms	166	4	1	344	161	242	378	423	504	-42.8	74.3	8.9	2.9	
Other	0	0	0	0	0	0	1	1	1			11.4	7.5	
RES in Gross Final Energy Consumption ^(A)			407	761	772	868	1103	1527	2008		6.6	3.6	6.2	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	52.8	54.4	56.0	56.4	54.9	-3.7	1.1	0.6	-0.2	
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	38.9	39.4	39.9	40.6	39.2	-4.1	1.0	0.3	-0.2	
Power generation/District heating	12.1	12.9	10.6	10.5	10.9	11.2	11.7	12.0	10.8	-1.3	0.3	0.7	-0.7	
Energy Branch	2.5	1.8	1.5	5.0	4.4	3.8	3.7	3.9	3.6	-4.6	11.1	-1.7	-0.4	
Industry	17.8	12.2	10.3	10.4	11.6	12.1	12.0	11.6	10.9	-5.3	1.2	0.3	-0.9	
Residential	4.4	2.9	4.1	3.5	3.5	3.6	3.9	4.4	4.9	-0.6	-1.7	1.1	2.4	
Tertiary	12.6	5.7	4.2	2.5	2.3	2.2	2.2	2.2	2.2	-10.3	-5.9	-0.2	-0.1	
Transport	4.0	4.2	4.4	5.2	6.2	6.5	6.5	6.5	6.7	0.8	3.5	0.5	0.4	
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.3	5.0	5.8	6.2	6.4	-0.7	2.9	3.0	1.0	
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	10.0	10.3	9.6	9.3	-3.3	1.0	0.7	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	76.5	78.8	81.1	81.7	79.4					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	370.3	314.1	272.1	244.4	224.5	-3.2	-4.3	-3.0	-1.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.10	2.00	1.89	1.80	1.65	-2.3	0.4	-1.0	-1.4
Import Dependency %	76.7	70.6	66.5	67.8	71.6	67.7	64.5	60.6	55.5				
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	9.9	12.5	15.2	17.5	19.3		3.4	4.4	2.4
as % of GDP			23.3	19.5	19.8	19.9	19.6	18.9	18.2				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.2	45.7	38.9	34.1	31.2	-6.4	-5.9	-3.3	-2.2
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	59.4	49.0	42.2	38.9	36.5	2.0	-5.1	-3.4	-1.4
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	56.9	48.6	43.2	39.6	36.9	-5.6	-5.5	-2.7	-1.6
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.4	27.1	25.9	25.8	3.6	0.6	-0.7	-0.5
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	24.0	23.1	22.2	21.7	2.0	1.0	-0.5	-0.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.22	0.20	0.19	0.17	0.14	-3.8	-0.7	-1.2	-2.7
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.04	2.00	1.91	1.83	1.77	-2.0	-0.4	-0.6	-0.8
Industry	2.65	2.82	2.61	2.37	2.40	2.33	2.23	2.11	1.99	-0.2	-0.8	-0.7	-1.1
Residential	1.93	1.35	1.46	1.39	1.33	1.36	1.39	1.44	1.51	-2.8	-0.9	0.4	0.9
Tertiary	2.81	1.87	1.69	1.37	1.18	1.07	0.99	0.89	0.82	-4.9	-3.5	-1.8	-1.9
Transport	2.80	2.76	2.82	2.89	2.86	2.79	2.69	2.65	2.61	0.1	0.1	-0.6	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	6.4	6.8	8.3	10.9	13.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.8	8.7	10.0	11.4				
Gross Electricity generation by source (in GWh)													
			30431	31346	32396	37714	43082	51573	56689		0.6	2.9	2.8
Nuclear energy			16491	17724	12371	16180	19990	25754	31321		-2.8	4.9	4.6
Solids			4969	4825	5569	6909	7452	9623	12268		1.1	3.0	5.1
Oil (including refinery gas)			144	455	486	501	210	123	0		13.0	-8.1	
Gas (including derived gases)			4102	3527	8771	7885	8685	8069	2908		7.9	-0.1	-10.4
Biomass-waste			0	172	559	1146	1507	2624	4644			10.4	11.9
Hydro (pumping excluded)			4725	4637	4552	4959	5019	5056	5094		-0.4	1.0	0.1
Wind			0	7	87	123	201	292	404			8.7	7.3
Solar			0	0	2	9	18	33	49			24.7	10.3
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			6795	7307	7896	8646	8284	9257	10446		1.5	0.5	2.3
<u>Nuclear energy</u>			2326	2439	1652	2119	2572	3106	3749		-3.4	4.5	3.8
<u>Renewable energy</u>			1669	1838	1946	2097	2171	2255	2358		1.5	1.1	0.8
Hydro (pumping excluded)			1668	1832	1882	2002	2013	2021	2029		1.2	0.7	0.1
Wind			1	5	63	88	143	208	289		51.2	8.6	7.3
Solar			0	0	2	7	15	26	40			24.6	10.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			2800	3031	4297	4431	3541	3895	4340		4.4	-1.9	2.1
of which cogeneration units			1220	1400	1716	1794	1937	2169	2487		3.5	1.2	2.5
Solids fired			1598	1661	1846	1910	1523	1703	1874		1.5	-1.9	2.1
Gas fired			1184	1221	2272	2273	1687	1683	1690		6.7	-2.9	0.0
Oil fired			18	115	115	114	114	114	114		20.7	-0.1	0.0
Biomass-waste fired			1	34	64	134	217	395	661		51.8	13.1	11.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.5	44.3	44.6	47.5	56.7	60.4	58.5				
Efficiency of gross thermal power generation (%)			29.8	29.4	43.5	45.3	45.1	46.5	47.7				
% of gross electricity from CHP			26.0	15.8	28.9	28.4	27.4	25.3	23.9				
Carbon free gross electricity generation (%)			69.7	71.9	54.2	59.4	62.1	65.5	73.2				
- nuclear			54.2	56.5	38.2	42.9	46.4	49.9	55.3				
- renewable energy forms			15.5	15.4	16.1	16.5	15.7	15.5	18.0				
Transport sector													
Passenger transport activity (Gpkm)													
	41.5	34.2	35.8	36.4	39.1	42.1	46.7	51.5	55.6	-1.5	0.9	1.8	1.8
Public road transport	19.5	11.2	8.4	8.1	7.9	7.7	7.7	7.7	7.8	-8.1	-0.6	-0.2	0.0
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.6	31.6	36.0	40.6	44.5	4.5	1.7	2.3	2.1
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.7	2.8	-6.6	-3.0	0.7	1.0
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			6.0	4.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	35.6	29.7	25.6	32.0	41.7	47.0	49.2	51.0	52.3	-3.3	5.0	1.7	0.6
Trucks	14.2	15.9	14.3	22.6	31.7	35.8	37.3	38.7	39.8	0.1	8.2	1.7	0.6
Rail	21.4	13.8	11.2	9.5	10.0	11.2	11.9	12.3	12.5	-6.2	-1.2	1.8	0.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	1440	1509	1549	1805	2148	2322	2403	2466	2570	0.7	3.3	1.1	0.7
Public road transport	96	79	70	59	55	51	49	45	42	-3.1	-2.5	-1.1	-1.5
Private cars and motorcycles	671	729	886	964	1018	1064	1143	1207	1301	2.8	1.4	1.2	1.3
Trucks	572	583	510	693	971	1089	1098	1095	1099	-1.1	6.6	1.2	0.0
Rail	100	119	83	49	50	51	50	48	47	-1.9	-5.0	0.1	-0.6
Aviation	0	0	0	39	55	66	62	71	81			1.3	2.6
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Slovenia: High Oil & Gas prices Baseline					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	2902	3020	3085	3492	3601	3696	3897	4230	4912	0.6	1.6	0.8	2.3	
Solids	1432	1216	1062	1184	1226	1204	1205	1244	1294	-2.9	1.4	-0.2	0.7	
Oil	3	2	1	0	0	0	0	0	0	-10.4				
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.1			
Nuclear	1192	1245	1228	1518	1483	1483	1483	1634	2064	0.3	1.9	0.0	3.4	
Renewable energy sources	254	542	788	787	887	1008	1209	1352	1555	12.0	1.2	3.1	2.5	
Hydro	254	279	330	298	304	313	324	346	371	2.7	-0.8	0.6	1.4	
Biomass & Waste	0	263	458	489	575	660	813	912	1073		2.3	3.5	2.8	
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4	
Solar and others	0	0	0	0	8	35	71	92	108			24.9	4.3	
Geothermal	0	0	0	0	0	0	0	0	0			1.9	1.2	
Net Imports	2567	3056	3369	3810	4554	4996	5124	5043	4923	2.8	3.1	1.2	-0.4	
Solids	130	187	245	323	361	389	474	468	419	6.5	3.9	2.8	-1.2	
Oil	1798	2231	2418	2589	2955	3146	3230	3319	3420	3.0	2.0	0.9	0.6	
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.3	0.8	0.5	
- Oil products	1202	1644	2267	2589	2954	3144	3228	3317	3418	6.5	2.7	0.9	0.6	
Natural gas	723	750	820	925	1186	1236	1203	1214	1171	1.3	3.8	0.1	-0.3	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Gross Inland Consumption	5517	6103	6415	7305	8155	8692	9022	9272	9836	1.5	2.4	1.0	0.9	
Solids	1645	1402	1306	1539	1587	1593	1679	1712	1713	-2.3	2.0	0.6	0.2	
Oil	1748	2281	2381	2560	2955	3146	3230	3319	3420	3.1	2.2	0.9	0.6	
Natural gas	763	746	826	929	1190	1236	1203	1214	1171	0.8	3.7	0.1	-0.3	
Nuclear	1192	1245	1228	1518	1483	1483	1483	1634	2064	0.3	1.9	0.0	3.4	
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5		
Renewable energy forms	254	571	788	787	887	1008	1209	1352	1555	12.0	1.2	3.1	2.5	
as % in Gross Inland Consumption														
Solids	29.8	23.0	20.4	21.1	19.5	18.3	18.6	18.5	17.4					
Oil	31.7	37.4	37.1	35.0	36.2	36.2	35.8	35.8	34.8					
Natural gas	13.8	12.2	12.9	12.7	14.6	14.2	13.3	13.1	11.9					
Nuclear	21.6	20.4	19.1	20.8	18.2	17.1	16.4	17.6	21.0					
Renewable energy forms	4.6	9.3	12.3	10.8	10.9	11.6	13.4	14.6	15.8					
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	16655	16741	18359	22087	24752	0.9	2.0	1.0	3.0	
Self consumption and grid losses	1516	1427	1625	1908	2244	2352	2552	3004	3225	0.7	3.3	1.3	2.4	
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1651	1565	1639	1712	1803	-1.4	2.1	-0.1	1.0	
Solids	1296	1315	1253	1411	1479	1455	1533	1556	1551	-0.3	1.7	0.4	0.1	
Oil (including refinery gas)	155	119	12	9	4	1	1	1	1	-22.8	-10.2	-10.9	1.6	
Gas (including derived gases)	92	90	62	58	119	78	44	39	22	-3.8	6.7	-9.4	-6.9	
Biomass & Waste	0	0	15	30	49	31	61	116	229		12.3	2.2	14.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	594	580	253	90	205	281	362	399	392	-8.2	-2.1	5.9	0.8	
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.0	0.8	0.5	
Biofuels and hydrogen production	0	0	0	0	46	128	234	278	324			17.7	3.3	
District heating	53	76	83	89	158	152	127	120	67	4.7	6.6	-2.1	-6.2	
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0					
Energy Branch Consumption	122	121	112	104	128	122	133	166	181	-0.9	1.3	0.4	3.1	
Non-Energy Uses	6	121	234	305	371	413	435	448	465	43.5	4.7	1.6	0.7	
Final Energy Demand	3368	3940	4431	4880	5501	6169	6520	6798	7037	2.8	2.4	1.5	0.8	
by sector														
Industry	1468	1179	1423	1655	1837	1957	2058	2128	2182	-0.3	2.6	1.1	0.6	
- energy intensive industries	728	587	839	1036	1146	1232	1305	1351	1385	1.4	3.2	1.3	0.6	
- other industrial sectors	740	593	584	619	692	726	753	776	796	-2.3	1.7	0.9	0.6	
Residential	850	1176	1122	1183	1263	1340	1404	1458	1496	2.8	1.2	1.1	0.6	
Tertiary	122	259	578	573	615	673	685	711	730	16.9	0.6	1.1	0.6	
Transport	928	1326	1309	1469	1886	2199	2372	2502	2629	3.5	3.7	2.3	1.0	
by fuel														
Solids	243	115	97	80	71	96	98	102	103	-8.8	-3.0	3.2	0.5	
Oil	1507	2098	2231	2392	2752	2932	3005	3089	3180	4.0	2.1	0.9	0.6	
Gas	603	468	569	665	790	870	889	910	930	-0.6	3.3	1.2	0.5	
Electricity	837	807	905	1096	1278	1449	1564	1668	1748	0.8	3.5	2.0	1.1	
Heat (from CHP and District Heating)	177	192	195	196	199	207	207	216	200	1.0	0.2	0.4	-0.4	
Renewable energy forms	0	260	435	452	511	616	756	813	875		1.6	4.0	1.5	
Other	0	0	0	0	0	0	1	1	1			12.4	7.6	
RES in Gross Final Energy Consumption ^(A)			780	767	859	976	1154	1281	1464		1.0	3.0	2.4	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	21.5	22.2	22.6	23.0	23.1	0.3	1.5	0.5	0.2	
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	17.1	17.7	18.1	18.5	18.7	0.6	2.0	0.6	0.3	
Power generation/District heating	6.2	6.2	5.5	6.2	6.7	6.5	6.6	6.7	6.6	-1.1	2.0	-0.1	-0.1	
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9	-17.7			
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.5	2.5	2.5	-0.7	0.5	0.3	-0.1	
Residential	1.7	2.1	1.3	1.4	1.5	1.5	1.5	1.6	1.7	-2.5	1.4	0.3	0.9	
Tertiary	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	46.9	0.4	-0.3	0.0	
Transport	2.7	3.9	3.8	4.3	5.5	6.2	6.5	6.7	7.0	3.5	3.7	1.7	0.8	
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2	-1.2	0.3	1.4	0.9	
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.4	3.3	3.2	3.2	-0.6	-0.4	-0.3	-0.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	119.4	123.1	125.3	127.6	128.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	242.1	224.1	207.5	192.7	188.0	-0.3	-1.3	-1.5	-1.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.10	2.04	2.01	2.00	1.90	-0.9	-0.4	-0.4	-0.6
Import Dependency %	46.5	50.1	52.5	52.2	55.8	57.5	56.8	54.4	50.1				
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.4	6.8	8.0	9.0	9.8		4.1	3.9	2.0
as % of GDP			15.6	14.5	16.1	17.4	18.4	18.7	18.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.4	80.8	76.5	73.0	70.6	-0.9	-1.5	-1.2	-0.8
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	81.7	75.8	71.2	67.1	63.5	0.2	-2.0	-1.4	-1.1
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	73.6	69.9	63.5	59.0	55.1	14.2	-3.0	-1.5	-1.4
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.7	44.1	41.3	39.6	40.5	5.3	-1.5	-1.0	-0.2
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.9	48.9	50.5	49.7	47.2	2.3	-0.9	1.2	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.34	0.33	0.31	0.27	0.24	-2.0	0.0	-0.9	-2.6
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.85	1.82	1.76	1.74	1.72	-0.8	-0.2	-0.5	-0.2
Industry	1.72	1.55	1.65	1.38	1.34	1.31	1.23	1.18	1.15	-0.4	-2.1	-0.8	-0.7
Residential	1.98	1.80	1.17	1.21	1.19	1.11	1.10	1.11	1.12	-5.2	0.2	-0.7	0.2
Tertiary	0.17	0.13	1.65	1.76	1.61	1.46	1.40	1.35	1.31	25.7	-0.3	-1.4	-0.6
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.72	2.69	2.66	0.0	0.0	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	14.7	15.2	17.0	18.1	20.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.9	8.3	9.4	10.4				
Gross Electricity generation by source (in GWh)													
			13622	15114	16655	16741	18359	22087	24752		2.0	1.0	3.0
Nuclear energy			4760	5883	5751	5751	5751	7400	9356		1.9	0.0	5.0
Solids			4484	5229	6232	6284	7622	9105	9096		3.3	2.0	1.8
Oil (including refinery gas)			106	36	95	6	8	9	10		-1.1	-22.3	2.8
Gas (including derived gases)			321	324	721	713	693	754	639		8.4	-0.4	-0.8
Biomass-waste			117	181	315	344	503	766	1300		10.4	4.8	10.0
Hydro (pumping excluded)			3833	3460	3539	3636	3763	4025	4319		-0.8	0.6	1.4
Wind			0	0	2	6	19	25	30			27.1	4.4
Solar			0	0	0	1	1	2	3			11.2	8.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			2861	3188	3414	3558	3600	3925	4130		1.8	0.5	1.4
Nuclear energy			656	656	666	666	666	855	1080		0.2	0.0	5.0
Renewable energy			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2
Wind			0	0	2	7	22	29	34			27.1	4.4
Solar			0	0	0	1	1	1	2			11.2	8.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			1241	1557	1765	1851	1874	2001	1957		3.6	0.6	0.4
of which cogeneration units			244	363	409	441	494	531	609		5.3	1.9	2.1
Solids fired			996	1013	1069	1193	1242	1480	1216		0.7	1.5	-0.2
Gas fired			81	374	502	497	474	364	561		20.0	-0.6	1.7
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-36.2
Biomass-waste fired			21	71	95	89	121	157	180		16.2	2.5	4.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			51.1	50.7	51.9	50.4	54.5	59.8	63.8				
Efficiency of gross thermal power generation (%)			32.2	32.9	38.4	40.4	46.3	53.4	52.7				
% of gross electricity from CHP			3.5	3.2	9.0	14.3	16.3	14.7	13.5				
Carbon free gross electricity generation (%)			63.9	63.0	57.7	58.2	54.7	55.3	60.6				
- nuclear			34.9	38.9	34.5	34.3	31.3	33.5	37.8				
- renewable energy forms			29.0	24.1	23.2	23.8	23.3	21.8	22.8				
Transport sector													
Passenger transport activity (Gpkm)													
	18.1	15.5	17.2	18.7	21.3	23.4	25.3	27.3	29.3	-0.5	2.2	1.7	1.5
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.6	1.3	1.3
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.2	21.0	22.5	24.2	25.8	3.9	2.7	1.6	1.4
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.4	1.6	-6.8	2.5	3.4	2.5
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.7	3.1	2.0	4.8	4.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	9.1	6.4	8.2	14.3	20.3	23.9	26.3	28.5	30.5	-1.1	9.6	2.6	1.5
Trucks	4.9	3.3	5.3	11.0	15.9	18.7	20.7	22.4	23.7	0.8	11.6	2.7	1.4
Rail	4.2	3.1	2.9	3.2	4.5	5.2	5.6	6.2	6.8	-3.8	4.6	2.3	2.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)													
	928	1326	1309	1469	1886	2199	2372	2502	2629	3.5	3.7	2.3	1.0
Public road transport	43	58	15	7	8	8	8	8	8	-10.0	-6.7	0.5	0.7
Private cars and motorcycles	498	727	867	828	938	990	998	1029	1136	5.7	0.8	0.6	1.3
Trucks	330	492	368	582	878	1129	1290	1383	1413	1.1	9.1	3.9	0.9
Rail	29	29	34	29	38	43	41	39	31	1.4	1.2	0.7	-2.8
Aviation	27	20	25	23	25	30	35	42	41	-0.8	0.1	3.6	1.5
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Spain: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	35280	37496	41193	41139	51723	-0.7	1.2	1.6	2.3	
Solids	11679	10170	7740	6265	5856	4664	4251	3062	2577	-4.0	-2.8	-3.2	-4.9	
Oil	794	779	225	165	164	150	100	0	0	-11.8	-3.2	-4.8		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	12709	21284	1.6	-0.2	-0.5	3.6	
Renewable energy sources	6276	5722	7185	8710	13378	17592	21853	25368	27861	1.4	6.4	5.0	2.5	
Hydro	2184	1987	2534	1681	2359	2244	2298	2419	2552	1.5	-0.7	-0.3	1.1	
Biomass & Waste	4067	3684	4205	5129	7693	9617	11960	13876	16573	0.3	6.2	4.5	3.3	
Wind	1	23	406	1825	3032	5185	6750	7910	7401	79.0	22.3	8.3	0.9	
Solar and others	21	25	33	68	284	537	835	1153	1324	4.5	24.2	11.4	4.7	
Geothermal	2	3	8	8	9	10	10	11	11	12.3	1.6	1.5	0.6	
Net Imports	59857	75415	98351	122830	130108	135661	134748	132265	125220	5.1	2.8	0.4	-0.7	
Solids	7038	9146	12636	14418	15681	19752	22664	26186	27089	6.0	2.2	3.8	1.8	
Oil	49166	58363	69866	78279	77632	79306	79338	78939	76249	3.6	1.1	0.2	-0.4	
- Crude oil and Feedstocks	53256	55362	58393	59850	60356	61532	61535	61399	60319	0.9	0.3	0.2	-0.2	
- Oil products	-4091	3001	11473	18429	17275	17774	17803	17540	15930		4.2	0.3	-1.1	
Natural gas	3690	7521	15467	30248	35968	34755	30637	24975	19269	15.4	8.8	-1.6	-4.5	
Electricity	-36	386	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Gross Inland Consumption	89401	102207	122698	143487	156872	164280	166847	164172	167770	3.2	2.5	0.6	0.1	
Solids	18942	19515	20643	20698	21537	24416	26915	29248	29666	0.9	0.4	2.3	1.0	
Oil	45547	54556	63223	69507	69279	70579	70344	69706	67077	3.3	0.9	0.2	-0.5	
Natural gas	4970	7722	15219	29844	36098	34855	30637	24975	19269	11.8	9.0	-1.6	-4.5	
Nuclear	13701	14305	16046	14842	15753	14989	14989	12709	21284	1.6	-0.2	-0.5	3.6	
Electricity	-36	385	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6	
Renewable energy forms	6276	5723	7185	8711	13941	19107	23737	27554	30471	1.4	6.9	5.5	2.5	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	13.7	14.9	16.1	17.8	17.7					
Oil	50.9	53.4	51.5	48.4	44.2	43.0	42.2	42.5	40.0					
Natural gas	5.6	7.6	12.4	20.8	23.0	21.2	18.4	15.2	11.5					
Nuclear	15.3	14.0	13.1	10.3	10.0	9.1	9.0	7.7	12.7					
Renewable energy forms	7.0	5.6	5.9	6.1	8.9	11.6	14.2	16.8	18.2					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	332070	363320	385343	402747	420248	4.0	4.1	1.5	0.9	
Self consumption and grid losses	21388	24573	32539	40790	42322	46323	49306	54134	57944	4.3	2.7	1.5	1.6	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	37923	38104	37213	34754	32075	4.7	3.7	-0.2	-1.5	
Solids	13881	13585	18249	17641	18889	22004	24511	26975	27412	2.8	0.3	2.6	1.1	
Oil (including refinery gas)	2170	3654	4442	5246	1684	473	503	314	230	7.4	-9.2	-11.4	-7.5	
Gas (including derived gases)	486	987	3075	11140	14606	11560	8198	2854	133	20.3	16.9	-5.6	-33.8	
Biomass & Waste	145	377	694	1389	2744	4067	4001	4611	4300	16.9	14.7	3.8	0.7	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64537	67641	69045	68847	67882	0.9	0.2	0.7	-0.2	
Refineries	53753	56041	60048	60507	60066	61469	61550	61382	60337	1.1	0.0	0.2	-0.2	
Biofuels and hydrogen production	0	0	65	259	2263	4383	6008	6264	6553		42.6	10.3	0.9	
District heating	0	0	0	0	0	0	0	0	0			-1.3	-1.0	
Derived gases, cokeries etc.	4131	2924	3031	3077	2209	1788	1487	1201	992	-3.0	-3.1	-3.9	-4.0	
Energy Branch Consumption	4757	5473	6118	6397	5791	6021	6131	6369	6534	2.5	-0.5	0.6	0.6	
Non-Energy Uses	5847	8006	9094	7823	8097	8499	8778	9029	9090	4.5	-1.2	0.8	0.4	
Final Energy Demand	56647	63536	79422	97170	108308	115741	118653	120195	119340	3.4	3.2	0.9	0.1	
by sector														
Industry	20014	20476	25474	31036	34164	36816	38363	38790	39072	2.4	3.0	1.2	0.2	
- energy intensive industries	13069	13620	17260	20421	22249	23655	24269	24254	24316	2.8	2.6	0.9	0.0	
- other industrial sectors	6945	6856	8213	10615	11915	13161	14095	14536	14756	1.7	3.8	1.7	0.5	
Residential	9266	9986	11871	15150	16793	17333	17126	17104	16993	2.5	3.5	0.2	-0.1	
Tertiary	5041	7007	9219	11556	12554	13017	12995	13093	13216	6.2	3.1	0.3	0.2	
Transport	22326	26069	32858	39428	44798	48575	50168	51207	50059	3.9	3.1	1.1	0.0	
by fuel														
Solids	3524	2235	1671	1782	1673	1636	1750	1742	1824	-7.2	0.0	0.5	0.4	
Oil	33488	38971	45784	52776	55394	57432	56947	56421	53965	3.2	1.9	0.3	-0.5	
Gas	4873	6841	12141	17978	21278	22930	21988	21511	18456	9.6	5.8	0.3	-1.7	
Electricity	10817	12116	16205	20827	24620	27032	28562	29411	30542	4.1	4.3	1.5	0.7	
Heat (from CHP and District Heating)	0	39	74	0	22	25	25	24	22		-11.5	1.5	-1.4	
Renewable energy forms	3945	3335	3547	3806	5318	6679	9370	11069	14514	-1.1	4.1	5.8	4.5	
Other	0	0	0	0	3	7	10	16	18			11.7	6.2	
RES in Gross Final Energy Consumption (A)			6709	8189	12293	17479	22123	25820	28697		6.2	6.1	2.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	467.2	480.1	479.0	474.4	456.4	3.1	1.9	0.2	-0.5	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	354.6	365.8	364.2	357.4	337.6	3.4	2.3	0.3	-0.8	
Power generation/District heating	63.6	68.2	94.1	113.2	114.6	115.8	117.9	114.4	109.4	4.0	2.0	0.3	-0.7	
Energy Branch	11.5	13.1	13.6	14.7	13.6	13.7	13.6	13.4	13.0	1.6	0.0	0.0	-0.4	
Industry	41.9	43.4	48.9	58.2	61.7	65.7	63.7	59.6	51.4	1.6	2.3	0.3	-2.1	
Residential	12.9	13.6	16.4	20.4	20.6	20.4	19.0	18.4	17.7	2.5	2.3	-0.8	-0.7	
Tertiary	7.7	10.5	12.9	16.2	15.9	15.9	15.1	14.4	13.6	5.3	2.1	-0.5	-1.1	
Transport	65.6	76.9	97.3	116.7	128.1	134.2	134.9	137.3	132.6	4.0	2.8	0.5	-0.2	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.8	39.7	39.0	38.0	37.2	1.6	2.9	0.0	-0.5	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	74.7	75.8	79.0	81.6	2.5	-0.2	0.3	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	162.7	167.2	166.8	165.2	159.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	147.3	132.2	118.3	105.5	100.2	0.2	-0.8	-2.2	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.26	2.23	2.18	2.18	2.01	0.1	-0.2	-0.3	-0.8
Import Dependency %	64.2	71.6	76.5	81.2	78.7	78.3	76.6	76.3	70.8				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	107.2	130.9	155.1	171.2	180.8		4.1	3.8	1.5
as % of GDP			9.2	9.1	10.1	10.5	11.0	11.0	10.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	108.7	99.7	90.8	84.0	80.0	0.3	0.8	-1.8	-1.3
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	102.2	91.1	79.9	72.7	67.5	-0.4	0.2	-2.4	-1.7
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	99.7	88.8	77.9	71.6	67.6	3.8	0.0	-2.4	-1.4
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	41.0	39.3	37.2	36.0	34.0	0.6	-0.3	-1.0	-0.9
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	61.0	60.5	58.4	56.1	53.9	-2.3	-1.3	-0.4	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.32	0.31	0.28	0.26	0.0	-2.0	-1.2	-1.6
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.09	2.04	1.96	1.91	1.80	-0.2	-0.6	-0.6	-0.8
Industry	2.10	2.12	1.92	1.87	1.81	1.78	1.66	1.54	1.31	-0.9	-0.6	-0.8	-2.3
Residential	1.39	1.36	1.39	1.34	1.23	1.18	1.11	1.08	1.04	0.0	-1.2	-1.0	-0.6
Tertiary	1.53	1.50	1.40	1.40	1.27	1.22	1.16	1.10	1.03	-0.9	-1.0	-0.9	-1.3
Transport	2.94	2.95	2.96	2.96	2.86	2.76	2.69	2.68	2.65	0.1	-0.3	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.0	14.6	18.0	20.7	23.1				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.9	8.9	11.9	12.4	12.8				
Gross Electricity generation by source (in GWh)													
			222776	290555	332070	363320	385343	402747	420248		4.1	1.5	0.9
Nuclear energy			62195	57529	61059	58096	58096	54990	96683		-0.2	-0.5	5.2
Solids			78694	77443	81164	101745	124099	155810	156691		0.3	4.3	2.4
Oil (including refinery gas)			19567	23770	8730	3665	3836	2981	2540		-7.8	-7.9	-4.0
Gas (including derived gases)			24741	85513	105320	93507	69214	33593	6655		15.6	-4.1	-20.9
Biomass-waste			3374	5457	12437	18374	21993	30134	35623		13.9	5.9	4.9
Hydro (pumping excluded)			29465	19549	27435	26095	26725	28126	29674		-0.7	-0.3	1.1
Wind			4723	21215	35251	60294	78493	91974	86063		22.3	8.3	0.9
Solar			18	78	674	1544	2887	5140	6319		43.7	15.7	8.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e													
<u>Nuclear energy</u>			60718	80297	92002	103799	113827	129121	130966		4.2	2.2	1.4
<u>Renewable energy</u>			7579	7579	7434	6986	6986	6422	11166		-0.2	-0.6	4.8
<u>Renewable energy</u>			14974	22714	30615	40532	49528	59096	57008		7.4	4.9	1.4
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25717	33849	41972	39123		22.0	7.5	1.5
Solar			14	52	435	995	1857	3302	4064		41.5	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			38166	50004	53953	56281	57313	63603	62792		3.5	0.6	0.9
of which cogeneration units			5017	7578	8346	10003	9360	10340	10000		5.2	1.2	0.7
Solids fired			11352	11485	11277	13031	15661	22625	21919		-0.1	3.3	3.4
Gas fired			19801	32257	35545	34222	32712	30899	30407		6.0	-0.8	-0.7
Oil fired			6518	5375	6022	5674	4383	4271	3788		-0.8	-3.1	-1.4
Biomass-waste fired			495	887	1109	3354	4557	5809	6678		8.4	15.2	3.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	39.8	38.5	37.2	34.0	34.8				
Efficiency of gross thermal power generation (%)			41.1	46.7	47.1	49.0	50.6	55.1	54.0				
% of gross electricity from CHP			7.4	13.5	12.7	14.0	13.6	13.8	11.8				
Carbon free gross electricity generation (%)			44.8	35.7	41.2	45.3	48.8	52.2	60.5				
- nuclear			27.9	19.8	18.4	16.0	15.1	13.7	23.0				
- renewable energy forms			16.9	15.9	22.8	29.3	33.8	38.6	37.5				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	276.7	372.3	461.8	535.3	617.2	691.2	751.3	800.2	831.1	5.3	2.9	2.0	1.0
Private cars and motorcycles	33.4	39.6	50.3	54.6	56.9	59.6	63.0	65.8	68.2	4.2	1.3	1.0	0.8
Rail	182.0	258.4	310.7	369.2	427.8	474.3	507.4	531.4	543.1	5.5	3.3	1.7	0.7
Aviation	19.9	20.8	25.4	27.2	29.2	32.1	36.2	41.6	47.5	2.5	1.4	2.2	2.8
Inland navigation	39.5	51.4	73.6	82.2	100.9	122.9	142.2	158.9	169.8	6.4	3.2	3.5	1.8
Freight transport activity (Gtkm)	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.5	0.1
Freight transport activity (Gtkm)													
Trucks	128.0	150.5	191.3	276.4	320.0	353.2	380.8	399.7	403.9	4.1	5.3	1.8	0.6
Rail	83.8	101.6	148.7	233.2	272.7	300.3	322.3	338.7	342.0	5.9	6.3	1.7	0.6
Inland navigation	11.2	11.0	11.6	11.1	12.4	13.9	15.4	16.3	16.7	0.4	0.6	2.2	0.9
Energy demand in transport (ktoe)	33.0	38.0	31.0	32.0	34.9	39.0	43.1	44.6	45.2	-0.6	1.2	2.1	0.5
Energy demand in transport (ktoe)													
Public road transport	22326	26069	32858	39428	44798	48575	50168	51207	50059	3.9	3.1	1.1	0.0
Private cars and motorcycles	224	221	275	284	280	280	286	282	285	2.1	0.2	0.2	0.0
Trucks	7830	10598	14286	16266	17868	18758	18919	18983	20021	6.2	2.3	0.6	0.6
Rail	9634	9647	11587	14854	17350	18986	19685	19888	19593	1.9	4.1	1.3	0.0
Aviation	528	626	847	1166	1195	1260	1289	1252	909	4.8	3.5	0.8	-3.4
Inland navigation	2456	3105	4486	5323	6439	7486	8050	8826	7273	6.2	3.7	2.3	-1.0
Inland navigation	1655	1871	1378	1534	1667	1805	1940	1976	1979	-1.8	1.9	1.5	0.2

Source: PRIMES

Sweden: High Oil & Gas prices Baseline						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	29728	31514	30077	34378	36243	36991	38595	39416	40312	0.1	1.9	0.6	0.4
Solids	216	321	231	302	306	306	270	246	164	0.7	2.9	-1.2	-4.9
Oil	3	4	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	17764	18040	14781	18670	19475	19476	20257	20259	20259	-1.8	2.8	0.4	0.0
Renewable energy sources	11745	13149	15065	15406	16462	17209	18068	18911	19889	2.5	0.9	0.9	1.0
Hydro	6234	5856	6757	6260	6226	6253	6279	6279	6279	0.8	-0.8	0.1	0.0
Biomass & Waste	5507	7279	8264	9059	9790	10383	11152	11935	12736	4.1	1.7	1.3	1.3
Wind	1	9	39	80	423	535	589	643	810	54.2	26.8	3.4	3.2
Solar and others	3	5	5	6	22	37	48	54	63	5.3	15.3	8.0	2.9
Geothermal	0	0	0	0	0	0	0	0	0			1.5	0.2
Net Imports	17923	19281	19172	19867	21300	22179	21207	21348	20616	0.7	1.1	0.0	-0.3
Solids	2329	2657	2340	2462	3017	4809	5015	4820	4166	0.0	2.6	5.2	-1.8
Oil	15169	16014	15654	17198	17845	16855	15782	15831	15756	0.3	1.3	-1.2	0.0
- Crude oil and Feedstocks	16989	17815	20372	19825	20473	19829	19126	19202	19136	1.8	0.0	-0.7	0.0
- Oil products	-1820	-1801	-4718	-2626	-2628	-2974	-3345	-3371	-3379				
Natural gas	577	755	776	843	1367	1977	1822	2021	2051	3.0	5.8	2.9	1.2
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Gross Inland Consumption	47166	50446	47849	51555	55506	57081	57668	58567	58674	0.1	1.5	0.4	0.2
Solids	2677	2893	2442	2626	3323	5115	5285	5066	4330	-0.9	3.1	4.8	-2.0
Oil	14555	15754	14382	14646	15808	14767	13648	13633	13502	-0.1	1.0	-1.5	-0.1
Natural gas	577	755	776	843	1367	1977	1822	2021	2051	3.0	5.8	2.9	1.2
Nuclear	17764	18040	14781	18670	19475	19476	20257	20259	20259	-1.8	2.8	0.4	0.0
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Renewable energy forms	11745	13149	15065	15406	16462	17209	18068	18911	19889	2.5	0.9	0.9	1.0
as % in Gross Inland Consumption													
Solids	5.7	5.7	5.1	5.1	6.0	9.0	9.2	8.7	7.4				
Oil	30.9	31.2	30.1	28.4	28.5	25.9	23.7	23.3	23.0				
Natural gas	1.2	1.5	1.6	1.6	2.5	3.5	3.2	3.5	3.5				
Nuclear	37.7	35.8	30.9	36.2	35.1	34.1	35.1	34.6	34.5				
Renewable energy forms	24.9	26.1	31.5	29.9	29.7	30.1	31.3	32.3	33.9				
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	173931	186852	190969	192937	195195	0.0	1.8	0.9	0.2
Self consumption and grid losses	13436	14222	14818	15557	17846	18782	19267	19897	19813	1.0	1.9	0.8	0.3
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	5347	6172	5293	5302	5353	8.1	5.1	-0.1	0.1
Solids	558	705	467	494	724	1006	610	554	145	-1.8	4.5	-1.7	-13.4
Oil (including refinery gas)	253	737	276	316	150	23	35	1	1	0.9	-5.9	-13.6	-32.1
Gas (including derived gases)	253	406	414	490	175	374	362	372	392	5.0	-8.2	7.5	0.8
Biomass & Waste	427	1398	2083	3166	4297	4769	4286	4374	4815	17.2	7.5	0.0	1.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	20579	23463	25294	24304	24432	24114	23708	23787	23465	2.1	-0.3	-0.3	-0.1
Refineries	18041	19475	21618	20537	20451	19818	19122	19200	19135	1.8	-0.6	-0.7	0.0
Biofuels and hydrogen production	0	0	0	210	452	748	1069	1204	1336			9.0	2.2
District heating	1123	2373	1973	1722	1647	1713	1736	1696	1454	5.8	-1.8	0.5	-1.8
Derived gases, cokeries etc.	1415	1615	1704	1835	1882	1834	1781	1687	1541	1.9	1.0	-0.5	-1.4
Energy Branch Consumption	1758	1629	1532	1424	1549	1642	1677	1738	1726	-1.4	0.1	0.8	0.3
Non-Energy Uses	1769	1772	1771	2344	2517	2535	2487	2494	2500	0.0	3.6	-0.1	0.1
Final Energy Demand	30514	32602	33302	33145	34998	36723	37792	38875	39236	0.9	0.5	0.8	0.4
by sector													
Industry	11857	11527	12047	12042	12974	14179	14983	15534	15757	0.2	0.7	1.5	0.5
- energy intensive industries	8574	8572	9161	9204	9749	10613	11190	11589	11694	0.7	0.6	1.4	0.4
- other industrial sectors	3283	2955	2886	2838	3225	3566	3793	3944	4063	-1.3	1.1	1.6	0.7
Residential	6840	8032	7546	7882	8115	8182	8134	8147	8050	1.0	0.7	0.0	-0.1
Tertiary	4555	5378	5581	4577	4817	4927	5011	5058	5072	2.1	-1.5	0.4	0.1
Transport	7263	7666	8128	8643	9092	9435	9664	10136	10356	1.1	1.1	0.6	0.7
by fuel													
Solids	1231	1192	1141	1345	1596	2650	3097	3005	2820	-0.8	3.4	6.9	-0.9
Oil	12004	12567	12341	11087	11592	10620	10426	10703	10749	0.3	-0.6	-1.1	0.3
Gas	587	611	673	746	1692	2074	1481	1469	1479	1.4	9.7	-1.3	0.0
Electricity	10348	10711	11068	11382	12223	12717	13073	13274	13440	0.7	1.0	0.7	0.3
Heat (from CHP and District Heating)	1706	3540	3550	4174	3874	3969	4009	4002	3912	7.6	0.9	0.3	-0.2
Renewable energy forms	4639	3981	4528	4410	4021	4693	5703	6417	6832	-0.2	-1.2	3.6	1.8
Other	0	0	0	0	1	2	3	4	4			14.7	2.9
RES in Gross Final Energy Consumption ^(A)			14717	14682	14732	15559	16808	17601	18501	0.0	1.3	1.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	73.7	79.4	77.1	76.6	73.6	-0.1	0.2	0.5	-0.5
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	53.1	58.9	56.4	56.3	53.6	0.0	0.5	0.6	-0.5
Power generation/District heating	6.3	7.9	5.1	5.5	4.7	8.4	6.8	6.4	4.3	-2.0	-0.8	3.7	-4.4
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.5	2.1	2.0	1.9	2.3	1.4	-0.8	-0.6
Industry	11.6	12.5	11.0	12.2	16.6	18.3	18.0	17.2	16.1	-0.5	4.1	0.9	-1.1
Residential	4.8	4.6	3.7	1.4	1.6	1.5	1.6	1.7	1.7	-2.6	-8.2	-0.6	1.5
Tertiary	5.6	5.4	5.6	3.1	3.1	3.0	3.0	3.0	3.0	0.0	-5.6	-0.5	0.0
Transport	20.7	21.8	23.2	24.0	24.9	25.2	25.1	26.1	26.5	1.1	0.7	0.1	0.5
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.9	6.7	6.6	6.6	6.6	-0.3	0.7	-0.3	-0.1
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	13.7	14.0	13.6	13.4	-0.4	-1.1	0.2	-0.5
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	100.9	108.7	105.6	104.9	100.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Sweden: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	165.2	150.8	136.9	126.2	116.8	-1.9	-1.2	-1.9	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.96	1.03	0.98	0.96	0.91	-0.1	-1.0	0.2	-0.7
Import Dependency %	37.5	37.5	39.0	37.2	37.0	37.5	35.5	35.1	33.8				
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	36.8	41.1	45.3	49.3	52.4		4.2	2.1	1.5
as % of GDP			9.5	10.7	10.9	10.8	10.8	10.6	10.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	73.7	70.2	65.9	62.0	58.1	-5.6	-3.0	-1.1	-1.3
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	87.0	79.2	71.6	65.8	60.4	-0.7	-1.4	-1.9	-1.7
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	67.9	61.7	56.3	51.3	47.3	0.5	-3.8	-1.9	-1.7
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	37.1	35.9	34.7	34.5	33.3	-0.6	-0.8	-0.7	-0.4
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	43.8	41.9	39.9	38.8	38.1	1.3	-0.1	-0.9	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.04	0.03	0.03	0.02	-3.1	-2.3	2.8	-4.5
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.32	1.31	1.26	1.23	1.21	-0.7	0.1	-0.5	-0.4
Industry	0.97	1.08	0.91	1.01	1.28	1.29	1.20	1.11	1.02	-0.6	3.4	-0.6	-1.6
Residential	0.70	0.57	0.49	0.18	0.19	0.19	0.18	0.20	0.21	-3.5	-8.9	-0.6	1.6
Tertiary	1.23	1.00	1.00	0.68	0.65	0.61	0.60	0.60	0.59	-2.0	-4.2	-0.8	-0.1
Transport	2.85	2.85	2.85	2.77	2.74	2.67	2.59	2.58	2.55	0.0	-0.4	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	40.2	40.5	42.5	43.3	45.1				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.2	10.2	11.1	12.1				
Gross Electricity generation by source (in GWh)													
			145524	158341	173931	186852	190969	192937	195195		1.8	0.9	0.2
Nuclear energy			57306	72364	75517	75881	78911	78916	78918		2.8	0.4	0.0
Solids			1141	1241	2878	3783	2402	1911	941		9.7	-1.8	-8.9
Oil (including refinery gas)			1828	1004	886	264	231	4	4		-7.0	-12.6	-33.9
Gas (including derived gases)			1714	1394	1874	2918	2309	2213	2294		0.9	2.1	-0.1
Biomass-waste			4508	8607	15453	25071	27249	29391	30588		13.1	5.8	1.2
Hydro (pumping excluded)			78570	72795	72397	72704	73014	73014	73014		-0.8	0.1	0.0
Wind			457	936	4923	6226	6845	7478	9422		26.8	3.4	3.2
Solar			0	0	2	5	7	11	14			11.9	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			32460	33376	36048	37202	37984	40063	41894		1.1	0.5	1.0
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
<u>Renewable energy</u>			15856	16148	17536	18059	18302	18469	19182		1.0	0.4	0.5
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	1875	2386	2619	2848	3545		23.3	3.4	3.1
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			7021	7598	9468	9697	10234	12145	13263		3.0	0.8	2.6
of which cogeneration units			3791	4762	3670	5184	5838	6212	6422		-0.3	4.8	1.0
Solids fired			847	868	754	722	664	619	260		-1.2	-1.3	-8.9
Gas fired			514	522	1089	1565	2692	4109	5130		7.8	9.5	6.7
Oil fired			4271	4366	4135	3022	1683	2120	1956		-0.3	-8.6	1.5
Biomass-waste fired			1389	1842	3490	4388	5194	5297	5918		9.6	4.1	1.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			49.9	52.8	53.5	55.5	55.5	53.0	51.3				
Efficiency of gross thermal power generation (%)			24.4	23.6	33.9	44.6	52.3	54.4	54.3				
% of gross electricity from CHP			5.9	7.5	8.9	13.5	15.5	15.9	15.9				
Carbon free gross electricity generation (%)			96.8	97.7	96.8	96.3	97.4	97.9	98.3				
- nuclear			39.4	45.7	43.4	40.6	41.3	40.9	40.4				
- renewable energy forms			57.4	52.0	53.3	55.7	56.1	57.0	57.9				
Transport sector													
Passenger transport activity (Gpkm)	120.6	123.8	134.0	142.2	156.0	167.1	177.1	187.5	196.8	1.1	1.5	1.3	1.1
Public road transport	8.0	8.5	9.5	9.0	9.1	9.3	9.7	10.2	10.5	1.7	-0.4	0.7	0.8
Private cars and motorcycles	87.6	88.1	93.3	99.4	108.4	114.5	119.9	126.1	131.2	0.6	1.5	1.0	0.9
Rail	8.6	8.8	10.2	11.0	12.1	13.7	15.1	16.3	17.6	1.7	1.7	2.3	1.6
Aviation	8.1	10.8	13.8	15.6	19.1	22.1	24.7	27.1	29.3	5.4	3.3	2.6	1.8
Inland navigation	8.3	7.7	7.2	7.2	7.3	7.4	7.7	7.9	8.1	-1.3	0.1	0.5	0.5
Freight transport activity (Gtkm)	53.9	58.9	62.0	67.3	75.5	82.0	88.1	94.3	99.8	1.4	2.0	1.6	1.2
Trucks	26.5	31.6	35.6	38.6	43.6	46.4	49.1	52.5	55.4	3.0	2.0	1.2	1.2
Rail	19.1	19.4	19.5	21.7	24.6	27.8	30.6	33.0	35.3	0.2	2.4	2.2	1.4
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.4	8.8	9.0	-1.8	0.6	1.4	0.7
Energy demand in transport (ktoe)	7263	7666	8128	8643	9092	9435	9664	10136	10356	1.1	1.1	0.6	0.7
Public road transport	230	275	189	156	146	145	150	152	149	-2.0	-2.6	0.3	0.0
Private cars and motorcycles	4004	4099	4086	4472	4515	4598	4635	4839	4812	0.2	1.0	0.3	0.4
Trucks	1872	2066	2471	2695	2966	3071	3146	3288	3424	2.8	1.8	0.6	0.8
Rail	252	273	299	332	366	391	398	399	409	1.7	2.0	0.9	0.3
Aviation	760	849	928	846	956	1082	1180	1300	1403	2.0	0.3	2.1	1.7
Inland navigation	143	103	154	141	144	149	154	158	159	0.8	-0.7	0.7	0.3

Source: PRIMES

United Kingdom: High Oil & Gas prices Baseline										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	205508	249865	268722	202300	169072	108952	78450	80844	88182	2.7	-4.5	-7.4	1.2	
Solids	54125	30516	18577	12172	10500	9000	8000	5792	6000	-10.1	-5.5	-2.7	-2.8	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	14838	9.1	-4.3	-9.2	-4.7	
Nuclear	16574	21249	21942	21054	18742	15918	7517	20362	29510	2.8	-1.6	-8.7	14.7	
Renewable energy sources	1070	1996	2635	4048	6830	9034	13934	16690	19834	9.4	10.0	7.4	3.6	
Hydro	436	416	437	427	417	436	452	485	523	0.0	-0.5	0.8	1.5	
Biomass & Waste	627	1539	2104	3340	4905	6263	7829	9021	10951	12.9	8.8	4.8	3.4	
Wind	1	34	81	250	1341	1926	4927	6295	7288	59.3	32.3	13.9	4.0	
Solar and others	5	6	11	30	166	407	723	885	1068	8.1	30.9	15.9	4.0	
Geothermal	1	1	1	1	1	2	3	3	4	0.0	5.5	7.2	3.7	
Net Imports	5932	-36021	-39030	32641	60700	120894	137804	132796	129461			8.5	-0.6	
Solids	9122	10493	14577	27467	32289	36403	34221	23382	24740	4.8	8.3	0.6	-3.2	
Oil	-10396	-48554	-45515	-2171	13430	39640	59736	60118	63146			16.1	0.6	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	18921	45160	65262	67649	70722			13.2	0.8	
- Oil products	-5858	-12196	-6490	-7027	-5491	-5519	-5527	-7531	-7576					
Natural gas	6178	637	-9311	5973	13168	42468	40563	45769	37728			11.9	-0.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	227731	227791	214197	211578	215589	0.9	-0.2	-0.6	0.1	
Solids	64305	45866	36816	38186	42789	45403	42221	29173	30740	-5.4	1.5	-0.1	-3.1	
Oil	80903	82378	81357	82701	81390	82586	82679	78056	79092	0.1	0.0	0.2	-0.4	
Natural gas	47203	65119	87399	84898	76168	72468	64563	63769	52566	6.4	-1.4	-1.6	-2.0	
Nuclear	16574	21249	21942	21054	18742	15918	7517	20362	29510	2.8	-1.6	-8.7	14.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	7794	10490	16385	19516	23264	9.4	11.5	7.7	3.6	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	18.8	19.9	19.7	13.8	14.3					
Oil	38.3	37.8	35.2	35.6	35.7	36.3	38.6	36.9	36.7					
Natural gas	22.4	29.9	37.8	36.6	33.4	31.8	30.1	30.1	24.4					
Nuclear	7.9	9.7	9.5	9.1	8.2	7.0	3.5	9.6	13.7					
Renewable energy forms	0.5	0.9	1.1	2.0	3.4	4.6	7.6	9.2	10.8					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	416594	427210	442517	457242	476963	1.7	1.1	0.6	0.8	
Self consumption and grid losses	44516	46573	48246	50822	50990	50259	55426	57602	61971	0.8	0.6	0.8	1.1	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	61472	64162	59494	45581	39837	-0.1	1.0	-0.3	-3.9	
Solids	47267	33844	27232	30920	35753	38453	35698	23710	25720	-5.4	2.8	0.0	-3.2	
Oil (including refinery gas)	7172	3403	806	815	0	0	80	0	0	-19.6				
Gas (including derived gases)	1668	12054	26033	26807	22654	22421	20005	17144	7341	31.6	-1.4	-1.2	-9.5	
Biomass & Waste	212	620	1410	3455	3065	3287	3711	4728	6776	20.9	8.1	1.9	6.2	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	94497	97710	99965	97774	99105	0.1	-0.6	0.6	-0.1	
Refineries	89882	94255	89299	87320	87320	89506	90098	87734	88931	-0.1	-0.2	0.3	-0.1	
Biofuels and hydrogen production	0	0	0	80	1522	3018	5091	5858	6464			12.8	2.4	
District heating	0	0	3354	1976	1004	883	854	854	721		-11.4	-1.6	-1.7	
Derived gases, cokeries etc.	9263	8079	7682	5436	4652	4303	3923	3328	2989	-1.9	-4.9	-1.7	-2.7	
Energy Branch Consumption	12836	14401	15039	15383	13719	13079	12408	12167	11683	1.6	-0.9	-1.0	-0.6	
Non-Energy Uses	11173	12550	11152	11510	11827	12039	12094	12377	12518	0.0	0.6	0.2	0.3	
Final Energy Demand	136947	142429	151665	151500	151361	152223	150273	148557	150245	1.0	0.0	-0.1	0.0	
by sector														
Industry	34962	35132	35909	33889	33795	34673	34778	34830	35136	0.3	-0.6	0.3	0.1	
- energy intensive industries	19483	19965	19215	16289	16312	16547	16337	15936	15763	-0.1	-1.6	0.0	-0.4	
- other industrial sectors	15479	15167	16694	17600	17483	18126	18441	18894	19373	0.8	0.5	0.5	0.5	
Residential	37939	39567	43072	43284	41042	39381	37166	37476	37045	1.3	-0.5	-1.0	0.0	
Tertiary	18596	20863	20359	19170	18583	18099	18012	17932	18127	0.9	-0.9	-0.3	0.1	
Transport	45451	46867	52324	55236	57941	60069	60317	58320	59938	1.4	1.0	0.4	-0.1	
by fuel														
Solids	12266	8891	5683	4422	4841	4655	4437	3631	3388	-7.4	-1.6	-0.9	-2.7	
Oil	58770	60197	62437	65731	65807	66793	66775	62291	63281	0.6	0.5	0.1	-0.5	
Gas	41893	47140	52180	49853	46010	43398	38784	40803	40118	2.2	-1.3	-1.7	0.3	
Electricity	23597	25274	28325	29686	31460	32526	33382	34221	35157	1.8	1.1	0.6	0.5	
Heat (from CHP and District Heating)	0	0	2439	1317	1033	1155	1311	1564	1745			-8.2	2.4	
Renewable energy forms	421	926	600	572	2207	3690	5569	6029	6537	3.6	13.9	9.7	1.6	
Other	0	0	0	0	4	7	15	18	19			14.7	2.5	
RES in Gross Final Energy Consumption (A)			1537	2483	5648	8237	14093	17517	20868		13.9	9.6	4.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	676.0	679.4	648.9	558.9	527.5	-1.1	-0.2	-0.4	-2.0	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	550.7	555.6	525.5	457.3	440.3	-0.4	0.1	-0.5	-1.8	
Power generation/District heating	214.2	173.6	181.2	193.8	197.1	207.1	190.6	136.3	121.0	-1.7	0.8	-0.3	-4.4	
Energy Branch	27.9	31.9	33.1	34.6	29.5	28.4	26.3	25.0	22.9	1.7	-1.1	-1.2	-1.4	
Industry	81.8	78.8	70.5	65.5	63.3	63.3	63.3	59.6	59.1	-1.5	-1.1	0.0	-0.7	
Residential	77.8	77.3	81.9	79.7	72.7	67.1	60.3	60.0	57.9	0.5	-1.2	-1.8	-0.4	
Tertiary	32.9	35.2	26.7	24.3	21.6	20.2	19.7	19.1	18.8	-2.1	-2.1	-0.9	-0.5	
Transport	132.4	136.5	152.7	161.8	166.6	169.5	165.3	157.4	160.6	1.4	0.9	-0.1	-0.3	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	27.2	26.9	26.6	26.4	26.9	-1.5	1.4	-0.2	0.1	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	96.9	96.7	75.2	60.3	-3.9	-2.2	-0.1	-4.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	87.2	87.6	83.7	72.1	68.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: High Oil & Gas prices Baseline												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	112.0	99.6	83.7	74.8	70.3	-1.5	-2.6	-2.9	-1.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.42	2.44	2.45	2.16	2.04	-1.3	0.2	0.1	-1.8
Import Dependency %	2.8	-16.3	-16.7	13.9	26.4	52.6	63.7	62.2	59.5				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	157.4	185.5	214.8	235.9	254.5		1.3	3.2	1.7
as % of GDP			8.7	7.4	7.7	8.1	8.4	8.3	8.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.6	88.3	81.9	76.1	72.5	-0.6	-0.7	-1.3	-1.2
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	73.5	63.0	53.4	48.9	44.7	-1.4	-3.0	-3.1	-1.7
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	65.8	56.1	49.2	43.9	40.5	-2.2	-4.1	-2.9	-1.9
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.7	42.8	40.9	37.3	37.3	0.3	-0.8	-0.7	-0.9
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.3	58.4	57.3	56.0	55.2	-0.5	1.2	-0.2	-0.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.46	0.47	0.41	0.29	0.24	-4.0	0.2	-1.0	-5.2
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.14	2.10	2.05	1.99	1.97	-0.8	-0.2	-0.4	-0.4
Industry	2.34	2.24	1.96	1.93	1.87	1.82	1.82	1.71	1.68	-1.7	-0.5	-0.3	-0.8
Residential	2.05	1.95	1.90	1.84	1.77	1.70	1.62	1.60	1.56	-0.7	-0.7	-0.9	-0.4
Tertiary	1.77	1.69	1.31	1.27	1.16	1.12	1.09	1.06	1.04	-3.0	-1.2	-0.6	-0.5
Transport	2.91	2.91	2.92	2.93	2.87	2.82	2.74	2.70	2.68	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	3.6	5.3	9.1	11.4	13.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.4	9.2	10.3	11.2				
Gross Electricity generation by source (in GWh)													
			374308	397522	416594	427210	442517	457242	476963		1.1	0.6	0.8
Nuclear energy			85048	81603	72657	61709	29140	87969	132626		-1.6	-8.7	16.4
Solids			118129	134618	157325	169214	189262	138062	149969		2.9	1.9	-2.3
Oil (including refinery gas)			7147	7622	104	104	301	23	43		-34.5	11.2	-17.6
Gas (including derived gases)			153298	152495	152810	153477	141623	129467	73727		0.0	-0.8	-6.3
Biomass-waste			4653	13308	13229	15194	18063	20181	25494		11.0	3.2	3.5
Hydro (pumping excluded)			5085	4960	4846	5069	5258	5644	6076		-0.5	0.8	1.5
Wind			947	2907	15599	22394	57287	73201	84748		32.3	13.9	4.0
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	0	1504	2555	4043				10.4
Net Generation Capacity in MW_e			84356	90824	96516	97036	105736	114137	121897		1.4	0.9	1.4
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	11066	15602		-1.9	-8.5	13.5
<u>Renewable energy</u>			1758	3009	7239	9763	23988	30863	36391		15.2	12.7	4.3
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	5749	8146	21615	27851	32466		30.3	14.2	4.2
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	77	780	1326	2098				10.4
<u>Thermal power</u>			69560	75978	78554	78008	77336	72208	69904		1.2	-0.2	-1.0
of which cogeneration units			6116	8041	6917	8179	9479	11398	12912		1.2	3.2	3.1
Solids fired			30684	30627	28669	23774	22668	19910	18984		-0.7	-2.3	-1.8
Gas fired			27319	33944	38277	41805	41727	40645	38467		3.4	0.9	-0.8
Oil fired			10540	9879	9357	9164	7782	5231	4119		-1.2	-1.8	-6.2
Biomass-waste fired			1017	1528	2251	3265	5160	6422	8334		8.3	8.6	4.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	47.3	48.5	45.7	43.7	42.6				
Efficiency of gross thermal power generation (%)			43.9	42.7	45.3	45.3	50.5	54.3	53.8				
% of gross electricity from CHP			9.0	8.5	10.2	12.0	13.1	14.4	13.6				
Carbon free gross electricity generation (%)			25.6	25.9	25.5	24.4	25.2	41.5	53.1				
- nuclear			22.7	20.5	17.4	14.4	6.6	19.2	27.8				
- renewable energy forms			2.9	5.3	8.1	10.0	18.6	22.2	25.3				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	976.0	1032.6	1082.3	1133.9	1177.5	1.3	1.5	1.0	0.8
Public road transport	46.2	44.3	47.0	48.8	50.3	51.7	53.8	55.4	56.4	0.2	0.7	0.7	0.5
Private cars and motorcycles	591.1	622.0	644.9	684.7	730.6	763.3	793.4	827.6	855.9	0.9	1.3	0.8	0.8
Rail	39.9	37.1	46.7	51.8	56.6	61.8	66.7	71.8	77.1	1.6	1.9	1.6	1.5
Aviation	49.3	66.8	94.0	110.0	131.9	149.2	161.7	172.4	181.1	6.7	3.4	2.1	1.1
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.7	6.8	6.9	-2.1	0.0	0.2	0.3
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	261.8	271.4	279.4	285.9	289.1	1.1	0.7	0.7	0.3
Trucks	145.7	161.5	165.6	167.5	175.4	183.7	189.9	195.2	197.6	1.3	0.6	0.8	0.4
Rail	16.0	13.3	18.1	22.1	24.2	25.6	26.8	27.8	28.4	1.2	3.0	1.0	0.5
Inland navigation	55.8	53.1	60.0	61.2	62.1	62.1	62.6	62.9	63.1	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	57941	60069	60317	58320	59938	1.4	1.0	0.4	-0.1
Public road transport	514	493	518	490	477	484	495	501	499	0.1	-0.8	0.4	0.1
Private cars and motorcycles	25438	25836	27031	25783	26049	26497	26529	27968	28860	0.6	-0.4	0.2	0.8
Trucks	10387	10366	11277	13316	13586	14124	14350	14555	14759	0.8	1.9	0.5	0.3
Rail	1063	1233	1464	1532	1532	1401	1260	1067	849	3.2	0.5	-1.9	-3.9
Aviation	6779	7822	11115	12847	15015	16288	16421	12985	13745	5.1	3.1	0.9	-1.8
Inland navigation	1269	1117	920	1269	1282	1275	1262	1243	1228	-3.2	3.4	-0.2	-0.3

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10⁷ kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10⁶ watt

MWh: megawatt-hour or 10⁶ watt-hours

GWh: gigawatt-hour or 10⁹ watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10⁹ passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10⁹ tonne-kilometre

▶ Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables

▶ Appendix 9: Cost Efficiency scenario with high prices

By P. Capros, L. Mantzos, V. Papandreou, N. Tasios

▶ *Primes Model* – E3MLab/NTUA
Results of end January 2008

EU27: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	933011	946298	937567	896393	837168	790910	792652	800142	846903	0.0	-1.1	-0.5	0.7	
Solids	365918	277924	213693	196451	162107	148865	138870	129820	122960	-5.2	-2.7	-1.5	-1.2	
Oil	128809	170055	171665	132993	104197	76246	52602	44018	40759	2.9	-4.9	-6.6	-2.5	
Natural gas	162447	188965	207559	188021	166590	122305	101664	92593	80835	2.5	-2.2	-4.8	-2.3	
Nuclear	202589	223028	243761	257360	245217	244011	246823	247273	285327	1.9	0.1	0.1	1.5	
Renewable energy sources	73248	86325	100890	121568	159057	199483	252693	286438	317022	3.3	4.7	4.7	2.3	
Hydro	25101	28054	30374	26394	29469	29324	29631	30015	30273	1.9	-0.3	0.1	0.2	
Biomass & Waste	44737	54203	64774	82903	105230	129628	161335	182346	198796	3.8	5.0	4.4	2.1	
Wind	67	350	1913	6060	15197	22942	32071	41221	49921	39.8	23.0	7.8	4.5	
Solar and others	153	273	418	816	3068	10992	22632	25737	30737	10.6	22.1	22.1	3.1	
Geothermal	3190	3444	3412	5395	6093	6598	7024	7119	7294	0.7	6.0	1.4	0.4	
Net Imports	748677	730704	818875	975298	1005119	1037680	1024297	1015605	993720	0.9	2.1	0.2	-0.3	
Solids	79289	79183	79183	126702	136478	137814	146216	144747	138652	2.2	3.3	0.7	-0.5	
Oil	530805	504448	525661	589611	584524	602248	592591	581449	576282	-0.1	1.1	0.1	-0.3	
- Crude oil and Feedstocks	503539	488479	507317	574313	591252	616478	623474	622701	623818	0.1	1.5	0.5	0.0	
- Oil products	27265	15969	18344	15298	-6728	-14230	-30883	-41251	-47537	-3.9				
Natural gas	135121	145288	192531	256828	280285	287451	260855	258755	244490	3.6	3.8	-0.7	-0.6	
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Gross Inland Consumption	1649991	1650662	1711954	1811406	1788638	1773408	1760650	1758208	1782254	0.4	0.4	-0.2	0.1	
Solids	450105	364252	321390	320065	298586	286679	285087	274567	261612	-3.3	-0.7	-0.5	-0.9	
Oil	625464	642003	650399	665514	635072	623313	588894	567928	558671	0.4	-0.2	-0.8	-0.5	
Natural gas	294905	333268	393417	444804	446875	409756	362519	351348	325325	2.9	1.3	-2.1	-1.1	
Nuclear	202589	223028	243761	257360	245217	244011	246823	247273	285327	1.9	0.1	0.1	1.5	
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2	
Renewable energy forms	73604	86602	101302	122689	161392	208183	276286	316165	350395	3.2	4.8	5.5	2.4	
as % in Gross Inland Consumption														
Solids	27.3	22.1	18.8	17.7	16.7	16.2	16.2	15.6	14.7					
Oil	37.9	38.9	38.0	36.7	35.5	35.1	33.4	32.3	31.3					
Natural gas	17.9	20.2	23.0	24.6	25.0	23.1	20.6	20.0	18.3					
Nuclear	12.3	13.5	14.2	14.2	13.7	13.8	14.0	14.1	16.0					
Renewable energy forms	4.5	5.2	5.9	6.8	9.0	11.7	15.7	18.0	19.7					
Gross Electricity Generation in GWh_e	2562817	2712158	2992030	3275359	3340541	3481203	3695078	4088604	4477319	1.6	1.1	1.0	1.9	
Self consumption and grid losses	335093	353101	383382	407678	381359	390637	420073	482820	540370	1.4	-0.1	1.0	2.6	
Fuel Inputs to Thermal Power Generation	379588	365762	382767	423183	364024	351531	358413	372602	370737	0.1	-0.5	-0.2	0.3	
Solids	259913	233747	223114	229144	211673	200710	205697	199675	192518	-1.5	-0.5	-0.3	-0.7	
Oil (including refinery gas)	54361	51375	39172	29499	6725	4568	3708	1842	2358	-3.2	-16.2	-5.8	-4.4	
Gas (including derived gases)	56680	67840	102572	133257	116739	103831	81739	81299	74854	6.1	1.3	-3.5	-0.9	
Biomass & Waste	5861	9809	14969	26638	23750	37116	61839	84181	95107	9.8	4.7	10.0	4.4	
Geothermal heat	2774	2992	2939	4645	5137	5305	5430	5605	5900	0.6	5.7	0.6	0.8	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	835145	808984	818851	834206	822215	823551	809308	796383	790756	-0.2	0.0	-0.2	-0.2	
Refineries	673810	699352	727451	749312	727560	725760	708046	697366	694159	0.8	0.0	-0.3	-0.2	
Biofuels and hydrogen production	2	202	624	3206	15842	26472	39147	42806	46269	80.0	38.2	9.5	1.7	
District heating	33413	23351	19302	16177	19102	15803	14913	12862	11425	-5.3	-0.1	-2.4	-2.6	
Derived gases, cokeries etc.	127920	86079	71473	65511	59711	55517	47203	43350	38903	-5.7	-1.8	-2.3	-1.9	
Energy Branch Consumption	81962	88206	87583	93941	87738	83842	81093	81475	82571	0.7	0.0	-0.8	0.2	
Non-Energy Uses	96068	105319	109135	111706	115897	119698	120864	123076	124178	1.3	0.6	0.4	0.3	
Final Energy Demand	1070684	1066881	1112192	1166880	1203282	1207922	1196513	1199399	1206680	0.4	0.8	-0.1	0.1	
by sector														
Industry	367505	325769	324835	324493	337955	344956	344232	351110	358435	-1.2	0.4	0.2	0.4	
- energy intensive industries	236724	213853	212264	209326	216723	220061	215071	216791	219136	-1.1	0.2	-0.1	0.2	
- other industrial sectors	130780	111916	112571	115167	121232	124895	129160	134320	139299	-1.5	0.7	0.6	0.8	
Residential	264548	279716	287255	307013	308214	299801	299020	294527	290013	0.8	0.7	-0.3	-0.3	
Tertiary	159192	161639	160963	173669	172968	167823	164699	163682	160976	0.1	0.7	-0.5	-0.2	
Transport	279440	299758	339129	361705	384146	395342	388563	390080	397257	2.0	1.3	0.1	0.2	
by fuel														
Solids	130725	85607	61781	53475	54447	55887	52138	48902	45039	-7.2	-1.3	-0.4	-1.5	
Oil	442561	455056	477166	492540	489334	479684	451041	436306	429490	0.8	0.3	-0.8	-0.5	
Gas	227872	245996	267506	287197	297486	275535	252763	239506	220722	1.6	1.1	-1.6	-1.3	
Electricity	184059	194149	217155	237501	245948	258696	274519	302915	331103	1.7	1.3	1.1	1.9	
Heat (from CHP and District Heating)	48744	45026	40988	41333	39016	38726	40965	40415	40389	-1.7	-0.5	0.5	-0.1	
Renewable energy forms	36724	41048	47586	54833	77022	99337	124997	131229	139799	2.6	4.9	5.0	1.1	
Other	0	0	0	0	29	59	89	127	138			12.0	4.5	
RES in Gross Final Energy Consumption ^(A)			91114	104237	145522	189965	249894	286523	317004	4.8	5.6	2.4		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8		5101.1	5211.4	4990.6	4716.3	4457.8	4227.7	4014.0	-0.9	-0.2	-1.1	-1.0	
CO₂ Emissions (energy related)	4046.9	3819.5	3820.8	3947.0	3761.7	3586.7	3367.5	3214.4	3052.1	-0.6	-0.2	-1.1	-1.0	
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1193.4	1105.3	1065.8	1012.9	945.3	-1.1	-1.0	-1.1	-1.2	
Energy Branch	154.2	172.4	173.1	184.3	163.2	153.1	132.0	122.5	110.5	1.2	-0.6	-2.1	-1.8	
Industry	801.7	684.2	632.4	599.4	611.8	603.4	557.9	531.2	499.8	-2.3	-0.3	-0.9	-1.1	
Residential	507.7	482.4	466.1	483.1	459.0	409.3	371.0	330.6	289.8	-0.9	-0.2	-2.1	-2.4	
Tertiary	304.7	274.8	242.0	254.6	246.4	220.5	198.6	182.2	164.2	-2.3	0.2	-2.1	-1.9	
Transport	810.0	870.4	987.6	1050.6	1087.9	1095.1	1042.3	1035.0	1042.6	2.0	1.0	-0.4	0.0	
CO₂ Emissions (non energy related)	332.1	314.0	307.3	320.4	328.8	334.6	333.2	337.3	338.3	-0.8	0.7	0.1	0.2	
Non-CO₂ GHGs Emissions	1198.8		973.0	944.0	900.1	794.9	757.1	676.1	623.6	-2.1	-0.8	-1.7	-1.9	
TOTAL GHGs Emissions Index (1990=100)	100.0		91.5	93.4	89.5	84.6	79.9	75.8	72.0					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						EU27: Cost Efficiency Scenario with high prices						
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	143.9	126.1	112.2	101.8	95.4	-1.8	-1.7	-2.5	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.31	2.23	2.18	2.10	2.02	1.91	1.83	1.71	-0.9	-0.6	-0.9	-1.1
Import Dependency %	44.4	43.3	46.7	52.4	54.6	56.7	56.4	55.9	54.0				
Total Energy-related Costs ^(B) (in 000 M€05)			977.6	1080.5	1335.2	1588.6	1848.6	2034.4	2207.8		3.2	3.3	1.8
as % of GDP			9.7	9.9	10.7	11.3	11.8	11.8	11.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	132.0	115.0	100.0	94.5	87.3	79.0	70.7	65.7	62.3	-2.7	-1.3	-2.1	-1.3
Residential (Energy on Private Income, index 2000=100)	114.2	112.7	100.0	96.9	86.6	75.1	67.6	60.7	55.4	-1.3	-1.4	-2.4	-2.0
Tertiary (Energy on Value added, index 2000=100)	126.3	117.3	100.0	97.5	85.2	72.8	63.8	57.5	52.1	-2.3	-1.6	-2.8	-2.0
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.7	35.2	32.3	30.5	29.9	0.1	-0.7	-1.3	-0.8
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.1	47.8	45.0	43.2	41.7	0.3	-0.1	-1.1	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.40	0.37	0.36	0.31	0.27	0.25	0.22	0.19	-2.0	-1.9	-2.0	-2.8
Final energy demand (t of CO ₂ /toe)	2.26	2.17	2.09	2.05	2.00	1.93	1.81	1.73	1.65	-0.8	-0.5	-1.0	-0.9
Industry	2.18	2.10	1.95	1.85	1.81	1.75	1.62	1.51	1.39	-1.1	-0.7	-1.1	-1.5
Residential	1.92	1.72	1.62	1.57	1.49	1.37	1.24	1.12	1.00	-1.7	-0.9	-1.8	-2.1
Tertiary	1.91	1.70	1.50	1.47	1.42	1.31	1.21	1.11	1.02	-2.4	-0.5	-1.7	-1.7
Transport	2.90	2.90	2.91	2.90	2.83	2.77	2.68	2.65	2.62	0.0	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.9	8.7	11.7	15.3	20.2	23.1	25.3				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	4.1	6.7	10.0	10.8	11.6				
Gross Electricity generation by source (in GWh)													
			2992030	3275359	3340541	3481203	3695078	4088604	4477319		1.1	1.0	1.9
Nuclear energy	944823	997519	951111	949991	966111	1005606	1230960			0.1	0.2	2.5	
Solids	900381	918139	933189	940844	1006379	1065864	1080589			0.4	0.8	0.7	
Oil (including refinery gas)	176516	150480	37039	30669	27804	19747	21609			-14.5	-2.8	-2.5	
Gas (including derived gases)	535039	721024	773245	734997	610056	653910	616283			3.8	-2.3	0.1	
Biomass-waste	54964	101813	113976	199228	332920	462836	514388			7.6	11.3	4.4	
Hydro (pumping excluded)	353182	306902	342659	340973	344552	349007	352015			-0.3	0.1	0.2	
Wind	22246	70469	176705	266764	372921	479312	580480			23.0	7.8	4.5	
Solar	117	1489	3731	6440	18640	33740	60667			41.4	17.5	12.5	
Geothermal and other renewables	4762	7525	8887	11297	15695	18582	20328			6.4	5.9	2.6	
Net Generation Capacity in MW_e	680864	739517	834697	875482	926348	1037796	1146355			2.1	1.0	2.2	
<u>Nuclear energy</u>	135806	134187	125500	123812	115040	118762	144121			-0.8	-0.9	2.3	
<u>Renewable energy</u>	120596	151902	199958	239084	294813	352694	420739			5.2	4.0	3.6	
Hydro (pumping excluded)	107638	109284	111421	113103	114401	115037	115722			0.3	0.3	0.1	
Wind	12786	40822	84477	118292	161953	207010	254126			20.8	6.7	4.6	
Solar	172	1797	3782	6282	14868	25663	44979			36.2	14.7	11.7	
Other renewables (tidal etc.)	0	0	278	1408	3591	4984	5912				29.1	5.1	
<u>Thermal power</u>	424462	453429	509239	512586	516495	566340	581496			1.8	0.1	1.2	
of which cogeneration units	123462	133684	115955	133514	154531	167657	172621			-0.6	2.9	1.1	
Solids fired	191258	188695	184403	183110	170544	175172	168973			-0.4	-0.8	-0.1	
Gas fired	149738	181031	233165	234793	230588	261514	273605			4.5	-0.1	1.7	
Oil fired	71858	67498	65320	47112	36452	25736	17874			-0.9	-5.7	-6.9	
Biomass-waste fired	10810	15216	25349	46547	77850	102825	119789			8.9	11.9	4.4	
Fuel Cells	0	0	0	0	0	0	0						
Geothermal heat	798	988	1002	1024	1061	1094	1256			2.3	0.6	1.7	
Avg. Load factor of net power capacity (%)	47.4	47.8	43.5	43.4	43.5	42.8	42.3						
Efficiency of gross thermal power generation (%)	37.6	38.6	44.1	46.8	47.7	51.0	52.0						
% of gross electricity from CHP	12.7	12.8	16.5	19.2	20.8	21.6	20.0						
Carbon free gross electricity generation (%)	46.1	45.4	47.8	51.0	55.5	57.5	61.6						
- nuclear	31.6	30.5	28.5	27.3	26.1	24.6	27.5						
- renewable energy forms	14.5	14.9	19.3	23.7	29.4	32.9	34.1						
Transport sector													
Passenger transport activity (Gpkm)	4784.5	5221.8	5819.7	6245.4	6733.0	7189.8	7598.3	8030.1	8402.1	2.0	1.5	1.2	1.0
Public road transport	555.6	498.3	514.0	529.0	548.3	568.6	600.6	625.5	646.4	-0.8	0.6	0.9	0.7
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5059.9	5349.7	5583.7	5835.9	6042.3	2.4	1.5	1.0	0.8
Rail	464.8	412.0	438.5	446.8	475.1	518.4	573.1	637.0	703.2	-0.6	0.8	1.9	2.1
Aviation	247.9	325.9	442.0	506.3	600.7	703.3	789.6	879.0	956.3	6.0	3.1	2.8	1.9
Inland navigation	57.0	55.4	49.4	48.9	49.1	49.7	51.3	52.8	54.0	-1.4	-0.1	0.4	0.5
Freight transport activity (Gtkm)	1878.9	1929.0	2174.9	2463.9	2737.1	2978.7	3179.2	3368.2	3508.6	1.5	2.3	1.5	1.0
Trucks	1096.9	1279.3	1507.5	1790.0	2002.5	2175.2	2309.6	2447.5	2545.7	3.2	2.9	1.4	1.0
Rail	524.8	385.0	396.1	393.9	438.7	488.3	533.0	569.8	599.8	-2.8	1.0	2.0	1.2
Inland navigation	257.2	264.7	271.3	280.1	295.8	315.2	336.6	351.0	363.1	0.5	0.9	1.3	0.8
Energy demand in transport (ktoe)	279440	299758	339129	361705	384146	395342	388563	390080	397257	2.0	1.3	0.1	0.2
Public road transport	5216	4538	4464	4316	4296	4261	4265	4116	4013	-1.5	-0.4	-0.1	-0.6
Private cars and motorcycles	148125	159084	174735	175721	180892	182378	180809	182709	186216	1.7	0.3	0.0	0.3
Trucks	80641	85832	99349	116963	126318	130695	131164	134053	136242	2.1	2.4	0.4	0.4
Rail	9605	9409	9710	9605	9921	10023	9825	9368	8125	0.1	0.2	-0.1	-1.9
Aviation	28947	34014	45368	49744	57145	62221	56536	53810	56623	4.6	2.3	-0.1	0.0
Inland navigation	6905	6881	5503	5356	5574	5764	5963	6024	6038	-2.2	0.1	0.7	0.1

Source: PRIMES

EU27: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	933011	937567	896393	790910	792652	846903	8133	18266	47133	1.0	2.4	5.9
Solids	365918	213693	196451	148865	138870	122960	-7059	-7344	-8992	-4.5	-5.0	-6.8
Oil	128809	171665	132993	76246	52602	40759	-787	-476	-27	-1.0	-0.9	-0.1
Natural gas	162447	207559	188021	122305	101664	80835	-4733	-10866	-1582	-3.7	-9.7	-1.9
Nuclear	202589	243761	257360	244011	246823	285327	80	-2370	5152	0.0	-1.0	1.8
Renewable energy sources	73248	100890	121568	199483	252693	317022	20631	39322	52581	11.5	18.4	19.9
Hydro	25101	30374	26394	29324	29631	30273	988	702	91	3.5	2.4	0.3
Biomass & Waste	44737	64774	82903	129628	161335	198796	7976	17991	20164	6.6	12.6	11.3
Wind	67	1913	6060	22942	32071	49921	4208	3942	11941	22.5	14.0	31.4
Solar and others	153	418	816	10992	22632	30737	6535	15510	19780	146.7	217.8	180.5
Geothermal	3190	3412	5395	6598	7024	7294	924	1178	605	16.3	20.2	9.0
Net Imports	748677	818875	975298	1037680	1024297	993720	-126392	-160144	-193280	-10.9	-13.5	-16.3
Solids	79289	98575	126702	137814	146216	138652	-44247	-47974	-57866	-24.3	-24.7	-29.4
Oil	530805	525661	589611	602248	592591	576282	-37356	-58699	-67987	-5.8	-9.0	-10.6
- Crude oil and Feedstocks	503539	507317	574313	616478	623474	623818	-24428	-37353	-43326	-3.8	-5.7	-6.5
- Oil products	27265	18344	15298	-14230	-30883	-47537	-12928	-21346	-24661	992.9	223.8	107.8
Natural gas	135121	192531	256828	287451	260855	244490	-48667	-69164	-89905	-14.5	-21.0	-26.9
Electricity	3321	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	1649991	1711954	1811406	1773408	1760650	1782254	-118265	-141895	-146172	-6.3	-7.5	-7.6
Solids	450105	321390	320065	286679	285087	261612	-51305	-55319	-66858	-15.2	-16.3	-20.4
Oil	625464	650399	665514	623313	588894	588671	-38149	-59192	-68038	-5.8	-9.1	-10.9
Natural gas	294905	393417	444804	409756	362519	325325	-53400	-80030	-91487	-11.5	-18.1	-21.9
Nuclear	202589	243761	257360	244011	246823	285327	80	-2370	5152	0.0	-1.0	1.8
Electricity	3323	1687	973	1466	1040	923	0	0	0	0.0	0.0	0.0
Renewable energy forms	73604	101302	122689	208183	276286	350395	24509	55016	75059	13.3	24.9	27.3
as % in Gross Inland Consumption												
Solids	27.3	18.8	17.7	16.2	16.2	14.7	-1.7	-1.7	-2.4			
Oil	37.9	38.0	36.7	35.1	33.4	31.3	0.2	-0.6	-1.2			
Natural gas	17.9	23.0	24.6	23.1	20.6	18.3	-1.4	-2.7	-3.4			
Nuclear	12.3	14.2	14.2	13.8	14.0	16.0	0.9	0.9	1.5			
Renewable energy forms	4.5	5.9	6.8	11.7	15.7	19.7	2.0	4.1	5.4			
Gross Electricity Generation in GWh_e	2562817	2992030	3275359	3481203	3695078	4477319	-349024	-370022	80623	-9.1	-9.1	1.8
Self consumption and grid losses	335093	383382	407678	390637	420073	540370	-44786	-48656	11701	-10.3	-10.4	2.2
Fuel Inputs to Thermal Power Generation	379588	382767	423183	351531	358413	370737	-79660	-70569	-31393	-18.5	-16.5	-7.8
Solids	259913	223114	229144	200710	205697	192518	-51361	-51366	-60405	-20.4	-20.0	-23.9
Oil (including refinery gas)	54361	39172	29499	4568	3708	2358	-7133	-6216	3	-61.0	-62.6	-0.1
Gas (including derived gases)	56680	102572	133257	103831	81739	74854	-27804	-38447	-10603	-21.1	-32.0	-12.4
Biomass & Waste	5861	14969	26638	37116	61839	95107	6217	25063	39611	20.1	68.1	71.4
Geothermal heat	2774	2939	4645	5305	5430	5900	421	398	0	8.6	7.9	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	835145	818851	834206	823551	809308	790756	-26025	-44206	-55700	-3.1	-5.2	-6.6
Refineries	673810	727451	749312	725760	708046	694159	-25259	-37917	-43395	-3.4	-5.1	-5.9
Biofuels and hydrogen production	2	624	3206	26472	39147	46269	-2043	-4675	-7187	-7.2	-10.7	-13.4
District heating	33413	19302	16177	15803	14913	11425	-1664	-1877	-4484	-9.5	-11.2	-28.2
Derived gases, cokeries etc.	127920	71473	65511	55517	47203	38903	2941	263	-634	5.6	0.6	-1.6
Energy Branch Consumption	81962	87583	93941	83842	81093	82571	-4514	-6304	-5077	-5.1	-7.2	-5.8
Non-Energy Uses	96068	109135	111706	119698	120864	124178	-157	-283	-159	-0.1	-0.2	-0.1
Final Energy Demand	1070684	1112182	1166880	1207922	1196513	1206680	-68571	-96853	-122892	-5.4	-7.5	-9.2
by sector												
Industry	367505	324835	324493	344956	344232	358435	-5305	-12886	-11915	-1.5	-3.6	-3.2
- energy intensive industries	236724	212264	209326	220061	215071	219136	-838	-6954	-5074	-0.4	-3.1	-2.3
- other industrial sectors	130780	112571	115167	124895	129160	139299	-4467	-5932	-6841	-3.5	-4.4	-4.7
Residential	264548	287255	307013	299801	299020	290013	-21424	-20610	-34932	-6.7	-6.4	-10.8
Tertiary	159192	160963	173669	167823	164699	160976	-23439	-28811	-37393	-12.3	-14.9	-18.9
Transport	279440	339129	361705	395342	388563	397257	-18404	-34546	-38652	-4.4	-8.2	-8.9
by fuel												
Solids	130725	61781	53475	55887	52138	45039	-72	-3685	-5083	-0.1	-6.6	-10.1
Oil	442561	477166	492540	479684	451041	429490	-26975	-48060	-61951	-5.3	-9.6	-12.6
Gas	227872	267506	287197	275535	252763	220722	-23431	-34564	-72615	-7.8	-12.0	-24.8
Electricity	184059	217155	237501	258696	274519	331103	-25982	-27263	6371	-9.1	-9.0	2.0
Heat (from CHP and District Heating)	48744	40988	41333	38726	40965	40389	-3758	-3110	-6070	-8.8	-7.1	-13.1
Renewable energy forms	36724	47586	54833	99337	124997	139799	11645	19831	16466	13.3	18.9	13.4
Other	0	0	0	59	89	138	2	-2	-10	4.3	-2.6	-6.6
RES in Gross Final Energy Consumption ^(A)		91114	104237	189965	249894	317004	25879	50299	67525	15.8	25.2	27.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5577.8	5101.1	5211.4	4716.3	4457.8	4014.0	-537.1	-721.6	-854.9	-10.2	-13.9	-17.6
CO₂ Emissions (energy related)	4046.9	3820.8	3947.0	3586.7	3367.5	3052.1	-443.8	-586.6	-726.3	-11.0	-14.8	-19.2
Power generation/District heating	1468.7	1319.6	1374.9	1105.3	1065.8	945.3	-296.2	-322.3	-319.2	-21.1	-23.2	-25.2
Energy Branch	154.2	173.1	184.3	153.1	132.0	110.5	-12.6	-24.1	-30.1	-7.6	-15.4	-21.4
Industry	801.7	632.4	599.4	603.4	557.9	499.8	-0.5	-31.0	-56.9	-0.1	-5.3	-10.2
Residential	507.7	466.1	483.1	409.3	371.0	289.8	-53.1	-69.8	-142.5	-11.5	-15.8	-33.0
Tertiary	304.7	242.0	254.6	220.5	198.6	164.2	-30.4	-44.0	-69.1	-12.1	-18.1	-29.6
Transport	810.0	987.6	1050.6	1095.1	1042.3	1042.6	-50.9	-95.3	-108.6	-4.4	-8.4	-9.4
CO₂ Emissions (non energy related)	332.1	307.3	320.4	334.6	333.2	338.3	0.5	-6.1	-11.2	0.2	-1.8	-3.2
Non-CO₂ GHGs Emissions	1198.8	973.0	944.0	794.9	757.1	623.6	-93.9	-128.8	-117.4	-10.6	-14.5	-15.8
TOTAL GHGs Emissions Index (1990=100)	100.0	91.5	93.4	84.6	79.9	72.0	-9.6	-12.9	-15.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							EU27: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	470.388	480.506	489.091	495.353	496.408	494.784	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8108.7	10046.1	10949.3	14059.2	15686.9	18687.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	203.5	170.4	165.4	126.1	112.2	95.4	-8.4	-9.0	-7.8	-6.3	-7.5	-7.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.45	2.23	2.18	2.02	1.91	1.71	-0.11	-0.17	-0.25	-5.1	-8.0	-12.6
Import Dependency %	44.4	46.7	52.4	56.7	56.4	54.0	-3.0	-4.1	-5.8			
Total Energy-related Costs ^(B) (in 000 M€05)		977.6	1080.5	1588.6	1848.6	2207.8	43.0	57.3	101.5	2.8	3.2	4.8
as % of GDP		9.7	9.9	11.3	11.8	11.8	0.3	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				44.4	59.8	104.2						
as % of GDP				0.32	0.38	0.56						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.0	100.0	94.5	79.0	70.7	62.3	-1.2	-2.6	-2.1	-1.5	-3.6	-3.2
Residential (Energy on Private Income, index 2000=100)	114.2	100.0	96.9	75.1	67.6	55.4	-5.4	-4.7	-6.7	-6.7	-6.4	-10.8
Tertiary (Energy on Value added, index 2000=100)	126.3	100.0	97.5	72.8	63.8	52.1	-10.2	-11.2	-12.1	-12.3	-14.9	-18.9
Passenger transport (toe/Mpkm)	39.1	39.4	37.5	35.2	32.3	29.9	-0.8	-2.0	-1.5	-2.3	-5.8	-4.8
Freight transport (toe/Mtkm)	49.2	50.5	51.7	47.8	45.0	41.7	-2.3	-3.8	-5.1	-4.5	-7.8	-11.0
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.37	0.36	0.27	0.25	0.19	-0.04	-0.05	-0.06	-13.4	-15.8	-25.3
Final energy demand (t of CO ₂ /toe)	2.26	2.09	2.05	1.93	1.81	1.65	0.00	-0.05	-0.13	-0.1	-2.7	-7.3
Industry	2.18	1.95	1.85	1.75	1.62	1.39	0.02	-0.03	-0.11	1.4	-1.7	-7.2
Residential	1.92	1.62	1.57	1.37	1.24	1.00	-0.07	-0.14	-0.33	-5.2	-10.0	-24.9
Tertiary	1.91	1.50	1.47	1.31	1.21	1.02	0.00	-0.05	-0.16	0.1	-3.8	-13.3
Transport	2.90	2.91	2.90	2.77	2.68	2.62	0.00	-0.01	-0.02	0.0	-0.2	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.9	8.7	15.3	20.2	25.3	2.8	5.3	7.2			
Biofuels share in transport gasoline and diesel (%)		0.2	1.1	6.7	10.0	11.6	-0.2	-0.4	-0.5			
Gross Electricity generation by source (in GWh_e)												
	2992030	3275359	3481203	3695078	4477319	4477319	-349024	-370022	80623	-9.1	-9.1	1.8
Nuclear energy	944823	997519	949991	966111	1230960	1230960	345	-10494	24510	0.0	-1.1	2.0
Solids	900381	918139	940844	1006379	1080589	1080589	-239633	-284073	-298703	-20.3	-22.0	-21.7
Oil (including refinery gas)	176516	150480	30669	27804	21609	21609	-42188	-35739	-2161	-57.9	-56.2	-9.1
Gas (including derived gases)	535039	721024	734997	610056	616283	616283	-164740	-237374	-45782	-18.3	-28.0	-6.9
Biomass-waste	54964	101813	199228	332920	514388	514388	33865	132853	228915	20.5	66.4	80.2
Hydro (pumping excluded)	353182	306902	340973	344552	352015	352015	11487	8160	1056	3.5	2.4	0.3
Wind	22246	70469	266764	372921	580480	580480	48934	45832	138844	22.5	14.0	31.4
Solar	117	1489	6440	18640	60667	60667	13	6484	28974	0.2	53.3	91.4
Geothermal and other renewables	4762	7525	11297	15695	20328	20328	2893	4330	4969	34.4	38.1	32.4
Net Generation Capacity in MW_e												
	680864	739517	875482	926348	1146355	1146355	-6795	-19483	88868	-0.8	-2.1	8.4
<u>Nuclear energy</u>	135806	134187	123812	115040	144121	144121	40	-909	3447	0.0	-0.8	2.5
<u>Renewable energy</u>	120596	151902	239084	294813	420739	420739	20427	22712	84151	9.3	8.3	25.0
Hydro (pumping excluded)	107638	109284	113103	114401	115722	115722	58	98	90	0.1	0.1	0.1
Wind	12786	40822	118292	161953	254126	254126	19271	16494	61690	19.5	11.3	32.1
Solar	172	1797	6282	14868	44979	44979	8	4183	19792	0.1	39.2	78.6
Other renewables (tidal etc.)	0	0	1408	3591	5912	5912	1091	1935	2578	34.0	116.9	77.3
<u>Thermal power</u>	424462	453429	512586	516495	581496	581496	-27262	-41285	1271	-5.0	-7.4	0.2
of which cogeneration units	123462	133684	133514	154531	172621	172621	-11851	-5180	-1737	-8.2	-3.2	-1.0
Solids fired	191258	188695	183110	170544	168973	168973	-14240	-32488	-37207	-7.2	-16.0	-18.0
Gas fired	149738	181031	234793	230588	273605	273605	-26104	-42477	-9867	-10.0	-15.6	-3.5
Oil fired	71858	67498	47112	36452	17874	17874	-2629	-1586	-6360	-5.3	-4.2	-26.2
Biomass-waste fired	10810	15216	46547	77850	119789	119789	15687	35235	54714	50.8	82.7	84.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	798	988	1024	1061	1256	1256	23	31	-10	2.3	3.0	-0.8
Avg. Load factor of net power capacity (%)	47.4	47.8	43.4	43.5	42.3	42.3	-3.9	-3.3	-2.7			
Efficiency of gross thermal power generation (%)	37.6	38.6	46.8	47.7	52.0	52.0	0.4	-0.7	1.5			
% of gross electricity from CHP	12.7	12.8	19.2	20.8	20.0	20.0	0.2	1.1	0.9			
Carbon free gross electricity generation (%)	46.1	45.4	51.0	55.5	61.6	61.6	7.2	9.7	8.6			
- nuclear	31.6	30.5	27.3	26.1	27.5	27.5	2.5	2.1	0.1			
- renewable energy forms	14.5	14.9	23.7	29.4	34.1	34.1	4.7	7.5	8.5			
Transport sector												
Passenger transport activity (Gpkm)												
	4784.5	5819.7	6245.4	7189.8	7598.3	8402.1	-83.2	-112.2	-129.1	-1.1	-1.5	-1.5
Public road transport	555.6	514.0	529.0	568.6	600.6	646.4	10.6	13.9	16.1	1.9	2.4	2.5
Private cars and motorcycles	3459.2	4375.8	4714.4	5349.7	5583.7	6042.3	-83.2	-107.7	-130.8	-1.5	-1.9	-2.1
Rail	464.8	438.5	446.8	518.4	573.1	703.2	8.7	11.1	21.9	1.7	2.0	3.2
Aviation	247.9	442.0	506.3	703.3	789.6	956.3	-18.9	-28.9	-35.6	-2.6	-3.5	-3.6
Inland navigation	57.0	49.4	48.9	49.7	51.3	54.0	-0.4	-0.5	-0.7	-0.8	-1.0	-1.2
Freight transport activity (Gtkm)												
	1878.9	2174.9	2463.9	2978.7	3179.2	3508.6	-52.3	-70.5	-82.9	-1.7	-2.2	-2.3
Trucks	1096.9	1507.5	1790.0	2175.2	2309.6	2545.7	-71.7	-95.6	-114.7	-3.2	-4.0	-4.3
Rail	524.8	396.1	393.9	488.3	533.0	599.8	17.2	22.3	28.8	3.7	4.4	5.0
Inland navigation	257.2	271.3	280.1	315.2	336.6	363.1	2.2	2.9	3.1	0.7	0.9	0.9
Energy demand in transport (ktoe)												
	279440	339129	361705	395342	388563	397257	-18404	-34546	-38652	-4.4	-8.2	-8.9
Public road transport	5216	4464	4316	4261	4265	4013	-27	-129	-251	-0.6	-2.9	-5.9
Private cars and motorcycles	148125	174735	175721	182378	180809	186216	-5986	-8465	-10459	-3.2	-4.5	-5.3
Trucks	80641	99349	116963	130695	131164	136242	-9566	-15802	-22268	-6.8	-10.8	-14.0
Rail	9605	9710	9605	10023	9825	8125	82	101	312	0.8	1.0	4.0
Aviation	28947	45368	49744	62221	56536	56623	-2876	-10181	-5839	-4.4	-15.3	-9.3
Inland navigation	6905	5503	5356	5764	5963	6038	-31	-71	-147	-0.5	-1.2	-2.4

Source: PRIMES

Austria: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	8154	8638	9551	9780	10917	12159	12995	13415	13785	1.6	1.3	1.8	0.6
Solids	644	305	293	0	18	18	18	18	18	-7.6	-24.4	0.1	0.0
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8
Natural gas	1097	1261	1533	1403	1395	1179	400	369	371	3.4	-0.9	-11.7	-0.8
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	5168	6001	6654	7422	8654	10342	12297	12797	13206	2.6	2.7	3.6	0.7
Hydro	2709	3187	3598	3085	3274	3145	3297	3297	3297	2.9	-0.9	0.1	0.0
Biomass & Waste	2440	2775	2973	4097	4882	6253	7806	8250	8593	2.0	5.1	4.8	1.0
Wind	0	0	6	114	267	398	427	461	490		46.8	4.8	1.4
Solar and others	15	36	64	92	222	533	752	774	812	15.7	13.3	13.0	0.8
Geothermal	4	3	14	35	8	13	15	14	14	14.2	-5.3	6.5	-0.7
Net Imports	17086	17769	18853	24392	23180	21727	20492	20461	20049	1.0	2.1	-1.2	-0.2
Solids	3112	2543	3064	3958	3977	4170	3975	4934	5376	-0.2	2.6	0.0	3.1
Oil	9521	10012	10703	13028	12214	11766	11225	10704	9837	1.2	1.3	-0.8	-1.3
- Crude oil and Feedstocks	7878	8068	7704	7964	7925	7924	7954	7797	7496	-0.2	0.3	0.0	-0.6
- Oil products	1643	1944	3000	5064	4289	3842	3271	2907	2340	6.2	3.6	-2.7	-3.3
Natural gas	4443	5404	5253	7288	6819	5764	5375	4963	4984	1.7	2.6	-2.4	-0.8
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Gross Inland Consumption	24986	26722	28524	33980	34096	33887	33487	33876	33834	1.3	1.8	-0.2	0.1
Solids	4042	3336	3637	4050	3995	4188	3993	4952	5394	-1.1	0.9	0.0	3.1
Oil	10596	11196	11882	14125	13064	12386	11505	10934	10027	1.2	1.0	-1.3	-1.4
Natural gas	5184	6374	6519	8263	8214	6943	5775	5332	5355	2.3	2.3	-3.5	-0.8
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Renewable energy forms	5204	6027	6605	7312	8522	10173	12087	12574	12974	2.4	2.6	3.6	0.7
as % in Gross Inland Consumption													
Solids	16.2	12.5	12.7	11.9	11.7	12.4	11.9	14.6	15.9				
Oil	42.4	41.9	41.7	41.6	38.3	36.6	34.4	32.3	29.6				
Natural gas	20.7	23.9	22.9	24.3	24.1	20.5	17.2	15.7	15.8				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	20.8	22.6	23.2	21.5	25.0	30.0	36.1	37.1	38.3				
Gross Electricity Generation in GWh_e	49287	55169	60150	62969	62856	67898	74035	84819	92640	2.0	0.4	1.7	2.3
Self consumption and grid losses	4886	4995	5404	7536	6392	6752	7540	9348	10665	1.0	1.7	1.7	3.5
Fuel Inputs to Thermal Power Generation	4011	4275	3925	5469	3486	4423	5048	6336	7349	-0.2	-1.2	3.8	3.8
Solids	1510	1055	1236	1510	1328	1653	1750	2782	3159	-2.0	0.7	2.8	6.1
Oil (including refinery gas)	488	489	287	270	0	0	0	0	0	-5.2			
Gas (including derived gases)	1776	2276	1974	2901	1664	935	348	348	604	1.1	-1.7	-14.5	5.7
Biomass & Waste	237	455	428	786	492	1828	2942	3196	3576	6.1	1.4	19.6	2.0
Geothermal heat	0	0	0	2	3	7	8	9	10			11.9	2.4
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11443	11404	11250	11743	12388	11471	10909	10703	10441	-0.2	1.0	-1.3	-0.4
Refineries	9123	9170	8765	9080	8776	8545	8235	8027	7686	-0.4	0.0	-0.6	-0.7
Biofuels and hydrogen production	2	5	9	42	337	547	858	979	1118	17.5	44.1	9.8	2.7
District heating	347	438	566	612	1168	417	109	69	28	5.0	7.5	-21.1	-12.6
Derived gases, cokeries etc.	1971	1790	1910	2009	2107	1962	1707	1627	1609	-0.3	1.0	-2.1	-0.6
Energy Branch Consumption	1639	1703	1750	2134	1895	1757	1621	1600	1549	0.7	0.8	-1.5	-0.5
Non-Energy Uses	1401	1145	1386	1381	1410	1445	1468	1491	1510	-0.1	0.2	0.4	0.3
Final Energy Demand	19057	20919	22913	27309	28644	28583	28241	28106	27578	1.9	2.3	-0.1	-0.2
by sector													
Industry	6153	6474	7528	8825	9330	9363	9085	9089	9104	2.0	2.2	-0.3	0.0
- energy intensive industries	4048	4038	4982	5533	5766	5706	5367	5300	5227	2.1	1.5	-0.7	-0.3
- other industrial sectors	2105	2436	2546	3293	3564	3718	3718	3790	3877	1.9	3.4	0.4	0.4
Residential	5755	6222	6042	6548	6732	6737	6823	6729	6600	0.5	1.1	0.1	-0.3
Tertiary	2544	3062	3304	3942	4125	4022	3981	3904	3780	2.6	2.2	-0.4	-0.5
Transport	4603	5161	6038	7994	8457	8461	8352	8384	8094	2.7	3.4	-0.1	-0.3
by fuel													
Solids	1718	1535	1415	1458	1457	1392	1195	1117	1047	-1.9	0.3	-2.0	-1.3
Oil	7896	8728	9402	11774	11417	10866	10113	9679	9034	1.8	2.0	-1.2	-1.1
Gas	2968	3607	4254	4936	5441	5234	4801	4553	4290	3.7	2.5	-1.2	-1.1
Electricity	3669	3953	4474	4884	5045	5346	5743	6473	7036	2.0	1.2	1.3	2.1
Heat (from CHP and District Heating)	614	848	1052	1260	1322	1172	1163	1100	1022	5.5	2.3	-1.3	-1.3
Renewable energy forms	2192	2248	2316	2996	3961	4572	5224	5182	5146	0.6	5.5	2.8	-0.2
Other	0	0	0	0	1	1	2	3	3			14.2	1.5
RES in Gross Final Energy Consumption ^(A)			6285	6788	8179	9776	11505	11898	12217	2.7	3.5	0.6	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4		84.6	97.9	93.8	87.5	80.6	80.4	78.5	0.5	1.0	-1.5	-0.3
CO₂ Emissions (energy related)	55.2	58.0	61.0	73.7	69.8	65.5	59.4	60.3	59.2	1.0	1.4	-1.6	0.0
Power generation/District heating	12.8	12.1	11.6	15.0	11.5	10.1	8.6	12.6	14.5	-1.0	0.0	-2.8	5.4
Energy Branch	3.8	4.0	4.2	4.6	4.1	3.8	3.4	2.7	2.5	1.0	-0.2	-2.0	-3.1
Industry	12.7	13.6	15.5	17.5	17.9	17.7	16.1	15.6	15.2	2.0	1.4	-1.0	-0.5
Residential	9.8	9.7	8.8	9.0	8.2	7.0	6.3	5.4	4.8	-1.1	-0.8	-2.6	-2.8
Tertiary	3.4	4.0	3.7	4.5	4.5	3.8	2.9	2.2	1.7	0.8	1.9	-4.1	-5.4
Transport	12.7	14.6	17.2	23.1	23.7	23.2	22.1	21.8	20.5	3.1	3.3	-0.7	-0.7
CO ₂ Emissions (non energy related)	8.1	7.8	8.3	9.4	9.6	9.4	8.8	8.7	8.5	0.2	1.5	-0.9	-0.4
Non-CO₂ GHGs Emissions	17.1		15.4	14.8	14.3	12.6	12.5	11.4	10.8	-1.1	-0.7	-1.4	-1.4
TOTAL GHGs Emissions Index (1990=100)	100.0		105.3	121.8	116.6	108.9	100.3	100.1	97.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Austria: Cost Efficiency Scenario with high prices			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	123.0	110.7	99.9	93.3	87.5	-1.2	-0.2	-2.1	-1.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.17	2.14	2.17	2.05	1.93	1.77	1.78	1.75	-0.3	-0.4	-1.4	-0.1
Import Dependency %	68.4	66.5	66.1	71.8	68.0	64.1	61.2	60.4	59.3				
Total Energy-related Costs ^(B) (in 000 M€05)			19.1	23.2	28.3	33.6	38.9	42.6	45.4		4.0	3.2	1.5
as % of GDP			8.4	9.5	10.2	11.0	11.6	11.7	11.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.4	106.5	100.0	108.2	99.7	90.0	79.5	73.3	68.8	-0.6	0.0	-2.2	-1.4
Residential (Energy on Private Income, index 2000=100)	117.7	114.7	100.0	102.2	93.3	84.9	78.8	72.0	66.5	-1.6	-0.7	-1.7	-1.7
Tertiary (Energy on Value added, index 2000=100)	98.7	105.3	100.0	111.0	102.4	90.2	81.3	73.4	66.7	0.1	0.2	-2.3	-2.0
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	38.9	37.3	35.5	34.2	31.0	0.1	2.3	-0.9	-1.3
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	57.9	54.4	50.9	48.5	46.9	-0.8	2.4	-1.3	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.18	0.16	0.19	0.14	0.12	0.10	0.13	0.14	-3.4	-0.9	-3.8	3.6
Final energy demand (t of CO ₂ /toe)	2.03	2.00	1.97	1.98	1.89	1.81	1.68	1.60	1.53	-0.3	-0.4	-1.2	-0.9
Industry	2.06	2.10	2.06	1.98	1.91	1.89	1.77	1.72	1.67	0.0	-0.7	-0.8	-0.6
Residential	1.71	1.55	1.46	1.37	1.21	1.04	0.92	0.81	0.72	-1.6	-1.8	-2.7	-2.4
Tertiary	1.34	1.32	1.12	1.15	1.08	0.94	0.74	0.57	0.44	-1.8	-0.4	-3.7	-4.9
Transport	2.75	2.82	2.85	2.89	2.81	2.74	2.64	2.60	2.53	0.3	-0.1	-0.6	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			26.8	24.2	27.9	33.4	39.7	41.1	42.8				
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.7	6.0	9.7	11.1	13.0				
Gross Electricity generation by source (in GWh)													
			60150	62969	62856	67898	74035	84819	92640		0.4	1.7	2.3
Nuclear energy			0	0	0	0	0	0	0				
Solids			4642	5863	6114	7642	8231	15997	19330		2.8	3.0	8.9
Oil (including refinery gas)			1220	1452	953	951	59	59	60		-2.4	-24.3	0.1
Gas (including derived gases)			10541	14513	10451	7399	6094	6293	8554		-0.1	-5.3	3.4
Biomass-waste			1845	3929	4113	10618	16174	18511	20300		8.3	14.7	2.3
Hydro (pumping excluded)			41832	35868	38074	36564	38342	38342	38342		-0.9	0.1	0.0
Wind			67	1328	3109	4632	4969	5363	5701		46.8	4.8	1.4
Solar			3	14	36	83	156	242	340		28.3	15.6	8.1
Geothermal and other renewables			0	3	4	9	10	12	13			9.6	2.1
Net Generation Capacity in MW_e			16771	17685	20133	22362	23415	24702	26114		1.8	1.5	1.1
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			10792	11287	12000	13483	14350	15062	16108		1.1	1.8	1.2
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3
Wind			77	817	1350	2175	2399	2785	3534		33.2	5.9	4.0
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5978	6397	8133	8879	9064	9640	10006		3.1	1.1	1.0
of which cogeneration units			3067	3657	3541	4049	5351	5500	5391		1.4	4.2	0.1
Solids fired			1600	1587	1460	1460	1471	1889	2262		-0.9	0.1	4.4
Gas fired			2916	3267	4707	4510	4299	4262	4097		4.9	-0.9	-0.5
Oil fired			1167	1158	1158	911	274	97	25		-0.1	-13.4	-21.4
Biomass-waste fired			295	384	806	1995	3018	3390	3621		10.6	14.1	1.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	1	1	2	2	3	3			7.1	1.8
Avg. Load factor of net power capacity (%)			39.8	38.3	34.0	33.2	34.6	37.4	38.6				
Efficiency of gross thermal power generation (%)			40.0	40.5	53.4	51.8	52.1	55.5	56.5				
% of gross electricity from CHP			12.3	20.6	25.2	29.7	32.3	30.8	30.7				
Carbon free gross electricity generation (%)			72.7	65.3	72.1	76.4	80.6	73.7	69.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			72.7	65.3	72.1	76.4	80.6	73.7	69.8				
Transport sector													
Passenger transport activity (Gpkm)	95.0	106.8	114.6	120.6	130.2	136.2	141.5	147.2	151.3	1.9	1.3	0.8	0.7
Public road transport	14.2	14.8	14.8	15.1	16.0	16.5	17.4	17.9	18.3	0.4	0.7	0.8	0.5
Private cars and motorcycles	65.2	73.8	81.3	85.8	92.0	94.6	96.4	98.6	99.8	2.2	1.2	0.5	0.3
Rail	11.5	12.7	11.8	12.3	13.4	14.6	15.8	16.8	17.6	0.3	1.3	1.6	1.1
Aviation	4.1	5.4	6.6	7.3	8.8	10.4	11.9	13.8	15.6	5.0	2.9	3.1	2.7
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.5	0.7	0.8
Freight transport activity (Gtkm)	34.1	41.7	54.2	55.9	58.5	62.0	65.4	69.2	72.4	4.7	0.8	1.1	1.0
Trucks	20.3	26.5	35.1	37.0	38.3	39.8	41.1	43.2	44.9	5.6	0.9	0.7	0.9
Rail	12.2	13.2	16.6	17.1	18.5	20.4	22.2	23.8	25.3	3.2	1.1	1.8	1.3
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.3	3.9	-3.1	1.6	0.8
Energy demand in transport (ktoe)	4603	5161	6038	7994	8457	8461	8352	8384	8094	2.7	3.4	-0.1	-0.3
Public road transport	80	83	80	107	111	109	104	95	91	-0.1	3.4	-0.6	-1.3
Private cars and motorcycles	2499	2643	2865	3890	4129	4050	3941	3881	3733	1.4	3.7	-0.5	-0.5
Trucks	1350	1675	2167	3004	3087	3061	3016	3054	3116	4.8	3.6	-0.2	0.3
Rail	357	292	333	310	322	332	329	318	294	-0.7	-0.3	0.2	-1.1
Aviation	310	461	586	675	799	900	952	1024	847	6.6	3.1	1.8	-1.2
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.2	0.6

Source: PRIMES

Austria: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	8154	9551	9780	12159	12995	13785	1360	2327	2111	12.6	21.8	18.1
Solids	644	293	0	18	18	18	0	0	0	0.0	0.0	0.0
Oil	1245	1071	954	620	280	190	0	0	0	0.0	0.0	0.0
Natural gas	1097	1533	1403	1179	400	371	-91	0	-6	-7.2	0.0	-1.6
Nuclear	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	5168	6654	7422	10342	12297	13206	1451	2327	2117	16.3	23.3	19.1
Hydro	2709	3598	3085	3145	3297	3297	147	0	0	4.9	0.0	0.0
Biomass & Waste	2440	2973	4097	6253	7806	8593	978	1863	1598	18.5	31.4	22.8
Wind	0	6	114	398	427	490	23	2	55	6.0	0.5	12.7
Solar and others	15	64	92	533	752	812	301	459	467	129.3	157.0	135.5
Geothermal	4	14	35	13	15	14	3	2	-3	27.4	18.4	-16.0
Net Imports	17086	18853	24392	21727	20492	20049	-3628	-4774	-4643	-14.3	-18.9	-18.8
Solids	3112	3064	3958	4170	3975	5376	-104	-702	-78	-2.4	-15.0	-1.4
Oil	9521	10703	13028	11766	11225	9837	-1452	-1576	-2137	-11.0	-12.3	-17.8
- Crude oil and Feedstocks	7878	7704	7964	7924	7954	7496	-488	-547	-781	-5.8	-6.4	-9.4
- Oil products	1643	3000	5064	3842	3271	2340	-964	-1029	-1356	-20.1	-23.9	-36.7
Natural gas	4443	5253	7288	5764	5375	4984	-2046	-2445	-2384	-26.2	-31.3	-32.4
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	24986	28524	33980	33887	33487	33834	-2268	-2447	-2531	-6.3	-6.8	-7.0
Solids	4042	3637	4050	4188	3993	5394	-104	-702	-78	-2.4	-15.0	-1.4
Oil	10596	11882	14125	12386	11505	10027	-1452	-1576	-2137	-10.5	-12.1	-17.6
Natural gas	5184	6519	8263	6943	5775	5355	-2137	-2445	-2390	-23.5	-29.7	-30.9
Nuclear	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Electricity	-40	-118	229	196	128	84	0	0	0	0.0	0.0	0.0
Renewable energy forms	5204	6605	7312	10173	12087	12974	1424	2277	2074	16.3	23.2	19.0
as % in Gross Inland Consumption												
Solids	16.2	12.7	11.9	12.4	11.9	15.9	0.5	-1.1	0.9			
Oil	42.4	41.7	41.6	36.6	34.4	29.6	-1.7	-2.0	-3.8			
Natural gas	20.7	22.9	24.3	20.5	17.2	15.8	-4.6	-5.6	-5.5			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	20.8	23.2	21.5	30.0	36.1	38.3	5.8	8.8	8.4			
Gross Electricity Generation in GWh_e	49287	60150	62969	67898	74035	92640	-4444	-3835	6692	-6.1	-4.9	7.8
Self consumption and grid losses	4886	5404	7536	6752	7540	10665	-123	-48	1449	-1.8	-0.6	15.7
Fuel Inputs to Thermal Power Generation	4011	3925	5469	4423	5048	7349	-1017	-430	1021	-18.7	-7.9	16.1
Solids	1510	1236	1510	1653	1750	3159	15	-425	123	0.9	-19.5	4.1
Oil (including refinery gas)	488	287	270	0	0	0	-363	-246	-177	-99.9	-100.0	-100.0
Gas (including derived gases)	1776	1974	2901	935	348	604	-1981	-1539	-813	-67.9	-81.6	-57.4
Biomass & Waste	237	428	786	1828	2942	3576	1309	1777	1889	252.0	152.6	112.0
Geothermal heat	0	0	2	7	8	10	3	2	0	65.6	29.1	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11443	11250	11743	11471	10909	10441	-760	-867	-1071	-6.2	-7.4	-9.3
Refineries	9123	8765	9080	8545	8235	7686	-488	-547	-781	-5.4	-6.2	-9.2
Biofuels and hydrogen production	2	9	42	547	858	1118	-46	-108	-167	-7.7	-11.1	-13.0
District heating	347	566	612	417	109	28	-251	-131	-114	-37.6	-54.4	-80.1
Derived gases, cokeries etc.	1971	1910	2009	1962	1707	1609	25	-81	-8	1.3	-4.6	-0.5
Energy Branch Consumption	1639	1750	2134	1757	1621	1549	-126	-179	-162	-6.7	-9.9	-9.4
Non-Energy Uses	1401	1386	1381	1445	1468	1510	-1	-2	-3	0.0	-0.2	-0.2
Final Energy Demand	19057	22913	27309	25533	28241	27578	-1625	-2123	-3086	-5.4	-7.0	-10.1
by sector												
Industry	6153	7528	8825	9363	9085	9104	-155	-433	-325	-1.6	-4.5	-3.4
- energy intensive industries	4048	4982	5533	5706	5367	5227	-46	-290	-158	-0.8	-5.1	-2.9
- other industrial sectors	2105	2546	3293	3657	3718	3877	-109	-143	-166	-2.9	-3.7	-4.1
Residential	5755	6042	6548	6737	6823	6600	-401	-296	-750	-5.6	-4.2	-10.2
Tertiary	2544	3304	3942	4022	3981	3780	-610	-696	-1004	-13.2	-14.9	-21.0
Transport	4603	6038	7994	8461	8352	8094	-460	-698	-1007	-5.2	-7.7	-11.1
by fuel												
Solids	1718	1415	1458	1392	1195	1047	-47	-159	-102	-3.3	-11.8	-8.9
Oil	7896	9402	11774	10866	10113	9034	-909	-1195	-1792	-7.7	-10.6	-16.6
Gas	2968	4254	4936	5234	4801	4290	-348	-862	-1296	-6.2	-15.2	-23.2
Electricity	3669	4474	4884	5346	5743	7036	-366	-317	463	-6.4	-5.2	7.0
Heat (from CHP and District Heating)	614	1052	1260	1172	1163	1022	-254	-158	-322	-17.8	-12.0	-23.9
Renewable energy forms	2192	2316	2996	4572	5224	5146	299	568	-37	7.0	12.2	-0.7
Other	0	0	0	1	2	3	0	1	0	3.0	31.4	-8.1
RES in Gross Final Energy Consumption ^(A)		6285	6788	9776	11505	12217	1491	2071	1810	18.0	21.9	17.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	80.4	84.6	97.9	87.5	80.6	78.5	-11.1	-15.3	-14.6	-11.3	-16.0	-15.7
CO₂ Emissions (energy related)	55.2	61.0	73.7	65.5	59.4	59.2	-9.9	-13.3	-12.4	-13.1	-18.3	-17.3
Power generation/District heating	12.8	11.6	15.0	10.1	8.6	14.5	-5.7	-6.4	-2.4	-35.9	-42.6	-14.3
Energy Branch	3.8	4.2	4.6	3.8	3.4	2.5	-0.5	-0.6	-1.1	-11.2	-14.0	-30.5
Industry	12.7	15.5	17.5	17.7	16.1	15.2	0.1	-1.2	-0.8	0.7	-7.0	-5.1
Residential	9.8	8.8	9.0	7.0	6.3	4.8	-1.4	-1.5	-2.8	-17.0	-19.6	-37.2
Tertiary	3.4	3.7	4.5	3.8	2.9	1.7	-1.1	-1.7	-2.4	-23.0	-36.6	-59.3
Transport	12.7	17.2	23.1	23.2	22.1	20.5	-1.3	-1.9	-2.8	-5.3	-8.0	-12.0
CO₂ Emissions (non energy related)	8.1	8.3	9.4	9.4	8.8	8.5	0.0	-0.2	-0.5	0.0	-2.7	-5.7
Non-CO₂ GHGs Emissions	17.1	15.4	14.8	12.6	12.5	10.8	-1.2	-1.7	-1.7	-9.0	-12.3	-13.4
TOTAL GHGs Emissions Index (1990=100)	100.0	105.3	121.8	108.9	100.3	97.7	-13.8	-19.0	-18.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Austria: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	7.645	8.002	8.207	8.358	8.441	8.520	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	177.3	228.1	245.1	306.2	335.2	386.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	140.9	125.1	138.6	110.7	99.9	87.5	-7.4	-7.3	-6.5	-6.3	-6.8	-7.0
Carbon intensity (t of CO ₂ /toe of GIC)	2.21	2.14	2.17	1.93	1.77	1.75	-0.15	-0.25	-0.22	-7.3	-12.4	-11.1
Import Dependency %	68.4	66.1	71.8	64.1	61.2	59.3	-6.0	-9.1	-8.6			
Total Energy-related Costs ^(B) (in 000 M€05)		19.1	23.2	33.6	38.9	45.4	0.4	0.9	1.7	1.3	2.3	3.9
as % of GDP		8.4	9.5	11.0	11.6	11.7	0.1	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.9	1.8						
as % of GDP				0.15	0.28	0.46						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.4	100.0	108.2	90.0	79.5	68.8	-1.5	-3.8	-2.5	-1.6	-4.5	-3.4
Residential (Energy on Private Income, index 2000=100)	117.7	100.0	102.2	84.9	78.8	66.5	-5.0	-3.4	-7.6	-5.6	-4.2	-10.2
Tertiary (Energy on Value added, index 2000=100)	98.7	100.0	111.0	90.2	81.3	66.7	-13.7	-14.2	-17.7	-13.2	-14.9	-21.0
Passenger transport (toe/Mpkm)	30.7	31.1	39.0	37.3	35.5	31.0	-0.9	-1.3	-2.2	-2.4	-3.6	-6.8
Freight transport (toe/Mtkm)	49.4	45.7	59.0	54.4	50.9	46.9	-3.5	-5.4	-6.8	-6.0	-9.5	-12.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.22	0.16	0.19	0.12	0.10	0.14	-0.05	-0.06	-0.03	-30.0	-38.9	-16.6
Final energy demand (t of CO ₂ /toe)	2.03	1.97	1.98	1.81	1.68	1.53	-0.03	-0.09	-0.14	-1.4	-5.2	-8.2
Industry	2.06	2.06	1.98	1.89	1.77	1.67	0.04	-0.05	-0.03	2.3	-2.5	-1.7
Residential	1.71	1.46	1.37	1.04	0.92	0.72	-0.14	-0.18	-0.31	-12.1	-16.2	-30.1
Tertiary	1.34	1.12	1.15	0.94	0.74	0.44	-0.12	-0.25	-0.42	-11.3	-25.5	-48.5
Transport	2.75	2.85	2.89	2.74	2.64	2.53	0.00	-0.01	-0.03	-0.2	-0.3	-1.1
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	26.8	24.2	33.4	39.7	42.8	42.8	6.6	9.4	9.8			
Biofuels share in transport gasoline and diesel (%)		0.2	0.6	6.0	9.7	13.0	-0.2	-0.3	-0.5			
Gross Electricity generation by source (in GWh_e)												
	60150	62969	67898	74035	82640	92640	-4444	-3835	6692	-6.1	-4.9	7.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	4642	5863	7642	8231	19330	19330	-10	-2509	3476	-0.1	-23.4	21.9
Oil (including refinery gas)	1220	1452	951	59	60	60	-2232	-2482	-2091	-70.1	-97.7	-97.2
Gas (including derived gases)	10541	14513	7399	6094	8554	8554	-9727	-6689	-3933	-56.8	-52.3	-31.5
Biomass-waste	1845	3929	10618	16174	20300	20300	5549	7818	8600	109.5	93.6	73.5
Hydro (pumping excluded)	41832	35868	36564	38342	38342	38342	1708	0	0	4.9	0.0	0.0
Wind	67	1328	4632	4969	5701	5701	264	26	640	6.0	0.5	12.7
Solar	3	14	83	156	340	340	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	3	9	10	13	13	3	2	0	51.9	24.9	0.0
Net Generation Capacity in MW_e												
	16771	17685	22362	23415	26114	26114	-1056	-2000	566	-4.5	-7.9	2.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	10792	11287	13483	14350	16108	16108	77	-231	472	0.6	-1.6	3.0
Hydro (pumping excluded)	10709	10446	11169	11691	12004	12004	0	0	0	0.0	0.0	0.0
Wind	77	817	2175	2399	3534	3534	77	-231	472	3.7	-8.8	15.4
Solar	7	24	139	261	570	570	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5978	6397	8879	9064	10006	10006	-1133	-1770	94	-11.3	-16.3	0.9
of which cogeneration units	3067	3657	4049	5351	5391	5391	-822	-353	-449	-16.9	-6.2	-7.7
Solids fired	1600	1587	1460	1471	2262	2262	-3	-683	294	-0.2	-31.7	14.9
Gas fired	2916	3267	4510	4299	4097	4097	-1922	-1943	-1255	-29.9	-31.1	-23.5
Oil fired	1167	1158	911	274	25	25	-441	-564	-444	-32.6	-67.3	-94.8
Biomass-waste fired	295	384	1995	3018	3621	3621	1233	1420	1499	161.6	88.9	70.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	1	2	2	3	3	1	0	0	38.1	19.9	0.0
Avg. Load factor of net power capacity (%)	39.8	38.3	33.2	34.6	38.6	38.6	-0.8	0.9	1.8			
Efficiency of gross thermal power generation (%)	40.0	40.5	51.8	52.1	56.5	56.5	-0.5	-2.0	-0.9			
% of gross electricity from CHP	12.3	20.6	29.7	32.3	30.7	30.7	-3.4	-2.3	-6.6			
Carbon free gross electricity generation (%)	72.7	65.3	76.4	80.6	69.8	69.8	15.1	14.0	5.3			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	72.7	65.3	76.4	80.6	69.8	69.8	15.1	14.0	5.3			
Transport sector												
Passenger transport activity (Gpkm)												
	95.0	114.6	120.6	136.2	141.5	151.3	-1.6	-2.2	-2.6	-1.2	-1.5	-1.7
Public road transport	14.2	14.8	15.1	16.5	17.4	18.3	0.2	0.3	0.4	1.4	1.8	2.0
Private cars and motorcycles	65.2	81.3	85.8	94.6	96.4	99.8	-1.8	-2.2	-2.5	-1.9	-2.3	-2.4
Rail	11.5	11.8	12.3	14.6	15.8	17.6	0.3	0.2	0.3	1.9	1.5	1.6
Aviation	4.1	6.6	7.3	10.4	11.9	15.6	-0.3	-0.5	-0.7	-3.0	-4.0	-4.3
Inland navigation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.2	-1.5
Freight transport activity (Gtkm)												
	34.1	54.2	55.9	62.0	65.4	72.4	-1.0	-1.4	-1.6	-1.6	-2.1	-2.2
Trucks	20.3	35.1	37.0	39.8	41.1	44.9	-1.7	-2.1	-2.4	-4.0	-4.8	-5.2
Rail	12.2	16.6	17.1	20.4	22.2	25.3	0.7	0.7	0.8	3.4	3.2	3.3
Inland navigation	1.7	2.4	1.8	1.9	2.1	2.3	0.0	0.0	0.0	-0.1	0.0	-0.2
Energy demand in transport (ktoe)												
	4603	6038	7994	8461	8352	8094	-460	-698	-1007	-5.2	-7.7	-11.1
Public road transport	80	80	107	109	104	91	-2	-8	-8	-1.5	-6.7	-8.0
Private cars and motorcycles	2499	2865	3890	4050	3941	3733	-148	-199	-150	-3.5	-4.8	-3.9
Trucks	1350	2167	3004	3061	3016	3116	-273	-424	-567	-8.2	-12.3	-15.4
Rail	357	333	310	332	329	294	-1	-6	-15	-0.2	-1.9	-5.0
Aviation	310	586	675	900	952	847	-37	-61	-266	-3.9	-6.0	-23.9
Inland navigation	7	6	9	10	10	11	0	0	0	-0.9	-1.5	-2.8

Source: PRIMES

Belgium: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	12529	11336	13366	14064	14886	14884	13631	7693	5432	0.6	1.1	-0.9	-8.8
Solids	1085	269	191	57	24	20	18	15	13	-16.0	-18.8	-3.0	-3.0
Oil	0	0	0	6	0	0	0	0	0				
Natural gas	10	0	2	0	0	0	0	0	0	-14.3			
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Renewable energy sources	728	726	751	1723	1938	3160	4545	5038	5419	0.3	9.9	8.9	1.8
Hydro	23	29	39	25	31	31	32	31	31	5.6	-2.4	0.2	-0.3
Biomass & Waste	702	694	706	1675	1674	2510	3292	3648	3934	0.0	9.0	7.0	1.8
Wind	1	1	1	20	197	429	683	777	789	7.9	65.3	13.3	1.5
Solar and others	1	1	1	3	35	187	535	578	661	2.1	42.5	31.2	2.1
Geothermal	1	1	4	1	2	3	4	4	4	14.0	-6.5	7.1	0.9
Net Imports	38857	43775	48651	48968	48712	46968	46060	50098	51727	2.3	0.0	-0.6	1.2
Solids	9492	9343	7566	5511	5350	5150	6162	10078	12501	-2.2	-3.4	1.4	7.3
Oil	21468	23579	27331	28425	28040	26720	25039	24547	24185	2.4	0.3	-1.1	-0.3
- Crude oil and Feedstocks	26116	25674	32658	30565	31677	31097	30240	30066	29890	2.3	-0.3	-0.5	-0.1
- Oil products	-4648	-2096	-5328	-2141	-3636	-4378	-5201	-5520	-5706				
Natural gas	8217	10418	13278	14191	14413	14048	13760	14343	13902	4.9	0.8	-0.5	0.1
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Gross Inland Consumption	47258	50459	57168	54952	55818	53916	51531	49344	48447	1.9	-0.2	-0.8	-0.6
Solids	10244	8551	8200	5450	5374	5170	6180	10093	12513	-2.2	-4.1	1.4	7.3
Oil	17730	19794	21949	20547	20260	18785	16879	16099	15473	2.2	-0.8	-1.8	-0.9
Natural gas	8169	10611	13369	14113	14413	14048	13760	14343	13902	5.0	0.8	-0.5	0.1
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Renewable energy forms	728	812	856	2022	2237	3608	5133	5690	6121	1.6	10.1	8.7	1.8
as % in Gross Inland Consumption													
Solids	21.7	16.9	14.3	9.9	9.6	9.6	12.0	20.5	25.8				
Oil	37.5	39.2	38.4	37.4	36.3	34.8	32.8	32.6	31.9				
Natural gas	17.3	21.0	23.4	25.7	25.8	26.1	26.7	29.1	28.7				
Nuclear	22.7	20.5	21.7	22.3	23.2	21.7	17.6	5.4	0.0				
Renewable energy forms	1.5	1.6	1.5	3.7	4.0	6.7	10.0	11.5	12.6				
Gross Electricity Generation in GWh_e	70202	73524	82639	85694	89832	96672	104867	118584	128706	1.6	0.8	1.6	2.1
Self consumption and grid losses	7382	7778	7813	8244	7655	8253	9410	12134	13751	0.6	-0.2	2.1	3.9
Fuel Inputs to Thermal Power Generation	6544	7182	7453	8299	6548	7455	9755	15452	18566	1.3	-1.3	4.1	6.6
Solids	3875	3764	3025	1889	2205	2147	3564	7648	10172	-2.4	-3.1	4.9	11.1
Oil (including refinery gas)	318	232	172	411	0	0	0	0	0	-6.0			-4.1
Gas (including derived gases)	1983	2721	3790	4612	3350	3727	4119	5417	5653	6.7	-1.2	2.1	3.2
Biomass & Waste	368	465	466	1388	993	1581	2071	2386	2742	2.4	7.9	7.6	2.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	35155	32956	40739	38991	37598	36721	35493	34972	34661	1.5	-0.8	-0.6	-0.2
Refineries	29036	28632	37085	35792	34241	33243	32048	31550	31246	2.5	-0.8	-0.7	-0.3
Biofuels and hydrogen production	0	0	0	0	236	565	973	1108	1193			15.2	2.1
District heating	10	5	41	27	68	44	38	34	27	15.2	5.2	-5.6	-3.4
Derived gases, cokeries etc.	6109	4320	3612	3173	3054	2869	2434	2281	2196	-5.1	-1.7	-2.2	-1.0
Energy Branch Consumption	2310	2273	2370	2127	1892	1818	1753	1842	1876	0.3	-2.2	-0.8	0.7
Non-Energy Uses	2739	3289	5814	4583	4263	4018	3906	3846	3753	7.8	-3.1	-0.9	-0.4
Final Energy Demand	31296	34489	36931	36403	37098	36201	34698	34233	33734	1.7	0.0	-0.7	-0.3
by sector													
Industry	11886	12110	13636	11605	11792	11585	11015	10887	10888	1.4	-1.4	-0.7	-0.1
- energy intensive industries	9285	9192	10043	8751	8862	8717	8128	8000	7906	0.8	-1.2	-0.9	-0.3
- other industrial sectors	2600	2918	3593	2854	2930	2868	2887	2886	2983	3.3	-2.0	-0.1	0.3
Residential	8337	9295	9465	9914	9740	9211	8975	8469	8030	1.3	0.3	-0.8	-1.1
Tertiary	3370	4604	4158	5005	5073	4872	4746	4653	4545	2.1	2.0	-0.7	-0.4
Transport	7704	8480	9672	9880	10493	10532	9962	10223	10271	2.3	0.8	-0.5	0.3
by fuel													
Solids	3787	3306	3378	2080	1872	1836	1587	1497	1421	-1.1	-5.7	-1.6	-1.1
Oil	14734	16248	16047	16443	15702	14640	12984	12377	11852	0.9	-0.2	-1.9	-0.9
Gas	7249	8517	10010	10009	10865	9960	9113	8271	7600	3.3	0.8	-1.7	-1.8
Electricity	4986	5885	6667	6894	7385	7922	8453	9383	10080	2.9	1.0	1.4	1.8
Heat (from CHP and District Heating)	213	220	490	427	337	417	431	456	483	8.7	-3.7	2.5	1.1
Renewable energy forms	326	312	338	549	936	1424	2127	2245	2294	0.3	10.7	8.6	0.8
Other	0	0	0	0	1	2	3	4	4			14.9	1.8
RES in Gross Final Energy Consumption ^(A)			495	909	1895	3318	4720	5217	5590	14.4	9.6	1.7	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2		148.7	141.3	140.1	130.7	126.5	141.4	148.2	0.4	-0.6	-1.0	1.6
CO₂ Emissions (energy related)	106.2	112.4	115.4	107.8	103.0	97.7	95.6	110.3	117.2	0.8	-1.1	-0.7	2.1
Power generation/District heating	21.8	23.1	22.5	20.6	17.6	18.2	24.7	43.8	54.2	0.3	-2.4	3.4	8.2
Energy Branch	5.4	5.2	5.5	4.3	3.7	3.4	3.1	3.0	2.9	0.3	-4.0	-1.7	-0.7
Industry	30.2	28.7	30.5	22.8	22.2	21.0	18.7	17.5	17.1	0.1	-3.2	-1.7	-0.9
Residential	18.7	20.1	20.0	20.3	18.8	15.9	13.3	10.1	7.4	0.7	-0.6	-3.4	-5.7
Tertiary	7.5	10.4	8.2	10.5	10.2	9.3	8.8	8.4	8.2	0.8	2.2	-1.5	-0.7
Transport	22.6	24.9	28.6	29.4	30.6	29.9	27.1	27.5	27.3	2.4	0.7	-1.2	0.1
CO ₂ Emissions (non energy related)	9.3	9.9	10.2	9.9	10.0	10.0	9.7	9.6	9.3	0.9	-0.2	-0.3	-0.4
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	27.1	23.1	21.2	21.5	21.7	21.7	-1.4	1.6	-2.4	0.2
TOTAL GHGs Emissions Index (1990=100)	100.0		104.6	99.4	98.5	91.9	89.0	99.4	104.2				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Belgium: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Int. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	166.2	144.3	125.9	111.0	101.4	-0.4	-2.1	-2.7	-2.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.23	2.02	1.96	1.85	1.81	1.86	2.24	2.42	-1.1	-0.9	0.1	2.7
Import Dependency %	75.7	80.5	77.8	78.3	76.6	75.9	77.2	86.7	90.5				
Total Energy-related Costs ^(B) (in 000 M€05)			30.4	31.5	39.1	46.4	53.6	58.9	63.5		2.6	3.2	1.7
as % of GDP			10.9	10.6	11.7	12.4	13.1	13.3	13.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	102.0	104.3	100.0	83.8	78.1	70.3	62.1	57.1	53.4	-0.2	-2.4	-2.3	-1.5
Residential (Energy on Private Income, index 2000=100)	109.4	110.2	100.0	99.4	87.5	75.3	67.6	59.2	52.6	-0.9	-1.3	-2.5	-2.5
Tertiary (Energy on Value added, index 2000=100)	97.5	123.2	100.0	109.5	98.3	84.4	74.7	67.1	61.1	0.2	-0.2	-2.7	-2.0
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.4	43.5	38.6	37.6	35.9	0.1	-0.4	-1.6	-0.7
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.4	45.4	43.7	43.6	43.2	-0.7	0.0	-0.8	-0.1
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.30	0.25	0.23	0.19	0.18	0.22	0.35	0.40	-1.7	-3.1	1.8	6.1
Final energy demand (t of CO ₂ /toe)	2.52	2.44	2.36	2.28	2.20	2.10	1.96	1.86	1.78	-0.7	-0.7	-1.2	-0.9
Industry	2.54	2.37	2.24	1.97	1.88	1.81	1.69	1.61	1.57	-1.3	-1.7	-1.0	-0.7
Residential	2.24	2.16	2.11	2.05	1.93	1.72	1.48	1.19	0.93	-0.6	-0.9	-2.6	-4.6
Tertiary	2.23	2.26	1.96	2.09	2.00	1.91	1.85	1.82	1.80	-1.3	0.2	-0.8	-0.3
Transport	2.94	2.94	2.96	2.97	2.91	2.84	2.72	2.69	2.66	0.1	-0.2	-0.7	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.3	2.4	5.0	9.0	13.3	14.8	16.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	5.4	9.4	10.4	11.2				
Gross Electricity generation by source (in GWh)													
			82639	85694	89832	96672	104867	118584	128706		0.8	1.6	2.1
Nuclear energy			48148	47586	50094	45361	35148	10232	0		0.4	-3.5	
Solids			12953	8552	9700	9613	19084	44989	60067		-2.9	7.0	12.1
Oil (including refinery gas)			865	1871	0	495	592	127	127				-14.3
Gas (including derived gases)			18968	23608	22657	27602	30981	41482	44893		1.8	3.2	3.8
Biomass-waste			1231	3561	4719	8210	10687	12248	13933		14.4	8.5	2.7
Hydro (pumping excluded)			459	288	358	362	366	357	356		-2.4	0.2	-0.3
Wind			15	227	2287	4990	7937	9040	9170		65.3	13.3	1.5
Solar			0	1	18	39	71	108	160			14.7	8.5
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			14452	15254	17857	19160	21269	23910	24793		2.1	1.8	1.5
<u>Nuclear energy</u>			5801	5843	5873	5273	4096	1192	0		0.1	-3.5	
<u>Renewable energy</u>			319	467	1230	2324	3532	4210	4294		14.5	11.1	2.0
Hydro (pumping excluded)			306	298	300	303	304	304	304		-0.2	0.1	0.0
Wind			13	167	906	1970	3136	3765	3782		52.9	13.2	1.9
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			8332	8944	10754	11564	13641	18507	20499		2.6	2.4	4.2
of which cogeneration units			1863	2324	2948	4118	4536	4684	4776		4.7	4.4	0.5
Solids fired			1680	1392	1258	1208	2703	5489	6977		-2.8	7.9	9.9
Gas fired			5522	6360	7628	7840	8074	10397	11178		3.3	0.6	3.3
Oil fired			615	641	588	546	523	169	153		-0.5	-1.2	-11.6
Biomass-waste fired			515	551	1279	1970	2341	2452	2191		9.5	6.2	-0.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			62.3	61.4	55.4	55.7	54.3	54.0	56.4				
Efficiency of gross thermal power generation (%)			39.3	39.0	48.7	53.0	54.1	55.0	55.1				
% of gross electricity from CHP			7.3	7.2	16.8	23.8	23.3	22.4	21.7				
Carbon free gross electricity generation (%)			60.3	60.3	64.0	61.0	51.7	27.0	18.4				
- nuclear			58.3	55.5	55.8	46.9	33.5	8.6	0.0				
- renewable energy forms			2.1	4.8	8.2	14.1	18.2	18.3	18.4				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	113.7	126.3	139.3	153.2	165.1	172.2	177.2	183.2	188.2	2.0	1.7	0.7	0.6
Private cars and motorcycles	10.9	13.1	13.3	17.6	18.8	19.1	19.9	20.3	20.5	2.0	3.5	0.6	0.3
Rail	90.1	98.6	107.7	114.4	120.9	123.8	125.0	127.4	129.1	1.8	1.2	0.3	0.3
Aviation	7.3	7.6	8.6	10.1	11.8	13.1	14.3	15.5	16.8	1.7	3.2	2.0	1.6
Inland navigation	4.6	6.4	9.3	10.8	13.3	15.8	17.6	19.7	21.4	7.2	3.6	2.9	1.9
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.0	0.4	0.3
Freight transport activity (Gtkm)													
Trucks	48.0	58.6	65.9	60.5	63.3	66.9	71.6	76.6	81.2	3.2	-0.4	1.2	1.3
Rail	34.2	45.6	51.0	43.8	45.4	48.2	52.0	56.5	60.7	4.1	-1.2	1.4	1.6
Inland navigation	8.4	7.3	7.7	8.1	8.8	9.4	10.0	10.3	10.6	-0.9	1.4	1.2	0.6
Inland navigation	5.4	5.7	7.2	8.6	9.1	9.3	9.6	9.8	9.9	2.8	2.3	0.6	0.3
Energy demand in transport (ktoe)													
Public road transport	7704	8480	9672	9880	10493	10532	9962	10223	10271	2.3	0.8	-0.5	0.3
Private cars and motorcycles	165	164	170	173	182	176	167	155	148	0.3	0.7	-0.9	-1.2
Trucks	4075	4502	4794	5442	5696	5557	5358	5402	5213	1.6	1.7	-0.6	-0.3
Rail	2205	2420	2858	2581	2658	2694	2774	2982	3169	2.6	-0.7	0.4	1.3
Aviation	177	202	183	185	196	197	200	198	181	0.4	0.7	0.2	-1.0
Inland navigation	952	945	1530	1281	1534	1679	1229	1250	1326	4.9	0.0	-2.2	0.8
Inland navigation	129	247	136	217	227	230	234	235	235	0.5	5.3	0.3	0.0

Source: PRIMES

Belgium: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	12529	13366	14064	14884	13631	5432	353	901	942	2.4	7.1	21.0
Solids	1085	191	57	20	18	13	0	0	0	0.0	0.0	0.0
Oil	0	0	6	0	0	0	0	0	0	-310.2	-61.8	-57.3
Natural gas	10	2	0	0	0	0	0	0	0			
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Renewable energy sources	728	751	1723	3160	4545	5419	353	901	942	12.6	24.7	21.0
Hydro	23	39	25	31	32	31	0	0	1	1.4	0.1	3.0
Biomass & Waste	702	706	1675	2510	3292	3934	155	360	309	6.6	12.3	8.5
Wind	1	1	20	429	683	789	86	138	166	25.1	25.3	26.7
Solar and others	1	1	3	187	535	661	110	401	464	142.1	300.9	234.6
Geothermal	1	4	1	3	4	4	1	2	2	54.1	89.7	94.9
Net Imports	38857	48651	48968	46968	46060	51727	-3077	-5049	-4212	-6.1	-9.9	-7.5
Solids	9492	7566	5511	5150	6162	12501	-538	-1791	-77	-9.5	-22.5	-0.6
Oil	21468	27331	28425	26720	25039	24185	-1161	-1939	-2106	-4.2	-7.2	-8.0
- Crude oil and Feedstocks	26116	32658	30565	31097	30240	29890	-665	-1142	-1267	-2.1	-3.6	-4.1
- Oil products	-4648	-5328	-2141	-4378	-5201	-5706	-495	-797	-839	12.8	18.1	17.2
Natural gas	8217	13278	14191	14048	13760	13902	-1406	-1382	-2085	-9.1	-9.1	-13.0
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47258	57168	54952	53916	51531	48447	-2725	-4150	-3275	-4.8	-7.5	-6.3
Solids	10244	8200	5450	5170	6180	12513	-538	-1791	-77	-9.4	-22.5	-0.6
Oil	17730	21949	20547	18785	16879	15473	-1161	-1942	-2110	-5.8	-10.3	-12.0
Natural gas	8169	13369	14113	14048	13760	13902	-1406	-1382	-2085	-9.1	-9.1	-13.0
Nuclear	10707	12422	12277	11703	9068	0	0	0	0	0.0	0.0	
Electricity	-320	372	542	602	512	437	0	0	0	0.0	0.0	0.0
Renewable energy forms	728	856	2022	3608	5133	6121	380	965	997	11.8	23.1	19.4
as % in Gross Inland Consumption												
Solids	21.7	14.3	9.9	9.6	12.0	25.8	-0.5	-2.3	1.5			
Oil	37.5	38.4	37.4	34.8	32.8	31.9	-0.4	-1.0	-2.1			
Natural gas	17.3	23.4	25.7	26.1	26.7	28.7	-1.2	-0.5	-2.2			
Nuclear	22.7	21.7	22.3	21.7	17.6	0.0	1.0	1.3	0.0			
Renewable energy forms	1.5	1.5	3.7	6.7	10.0	12.6	1.0	2.5	2.7			
Gross Electricity Generation in GWh_e	70202	82639	85694	96672	104867	128706	-6439	-7114	9218	-6.2	-6.4	7.7
Self consumption and grid losses	7382	7813	8244	8253	9410	13751	-705	-946	1145	-7.9	-9.1	9.1
Fuel Inputs to Thermal Power Generation	6544	7453	8299	7455	9755	18566	-1259	-1498	1162	-14.4	-13.3	6.7
Solids	3875	3025	1889	2147	3564	10172	-558	-1648	106	-20.6	-31.6	1.0
Oil (including refinery gas)	318	172	411	0	0	0	-71	-61	0	-99.9	-99.7	28.9
Gas (including derived gases)	1983	3790	4612	3727	4119	5653	-874	-389	383	-19.0	-8.6	7.3
Biomass & Waste	368	466	1388	1581	2071	2742	244	600	673	18.2	40.8	32.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	35155	40739	38991	36721	35493	34661	-628	-1316	-1516	-1.7	-3.6	-4.2
Refineries	29036	37085	35792	33243	32048	31246	-667	-1148	-1276	-2.0	-3.5	-3.9
Biofuels and hydrogen production	0	0	0	565	973	1193	-40	-106	-153	-6.6	-9.8	-11.4
District heating	10	41	27	44	38	27	0	-3	-9	-1.1	-6.7	-25.8
Derived gases, cokeries etc.	6109	3612	3173	2869	2434	2196	79	-59	-77	2.9	-2.4	-3.4
Energy Branch Consumption	2310	2370	2127	1818	1753	1876	-79	-144	-77	-4.2	-7.6	-3.9
Non-Energy Uses	2739	5814	4583	4018	3906	3753	-2	-9	-21	-0.1	-0.2	-0.6
Final Energy Demand	31296	36931	36403	36201	34698	33734	-2003	-3214	-3763	-5.2	-8.5	-10.0
by sector												
Industry	11886	13636	11605	11585	11015	10888	-183	-503	-453	-1.6	-4.4	-4.0
- energy intensive industries	9285	10043	8751	8717	8128	7906	-68	-380	-292	-0.8	-4.5	-3.6
- other industrial sectors	2600	3593	2854	2868	2887	2983	-114	-123	-161	-3.8	-4.1	-5.1
Residential	8337	9465	9914	9211	8975	8030	-851	-847	-1608	-8.5	-8.6	-16.7
Tertiary	3370	4158	5005	4872	4746	4545	-512	-687	-812	-9.5	-12.7	-15.2
Transport	7704	9672	9880	10532	9962	10271	-458	-1177	-889	-4.2	-10.6	-8.0
by fuel												
Solids	3787	3378	2080	1836	1587	1421	-12	-149	-186	-0.7	-8.6	-11.6
Oil	14734	16047	16443	14640	12984	11852	-992	-1791	-2064	-6.3	-12.1	-14.8
Gas	7249	10010	10009	9960	9113	7600	-556	-981	-2383	-5.3	-9.7	-23.9
Electricity	4986	6667	6894	7922	8453	10080	-486	-516	711	-5.8	-5.8	7.6
Heat (from CHP and District Heating)	213	490	427	417	431	483	-15	-24	-25	-3.4	-5.2	-4.9
Renewable energy forms	326	338	549	1424	2127	2294	58	246	184	4.2	13.1	8.7
Other	0	0	0	2	3	4	0	0	0	2.8	-1.5	-6.2
RES in Gross Final Energy Consumption ^(A)		495	909	3318	4720	5590	487	971	1097	17.2	25.9	24.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	142.2	148.7	141.3	130.7	126.5	148.2	-13.0	-21.7	-17.8	-9.0	-14.6	-10.7
CO₂ Emissions (energy related)	106.2	115.4	107.8	97.7	95.6	117.2	-9.0	-16.2	-11.6	-8.4	-14.5	-9.0
Power generation/District heating	21.8	22.5	20.6	18.2	24.7	54.2	-4.5	-7.6	1.3	-19.7	-23.6	2.4
Energy Branch	5.4	5.5	4.3	3.4	3.1	2.9	-0.2	-0.2	-0.2	-4.7	-7.2	-7.2
Industry	30.2	30.5	22.8	21.0	18.7	17.1	0.3	-0.5	-0.9	1.4	-2.7	-4.9
Residential	18.7	20.0	20.3	15.9	13.3	7.4	-2.4	-3.3	-7.9	-13.2	-19.8	-51.5
Tertiary	7.5	8.2	10.5	9.3	8.8	8.2	-0.9	-1.2	-1.3	-8.8	-11.7	-13.3
Transport	22.6	28.6	29.4	29.9	27.1	27.3	-1.3	-3.4	-2.6	-4.2	-11.0	-8.7
CO₂ Emissions (non energy related)	9.3	10.2	9.9	10.0	9.7	9.3	0.0	-0.1	-0.2	-0.2	-1.4	-2.0
Non-CO₂ GHGs Emissions	26.7	23.1	23.6	23.1	21.2	21.7	-4.0	-5.4	-6.1	-14.9	-20.2	-21.9
TOTAL GHGs Emissions Index (1990=100)	100.0	104.6	99.4	91.9	89.0	104.2	-9.1	-15.3	-12.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Belgium: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.948	10.239	10.446	10.674	10.790	10.984	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	220.3	277.7	298.5	373.6	409.2	477.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	214.5	205.9	184.1	144.3	125.9	101.4	-7.3	-10.1	-6.9	-4.8	-7.5	-6.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.25	2.02	1.96	1.81	1.86	2.42	-0.07	-0.15	-0.07	-3.8	-7.6	-2.8
Import Dependency %	75.7	77.8	78.3	75.9	77.2	90.5	-1.6	-2.9	-2.1			
Total Energy-related Costs ^(B) (in 000 M€05)		30.4	31.5	46.4	53.6	63.5	1.6	2.1	4.4	3.7	4.1	7.4
as % of GDP		10.9	10.6	12.4	13.1	13.3	0.4	0.5	0.9			
Total Compliance Costs ^(D) (in 000 M€05)				1.7	2.2	4.5						
as % of GDP				0.45	0.54	0.94						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	102.0	100.0	83.8	70.3	62.1	53.4	-1.1	-2.8	-2.2	-1.6	-4.4	-4.0
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	99.4	75.3	67.6	52.6	-7.0	-6.4	-10.5	-8.5	-8.6	-16.7
Tertiary (Energy on Value added, index 2000=100)	97.5	100.0	109.5	84.4	74.7	61.1	-8.9	-10.8	-10.9	-9.5	-12.7	-15.2
Passenger transport (toe/Mpkm)	46.4	47.1	45.5	43.5	38.6	35.9	-1.1	-4.2	-1.6	-2.4	-9.9	-4.2
Freight transport (toe/Mtkm)	50.6	47.2	48.0	45.4	43.7	43.2	-2.3	-3.8	-5.2	-4.9	-8.1	-10.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.30	0.25	0.23	0.18	0.22	0.40	-0.03	-0.05	-0.02	-14.5	-18.4	-4.3
Final energy demand (t of CO ₂ /toe)	2.52	2.36	2.28	2.10	1.96	1.78	0.00	-0.05	-0.16	-0.2	-2.7	-8.2
Industry	2.54	2.24	1.97	1.81	1.69	1.57	0.05	0.03	-0.01	3.0	1.8	-0.9
Residential	2.24	2.11	2.05	1.72	1.48	0.93	-0.09	-0.21	-0.67	-5.2	-12.2	-41.8
Tertiary	2.23	1.96	2.09	1.91	1.85	1.80	0.01	0.02	0.04	0.8	1.0	2.2
Transport	2.94	2.96	2.97	2.84	2.72	2.66	0.00	-0.01	-0.02	0.0	-0.5	-0.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.3	2.4	9.0	13.3	16.0	1.7	3.6	4.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.4	9.4	11.2	-0.1	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
	82639	85694	96672	104867	128706	128706	-6439	-7114	9218	-6.2	-6.4	7.7
Nuclear energy	48148	47586	45361	35148	0	0	0	0	0	0.0	0.0	
Solids	12953	8552	9613	19084	60067	60067	-2449	-8776	1775	-20.3	-31.5	3.0
Oil (including refinery gas)	865	1871	495	592	127	127	-248	-66	0	-33.3	-10.0	0.1
Gas (including derived gases)	18968	23608	27602	30981	44893	44893	-5930	-2770	2811	-17.7	-8.2	6.7
Biomass-waste	1231	3561	8210	10687	13933	13933	1184	2896	2690	16.8	37.2	23.9
Hydro (pumping excluded)	459	288	362	366	356	356	5	1	10	1.4	0.1	3.0
Wind	15	227	4990	7937	9170	9170	1000	1602	1932	25.1	25.3	26.7
Solar	0	1	39	71	160	160	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e	14452	15254	19160	21269	24793	24793	40	-243	2120	0.2	-1.1	9.4
<u>Nuclear energy</u>	5801	5843	5273	4096	0	0	0	0	0	0.0	0.0	
<u>Renewable energy</u>	319	467	2324	3532	4294	4294	354	526	778	18.0	17.5	22.1
Hydro (pumping excluded)	306	298	303	304	304	304	0	0	0	0.0	0.0	0.0
Wind	13	167	1970	3136	3782	3782	354	526	778	21.9	20.2	25.9
Solar	0	2	52	93	208	208	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	8332	8944	11564	13641	20499	20499	-314	-770	1342	-2.6	-5.3	7.0
of which cogeneration units	1863	2324	4118	4536	4776	4776	-242	-243	-774	-5.5	-5.1	-14.0
Solids fired	1680	1392	1208	2703	6977	6977	-323	-1080	-88	-21.1	-28.6	-1.2
Gas fired	5522	6360	7840	8074	11178	11178	-369	-237	707	-4.5	-2.8	6.8
Oil fired	615	641	546	523	153	153	-4	0	0	-0.7	0.0	0.0
Biomass-waste fired	515	551	1970	2341	2191	2191	382	547	722	24.1	30.5	49.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	62.3	61.4	55.7	54.3	56.4	56.4	-3.8	-2.8	-0.8			
Efficiency of gross thermal power generation (%)	39.3	39.0	53.0	54.1	55.1	55.1	0.3	0.5	-0.1			
% of gross electricity from CHP	7.3	7.2	23.8	23.3	21.7	21.7	1.3	0.6	-4.7			
Carbon free gross electricity generation (%)	60.3	60.3	61.0	51.7	18.4	5.9	5.9	7.3	2.5			
- nuclear	58.3	55.5	46.9	33.5	0.0	2.9	2.9	2.1	0.0			
- renewable energy forms	2.1	4.8	14.1	18.2	18.4	3.0	5.2	2.5				
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	113.7	139.3	153.2	172.2	177.2	188.2	-1.7	-2.2	-2.4	-1.0	-1.3	-1.3
Private cars and motorcycles	10.9	13.3	17.6	19.1	19.9	20.5	0.4	0.5	0.5	1.9	2.4	2.5
Rail	90.1	107.7	114.4	123.8	125.0	129.1	-1.9	-2.3	-2.7	-1.5	-1.8	-2.0
Aviation	7.3	8.6	10.1	13.1	14.3	16.8	0.2	0.2	0.5	1.8	1.7	3.0
Inland navigation	4.6	9.3	10.8	15.8	17.6	21.4	-0.4	-0.6	-0.8	-2.6	-3.5	-3.4
Inland navigation	0.8	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	-0.7	-0.9	-1.2
Freight transport activity (Gtkm)												
Trucks	48.0	65.9	60.5	66.9	71.6	81.2	-0.9	-1.2	-1.6	-1.3	-1.7	-1.9
Rail	34.2	51.0	43.8	48.2	52.0	60.7	-1.4	-1.9	-2.3	-2.8	-3.5	-3.7
Inland navigation	8.4	7.7	8.1	9.4	10.0	10.6	0.4	0.5	0.6	4.5	5.3	6.3
Inland navigation	5.4	7.2	8.6	9.3	9.6	9.9	0.1	0.1	0.1	1.2	1.4	1.4
Energy demand in transport (ktoe)												
Public road transport	7704	9672	9880	10532	9962	10271	-458	-1177	-889	-4.2	-10.6	-8.0
Private cars and motorcycles	165	170	173	176	167	148	-2	-11	-12	-1.0	-6.0	-7.5
Trucks	4075	4794	5442	5557	5358	5213	-184	-247	-200	-3.2	-4.4	-3.7
Rail	2205	2858	2581	2694	2774	3169	-202	-343	-517	-7.0	-11.0	-14.0
Aviation	177	183	185	197	200	181	1	6	19	0.6	2.8	11.5
Inland navigation	952	1530	1281	1679	1229	1326	-71	-580	-175	-4.1	-32.1	-11.7
Inland navigation	129	136	217	230	234	235	0	-1	-3	0.2	-0.3	-1.5

Source: PRIMES

Bulgaria: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	9136	10192	9845	10611	9875	8983	11486	13641	13972	0.8	0.0	1.5	2.0
Solids	5121	5287	4310	4178	4620	3396	3285	3088	2719	-1.7	0.7	-3.4	-1.9
Oil	60	43	42	30	32	33	35	36	36	-3.5	-2.7	0.8	0.3
Natural gas	11	40	12	384	237	184	167	143	122	1.3	34.4	-3.4	-3.1
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7398	2.2	-2.8	4.5	3.1
Renewable energy sources	161	370	792	1207	1465	1831	2526	3023	3697	17.2	6.3	5.6	3.9
Hydro	161	151	230	373	295	313	318	329	341	3.6	2.5	0.8	0.7
Biomass & Waste	0	219	562	801	1044	1289	1878	2318	2856		6.4	6.0	4.3
Wind	0	0	0	0	36	86	149	173	242			15.3	4.9
Solar and others	0	0	0	0	10	61	120	177	248			27.9	7.5
Geothermal	0	0	0	33	80	83	60	25	10			-2.7	-16.3
Net Imports	17823	13475	8681	9416	9577	9125	8489	8308	9183	-6.9	1.0	-1.2	0.8
Solids	3527	2424	2258	2550	2761	2602	2116	1701	2601	-4.4	2.0	-2.6	2.1
Oil	8540	6511	4081	5086	5098	5294	5535	5730	5760	-7.1	2.2	0.8	0.4
- Crude oil and Feedstocks	8247	8003	5346	6328	6840	7105	7424	7678	7726	-4.2	2.5	0.8	0.4
- Oil products	292	-1492	-1265	-1242	-1743	-1810	-1889	-1948	-1966				
Natural gas	5430	4563	2742	2458	1960	1523	1383	1454	1424	-6.6	-3.3	-3.4	0.3
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Gross Inland Consumption	27964	23305	18610	19885	19317	17956	19811	21775	22976	-4.0	0.4	0.3	1.5
Solids	8706	7673	6417	6892	7381	5997	5401	4789	5320	-3.0	1.4	-3.1	-0.2
Oil	9593	6245	4181	4847	4995	5176	5405	5592	5617	-8.0	1.8	0.8	0.4
Natural gas	5395	4584	2932	2804	2196	1707	1550	1597	1546	-5.9	-2.8	-3.4	0.0
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7398	2.2	-2.8	4.5	3.1
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Renewable energy forms	161	363	788	1181	1432	1790	2635	3157	3863	17.2	6.2	6.3	3.9
as % in Gross Inland Consumption													
Solids	31.1	32.9	34.5	34.7	38.2	33.4	27.3	22.0	23.2				
Oil	34.3	26.8	22.5	24.4	25.9	28.8	27.3	25.7	24.4				
Natural gas	19.3	19.7	15.8	14.1	11.4	9.5	7.8	7.3	6.7				
Nuclear	13.5	19.1	25.2	24.2	18.2	19.7	27.6	33.8	32.2				
Renewable energy forms	0.6	1.6	4.2	5.9	7.4	10.0	13.3	14.5	16.8				
Gross Electricity Generation in GWh_e	42133	41219	40639	43965	38114	40810	51164	59723	68044	-0.4	-0.6	3.0	2.9
Self consumption and grid losses	8456	8102	7245	7081	5903	5772	6426	7315	9165	-1.5	-2.0	0.9	3.6
Fuel Inputs to Thermal Power Generation	10103	9182	6292	6523	5854	4686	4798	4594	5530	-4.6	-0.7	-2.0	1.4
Solids	6800	6734	5245	5675	5680	4542	4064	3497	4080	-2.6	0.8	-3.3	0.0
Oil (including refinery gas)	951	613	160	149	0	0	0	0	0	-16.3			
Gas (including derived gases)	2352	1835	884	697	174	112	98	87	78	-9.3	-15.0	-5.6	-2.2
Biomass & Waste	0	0	3	2	0	32	636	1010	1371				8.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	13079	11635	7612	8839	8491	8482	8652	8897	8935	-5.3	1.1	0.2	0.3
Refineries	8341	8023	5406	6586	7066	7336	7658	7888	7916	-4.2	2.7	0.8	0.3
Biofuels and hydrogen production	0	0	0	0	34	73	111	193	308			12.6	10.7
District heating	2779	1544	324	370	483	313	272	268	221	-19.3	4.1	-5.6	-2.1
Derived gases, cokeries etc.	1960	2069	1882	1883	908	760	611	548	490	-0.4	-7.0	-3.9	-2.2
Energy Branch Consumption	1359	1458	1146	1279	1411	1301	1334	1400	1524	-1.7	2.1	-0.6	1.3
Non-Energy Uses	1427	1236	1261	1059	996	1049	1170	1248	1310	-1.2	-2.3	1.6	1.1
Final Energy Demand	16138	11575	8861	9682	10294	10743	11450	12358	13145	-5.8	1.5	1.1	1.4
by sector													
Industry	8966	6032	3637	3673	3617	3740	4034	4490	5008	-8.6	-0.1	1.1	2.2
- energy intensive industries	5579	4837	2814	2809	2793	2862	3023	3312	3616	-6.6	-0.1	0.8	1.8
- other industrial sectors	3387	1195	823	864	824	878	1010	1179	1391	-13.2	0.0	2.1	3.3
Residential	2264	2378	2363	2268	2292	2288	2394	2457	2475	0.4	-0.3	0.4	0.3
Tertiary	2389	1189	1044	1181	1301	1240	1251	1304	1327	-7.9	2.2	-0.4	0.6
Transport	2518	1976	1817	2560	3084	3476	3771	4107	4336	-3.2	5.4	2.0	1.4
by fuel													
Solids	1477	1280	860	936	1132	1082	1004	982	952	-5.3	2.8	-1.2	-0.5
Oil	4967	2893	2981	3599	4085	4311	4527	4738	4778	-5.0	3.2	1.0	0.5
Gas	2066	1787	1231	1025	983	813	740	796	828	-5.0	-2.2	-2.8	1.1
Electricity	3085	2639	2358	2383	2433	2631	3044	3624	4124	-2.7	0.3	2.3	3.1
Heat (from CHP and District Heating)	4543	2798	877	939	642	809	936	968	1018	-15.2	-3.1	3.8	0.8
Renewable energy forms	0	178	555	800	1019	1097	1197	1249	1444		6.3	1.6	1.9
Other	0	0	0	0	0	1	1	1	1			12.9	3.5
RES in Gross Final Energy Consumption ^(A)			786	1182	1414	1736	2474	2919	3542		6.1	5.8	3.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4		63.1	65.2	64.2	54.7	51.4	46.6	43.6	-5.4	0.2	-2.2	-1.6
CO₂ Emissions (energy related)	72.4	58.1	42.1	45.1	46.1	39.9	37.7	35.9	35.1	-5.3	0.9	-2.0	-0.7
Power generation/District heating	44.8	38.2	24.9	26.2	25.0	19.7	17.5	15.1	14.2	-5.7	0.0	-3.5	-2.0
Energy Branch	1.6	1.4	1.3	1.6	1.8	0.9	0.8	0.8	0.7	-2.1	3.6	-7.9	-1.0
Industry	11.2	9.3	8.3	7.6	8.0	7.2	6.9	7.1	7.1	-2.9	-0.4	-1.4	0.2
Residential	3.0	2.2	1.2	1.2	1.1	0.9	0.7	0.6	0.4	-8.9	-0.8	-3.9	-5.9
Tertiary	4.7	1.4	1.2	1.1	1.3	1.3	1.1	1.0	1.0	-13.0	0.6	-1.2	-1.4
Transport	7.1	5.6	5.2	7.4	8.9	9.9	10.7	11.4	11.7	-3.0	5.5	1.8	1.0
CO₂ Emissions (non energy related)	6.6	5.4	4.3	4.1	4.3	4.5	4.9	5.7	6.3	-4.2	0.0	1.4	2.4
Non-CO₂ GHGs Emissions	30.3		16.6	16.0	13.8	10.3	8.8	5.0	2.2	-5.8	-1.8	-4.4	-13.0
TOTAL GHGs Emissions Index (1990=100)	100.0		57.7	59.6	58.7	50.0	47.0	42.6	39.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Bulgaria: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	691.9	488.2	402.0	334.1	270.6	-2.3	-4.6	-5.3	-3.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.49	2.26	2.27	2.39	2.22	1.90	1.65	1.53	-1.3	0.5	-2.2	-2.2
Import Dependency %	63.6	57.2	46.5	47.1	49.2	50.4	42.5	37.9	39.7				
Total Energy-related Costs ^(B) (in 000 M€05)			5.9	6.2	8.7	11.3	14.3	17.3	20.8		4.1	5.1	3.8
as % of GDP			34.7	28.7	31.3	30.7	29.1	26.6	24.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.2	124.2	100.0	76.3	57.3	42.9	33.3	27.1	22.6	-3.0	-5.4	-5.3	-3.8
Residential (Energy on Private Income, index 2000=100)	86.0	101.6	100.0	73.0	57.3	43.9	34.7	27.2	21.3	1.5	-5.4	-4.9	-4.8
Tertiary (Energy on Value added, index 2000=100)	149.8	101.5	100.0	90.4	76.8	55.6	42.2	33.7	26.6	-4.0	-2.6	-5.8	-4.5
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.0	31.1	29.6	28.7	28.1	2.5	1.8	-0.8	-0.5
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	63.6	58.7	54.7	53.3	52.0	2.1	-1.6	-1.5	-0.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.49	0.46	0.45	0.49	0.35	0.26	0.20	0.17	0.2	0.7	-6.2	-4.3
Final energy demand (t of CO ₂ /toe)	1.61	1.60	1.80	1.79	1.87	1.80	1.70	1.63	1.53	1.1	0.4	-1.0	-1.0
Industry	1.25	1.55	2.29	2.06	2.21	1.93	1.71	1.58	1.41	6.2	-0.4	-2.5	-1.9
Residential	1.33	0.92	0.50	0.53	0.47	0.39	0.30	0.23	0.16	-9.3	-0.5	-4.3	-6.2
Tertiary	1.98	1.16	1.13	0.91	0.97	1.02	0.89	0.80	0.73	-5.5	-1.5	-0.8	-1.9
Transport	2.81	2.84	2.87	2.91	2.88	2.86	2.83	2.77	2.70	0.2	0.1	-0.2	-0.4
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	11.3	12.9	15.3	20.4	22.3	25.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.3	3.2	5.2	8.0				
Gross Electricity generation by source (in GWh)													
			40639	43965	38114	40810	51164	59723	68044		-0.6	3.0	2.9
Nuclear energy			18175	18650	13650	13718	22242	30700	30916		-2.8	5.0	3.3
Solids			16824	18120	18936	19981	18528	16553	22316		1.2	-0.2	1.9
Oil (including refinery gas)			590	825	0	0	0	0	0				
Gas (including derived gases)			2368	1963	1375	1210	740	697	667		-5.3	-6.0	-1.0
Biomass-waste			10	70	304	1265	4212	5912	7282		41.1	30.1	5.6
Hydro (pumping excluded)			2673	4336	3428	3634	3697	3825	3968		2.5	0.8	0.7
Wind			0	2	420	998	1736	2017	2812			15.3	4.9
Solar			0	0	2	5	9	19	84			17.5	24.6
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			10900	10201	9947	11679	11897	13112	14348		-0.9	1.8	1.9
<u>Nuclear energy</u>			3473	2678	1885	1910	2870	3817	3842		-5.9	4.3	3.0
<u>Renewable energy</u>			1921	2005	2472	3031	3647	3913	4870		2.6	4.0	2.9
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	293	825	1422	1643	2388			17.1	5.3
Solar			0	0	2	4	8	15	79			17.5	26.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			5505	5517	5590	6738	5380	5381	5636		0.2	-0.4	0.5
of which cogeneration units			2163	2183	821	1677	1893	2107	2592		-9.2	8.7	3.2
Solids fired			4536	4527	4398	5536	4066	4051	3389		-0.3	-0.8	-1.8
Gas fired			603	625	783	640	314	238	710		2.6	-8.7	8.5
Oil fired			355	355	359	334	262	60	29		0.1	-3.1	-19.7
Biomass-waste fired			11	11	49	228	739	1031	1507		16.4	31.1	7.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			38.3	44.6	40.2	37.0	45.9	48.8	50.0				
Efficiency of gross thermal power generation (%)			27.0	27.7	30.3	41.2	42.1	43.4	47.1				
% of gross electricity from CHP			12.0	14.3	7.8	22.3	21.8	20.8	22.3				
Carbon free gross electricity generation (%)			51.3	52.4	46.7	48.1	62.3	71.1	66.2				
- nuclear			44.7	42.4	35.8	33.6	43.5	51.4	45.4				
- renewable energy forms			6.6	10.0	10.9	14.5	18.9	19.7	20.8				
Transport sector													
Passenger transport activity (Gpkm)													
	40.3	21.4	33.8	38.7	44.8	51.4	58.4	65.7	71.8	-1.7	2.9	2.7	2.1
Public road transport	26.0	11.6	13.9	11.5	10.6	10.1	10.1	10.1	10.3	-6.1	-2.6	-0.5	0.2
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.2	35.0	40.4	46.0	50.4	11.2	6.5	3.3	2.2
Rail	7.8	4.7	3.5	2.4	2.5	2.9	3.6	4.4	5.4	-7.8	-3.1	3.7	4.0
Aviation	0.8	0.9	0.9	1.6	2.5	3.4	4.3	5.1	5.7	0.6	10.6	5.7	2.9
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-23.0	-2.5	-0.6	0.5
Freight transport activity (Gtkm)													
	27.8	18.9	12.3	20.3	26.0	32.0	37.3	41.6	44.6	-7.9	7.8	3.7	1.8
Trucks	12.0	9.7	6.4	14.3	19.3	23.8	27.5	30.6	32.6	-6.1	11.7	3.6	1.7
Rail	14.1	8.6	5.5	5.2	5.7	7.0	8.3	9.4	10.3	-8.9	0.2	3.9	2.2
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.5	1.6	1.7	-15.1	12.1	4.1	1.6
Energy demand in transport (ktoe)													
	2518	1976	1817	2560	3084	3476	3771	4107	4336	-3.2	5.4	2.0	1.4
Public road transport	318	152	158	97	83	72	68	62	58	-6.8	-6.3	-2.0	-1.5
Private cars and motorcycles	231	175	639	928	1082	1194	1274	1379	1468	10.7	5.4	1.7	1.4
Trucks	1459	1223	842	1274	1591	1808	1964	2141	2249	-5.4	6.6	2.1	1.4
Rail	216	144	77	60	62	75	79	80	70	-9.8	-2.2	2.4	-1.2
Aviation	276	276	101	200	264	325	383	441	487	-9.6	10.1	3.8	2.4
Inland navigation	18	6	1	2	2	3	3	3	3	-25.5	8.5	3.5	1.3

Source: PRIMES

Bulgaria: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9136	9845	10611	8983	11486	13972	-1702	-2093	-1247	-15.9	-15.4	-8.2
Solids	5121	4310	4178	3396	3285	2719	-2184	-3120	-2862	-39.1	-48.7	-51.3
Oil	60	42	30	33	35	36	-1	-2	-3	-2.7	-5.2	-8.7
Natural gas	11	12	384	184	167	122	31	10	0	20.5	6.2	0.0
Nuclear	3783	4689	4812	3539	5474	7398	0	0	47	0.0	0.0	0.6
Renewable energy sources	161	792	1207	1831	2526	3697	451	1019	1572	32.7	67.7	73.9
Hydro	161	230	373	313	318	341	28	22	0	9.7	7.6	0.0
Biomass & Waste	0	562	801	1289	1878	2856	287	774	1233	28.6	70.1	76.0
Wind	0	0	0	86	149	242	47	105	161	122.3	234.6	200.0
Solar and others	0	0	0	61	120	248	47	92	191	322.1	322.7	336.0
Geothermal	0	0	33	83	60	10	43	26	-14	106.3	78.1	-57.5
Net Imports	17823	8681	9416	9125	8489	9183	-467	-1206	-1143	-4.9	-12.4	-11.1
Solids	3527	2258	2550	2602	2116	2601	-121	-664	-200	-4.4	-23.9	-7.1
Oil	8540	4081	5086	5294	5535	5760	-159	-317	-565	-2.9	-5.4	-8.9
- Crude oil and Feedstocks	8247	5346	6328	7105	7424	7726	-201	-401	-713	-2.8	-5.1	-8.5
- Oil products	292	-1265	-1242	-1810	-1889	-1966	42	84	149	-2.3	-4.2	-7.0
Natural gas	5430	2742	2458	1523	1383	1424	-178	-370	-596	-10.4	-21.1	-29.5
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	27964	18610	19885	17956	19811	22976	-2169	-3299	-2390	-10.8	-14.3	-9.4
Solids	8706	6417	6892	5997	5401	5320	-2305	-3784	-3062	-27.8	-41.2	-36.5
Oil	9593	4181	4847	5176	5405	5617	-160	-319	-568	-3.0	-5.6	-9.2
Natural gas	5395	2932	2804	1707	1550	1546	-146	-360	-596	-7.9	-18.9	-27.8
Nuclear	3783	4689	4812	3539	5474	7398	0	0	47	0.0	0.0	0.6
Electricity	326	-397	-652	-253	-653	-768	0	0	0	0.0	0.0	0.0
Renewable energy forms	161	788	1181	1790	2635	3863	442	1164	1789	32.8	79.1	86.3
as % in Gross Inland Consumption												
Solids	31.1	34.5	34.7	33.4	27.3	23.2	-7.9	-12.5	-9.9			
Oil	34.3	22.5	24.4	28.8	27.3	24.4	2.3	2.5	0.1			
Natural gas	19.3	15.8	14.1	9.5	7.8	6.7	0.3	-0.4	-1.7			
Nuclear	13.5	25.2	24.2	19.7	27.6	32.2	2.1	3.9	3.2			
Renewable energy forms	0.6	4.2	5.9	10.0	13.3	16.8	3.3	6.9	8.6			
Gross Electricity Generation in GWh_e	42133	40639	43965	40810	51164	68044	-6161	-7453	-1781	-13.1	-12.7	-2.6
Self consumption and grid losses	8456	7245	7081	5772	6426	9165	-1365	-1717	-144	-19.1	-21.1	-1.5
Fuel Inputs to Thermal Power Generation	10103	6292	6523	4686	4798	5530	-1981	-2777	-1378	-29.7	-36.7	-19.9
Solids	6800	5245	5675	4542	4064	4080	-2002	-3412	-2763	-30.6	-45.6	-40.4
Oil (including refinery gas)	951	160	149	0	0	0	0	0	0			-100.0
Gas (including derived gases)	2352	884	697	112	98	78	-10	-8	15	-8.4	-7.5	22.8
Biomass & Waste	0	3	2	32	636	1371	32	644	1371		-8791.4	602959.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	13079	7612	8839	8482	8652	8935	-254	-473	-922	-2.9	-5.2	-9.3
Refineries	8341	5406	6586	7336	7658	7916	-204	-404	-717	-2.7	-5.0	-8.3
Biofuels and hydrogen production	0	0	0	73	111	308	-6	-15	-58	-7.5	-11.9	-15.8
District heating	2779	324	370	313	272	221	-20	-27	-113	-6.0	-8.9	-33.8
Derived gases, cokeries etc.	1960	1882	1883	760	611	490	-24	-28	-34	-3.1	-4.3	-6.5
Energy Branch Consumption	1359	1146	1279	1301	1334	1524	-117	-192	-119	-8.3	-12.6	-7.2
Non-Energy Uses	1427	1261	1059	1049	1170	1310	-7	-3	1	-0.6	-0.3	0.1
Final Energy Demand	16138	8861	9682	10743	11450	13145	-642	-1016	-1410	-5.6	-8.1	-9.7
by sector												
Industry	8966	3637	3673	3740	4034	5008	-91	-192	-107	-2.4	-4.5	-2.1
- energy intensive industries	5579	2814	2809	2862	3023	3616	-50	-117	-21	-1.7	-3.7	-0.6
- other industrial sectors	3387	823	864	878	1010	1391	-41	-75	-86	-4.4	-6.9	-5.8
Residential	2264	2363	2268	2288	2394	2475	-162	-218	-478	-6.6	-8.3	-16.2
Tertiary	2389	1044	1181	1240	1251	1327	-232	-317	-385	-15.7	-20.2	-22.5
Transport	2518	1817	2560	3476	3771	4336	-158	-289	-440	-4.3	-7.1	-9.2
by fuel												
Solids	1477	860	936	1082	1004	952	-59	-113	-257	-5.2	-10.1	-21.3
Oil	4967	2981	3599	4311	4527	4778	-150	-306	-561	-3.4	-6.3	-10.5
Gas	2066	1231	1025	813	740	828	-87	-206	-278	-9.7	-21.7	-25.1
Electricity	3085	2358	2383	2631	3044	4124	-409	-487	-131	-13.5	-13.8	-3.1
Heat (from CHP and District Heating)	4543	877	939	809	936	1018	-50	-13	-283	-5.8	-1.3	-21.7
Renewable energy forms	0	555	800	1097	1197	1444	114	109	100	11.6	10.0	7.4
Other	0	0	0	1	1	1	0	0	0	6.5	-5.5	-8.4
RES in Gross Final Energy Consumption ^(A)		786	1182	1736	2474	3542	407	1029	1570	30.6	71.3	79.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	109.4	63.1	65.2	54.7	51.4	43.6	-11.9	-19.2	-19.3	-17.9	-27.2	-30.7
CO₂ Emissions (energy related)	72.4	42.1	45.1	39.9	37.7	35.1	-10.3	-17.3	-18.5	-20.5	-31.4	-34.5
Power generation/District heating	44.8	24.9	26.2	19.7	17.5	14.2	-8.4	-14.4	-14.9	-30.0	-45.1	-51.1
Energy Branch	1.6	1.3	1.6	0.9	0.8	0.7	-1.0	-1.1	-0.2	-52.5	-57.5	-25.3
Industry	11.2	8.3	7.6	7.2	6.9	7.1	-0.1	-0.5	-1.0	-2.0	-6.7	-12.6
Residential	3.0	1.2	1.2	0.9	0.7	0.4	-0.2	-0.2	-0.6	-15.7	-24.0	-59.6
Tertiary	4.7	1.2	1.1	1.3	1.1	1.0	-0.1	-0.2	-0.4	-7.0	-16.3	-29.7
Transport	7.1	5.2	7.4	9.9	10.7	11.7	-0.5	-0.9	-1.3	-4.5	-7.7	-10.1
CO₂ Emissions (non energy related)	6.6	4.3	4.1	4.5	4.9	6.3	-0.1	0.0	-0.1	-1.5	-0.2	-1.8
Non-CO₂ GHGs Emissions	30.3	16.6	16.0	10.3	8.8	2.2	-1.6	-2.0	-0.7	-13.1	-18.3	-24.8
TOTAL GHGs Emissions Index (1990=100)	100.0	57.7	59.6	50.0	47.0	39.8	-10.9	-17.6	-17.6			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Bulgaria: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.767	8.191	7.761	7.130	6.796	6.175	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	20.1	16.9	21.4	36.8	49.3	84.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1394.5	1102.4	927.1	488.2	402.0	270.6	-59.0	-66.9	-28.1	-10.8	-14.3	-9.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.59	2.26	2.27	2.22	1.90	1.53	-0.27	-0.48	-0.58	-10.9	-20.0	-27.7
Import Dependency %	63.6	46.5	47.1	50.4	42.5	39.7	3.1	0.8	-0.8			
Total Energy-related Costs ^(B) (in 000 M€05)		5.9	6.2	11.3	14.3	20.8	0.5	0.9	1.5	4.3	6.6	7.9
as % of GDP		34.7	28.7	30.7	29.1	24.5	1.3	1.8	1.8			
Total Compliance Costs ^(D) (in 000 M€05)				0.5	0.9	1.5						
as % of GDP				1.33	1.89	1.82						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.2	100.0	76.3	42.9	33.3	22.6	-1.0	-1.6	-0.5	-2.4	-4.5	-2.1
Residential (Energy on Private Income, index 2000=100)	86.0	100.0	73.0	43.9	34.7	21.3	-3.1	-3.2	-4.1	-6.6	-8.3	-16.2
Tertiary (Energy on Value added, index 2000=100)	149.8	100.0	90.4	55.6	42.2	26.6	-10.4	-10.7	-7.7	-15.7	-20.2	-22.5
Passenger transport (toe/Mpkm)	20.9	26.8	31.8	31.1	29.6	28.1	-0.6	-0.9	-0.8	-1.9	-2.8	-2.8
Freight transport (toe/Mtkm)	60.4	74.4	65.7	58.7	54.7	52.0	-2.8	-4.8	-7.0	-4.5	-8.1	-11.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.45	0.46	0.45	0.35	0.26	0.17	-0.09	-0.16	-0.15	-21.2	-38.4	-47.7
Final energy demand (t of CO ₂ /toe)	1.61	1.80	1.79	1.80	1.70	1.53	0.02	-0.01	-0.08	1.4	-0.5	-5.0
Industry	1.25	2.29	2.06	1.93	1.71	1.41	0.01	-0.04	-0.17	0.4	-2.3	-10.8
Residential	1.33	0.50	0.53	0.39	0.30	0.16	-0.04	-0.06	-0.17	-9.8	-17.1	-51.8
Tertiary	1.98	1.13	0.91	1.02	0.89	0.73	0.10	0.04	-0.08	10.4	5.0	-9.4
Transport	2.81	2.87	2.91	2.86	2.83	2.70	-0.01	-0.02	-0.03	-0.2	-0.6	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	11.3	15.3	20.4	25.3	4.3	9.6	12.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.3	3.2	8.0	-0.1	-0.1	-0.4			
Gross Electricity generation by source (in GWh_e)												
	40639	43965	40810	51164	68044	68044	-6161	-7453	-1781	-13.1	-12.7	-2.6
Nuclear energy	18175	18650	13718	22242	30916	30916	0	0	216	0.0	0.0	0.7
Solids	16824	18120	19981	18528	22316	22316	-8095	-12614	-11269	-28.8	-40.5	-33.6
Oil (including refinery gas)	590	825	0	0	0	0	0	0	-1			-100.0
Gas (including derived gases)	2368	1963	1210	740	667	667	-29	-267	666	-2.3	-26.5	127459.8
Biomass-waste	10	70	1265	4212	7282	7282	1094	3950	6681	639.9	1509.1	1112.0
Hydro (pumping excluded)	2673	4336	3634	3697	3968	3968	321	261	0	9.7	7.6	0.0
Wind	0	2	998	1736	2812	2812	549	1217	1875	122.3	234.6	200.0
Solar	0	0	5	9	84	84	0	0	51	0.0	0.0	154.4
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	10900	10201	11679	11897	14348	14348	514	1460	1394	4.6	14.0	10.8
<u>Nuclear energy</u>	3473	2678	1910	2870	3842	3842	0	0	25	0.0	0.0	0.7
<u>Renewable energy</u>	1921	2005	3031	3647	4870	4870	498	1045	1766	19.6	40.2	56.9
Hydro (pumping excluded)	1921	2004	2202	2217	2403	2403	0	0	0	0.0	0.0	0.0
Wind	0	1	825	1422	2388	2388	498	1045	1713	152.1	277.2	253.5
Solar	0	0	4	8	79	79	0	0	53	0.0	0.0	198.9
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	5505	5517	6738	5380	5636	5636	16	415	-397	0.2	8.4	-6.6
of which cogeneration units	2163	2183	1677	1893	2592	2592	159	547	731	10.5	40.6	39.3
Solids fired	4536	4527	5536	4066	3389	3389	-181	-280	-1904	-3.2	-6.5	-36.0
Gas fired	603	625	640	314	710	710	0	0	531	0.0	0.0	296.6
Oil fired	355	355	334	262	29	29	0	0	-318	0.0	0.0	-91.6
Biomass-waste fired	11	11	228	739	1507	1507	197	695	1295	644.1	1604.3	611.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	38.3	44.6	37.0	45.9	50.0	50.0	-7.2	-13.4	-7.0			
Efficiency of gross thermal power generation (%)	27.0	27.7	41.2	42.1	47.1	47.1	3.2	5.3	4.5			
% of gross electricity from CHP	12.0	14.3	22.3	21.8	22.3	22.3	3.8	7.2	5.4			
Carbon free gross electricity generation (%)	51.3	52.4	48.1	62.3	66.2	66.2	10.5	17.2	14.3			
- nuclear	44.7	42.4	33.6	43.5	45.4	45.4	4.4	5.5	1.5			
- renewable energy forms	6.6	10.0	14.5	18.9	20.8	20.8	6.1	11.7	12.9			
Transport sector												
Passenger transport activity (Gpkm)												
	40.3	33.8	38.7	51.4	58.4	71.8	-0.4	-0.7	-0.9	-0.8	-1.1	-1.3
Public road transport	26.0	13.9	11.5	10.1	10.1	10.3	0.2	0.2	0.3	2.0	2.5	2.7
Private cars and motorcycles	5.4	15.5	23.1	35.0	40.4	50.4	-0.6	-0.9	-1.1	-1.6	-2.1	-2.2
Rail	7.8	3.5	2.4	2.9	3.6	5.4	0.1	0.1	0.1	2.0	2.5	2.9
Aviation	0.8	0.9	1.6	3.4	4.3	5.7	-0.1	-0.2	-0.2	-2.6	-3.4	-3.6
Inland navigation	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	-0.9	-1.1
Freight transport activity (Gtkm)												
	27.8	12.3	20.3	32.0	37.3	44.6	-0.4	-0.6	-0.7	-1.3	-1.6	-1.6
Trucks	12.0	6.4	14.3	23.8	27.5	32.6	-0.7	-1.1	-1.4	-3.0	-3.8	-4.0
Rail	14.1	5.5	5.2	7.0	8.3	10.3	0.3	0.4	0.6	4.5	5.5	6.1
Inland navigation	1.6	0.3	0.8	1.2	1.5	1.7	0.0	0.0	0.0	1.2	1.5	1.5
Energy demand in transport (ktoe)												
	2518	1817	2560	3476	3771	4336	-158	-289	-440	-4.3	-7.1	-9.2
Public road transport	318	158	97	72	68	58	0	-1	-6	0.0	-1.2	-9.1
Private cars and motorcycles	231	639	928	1194	1274	1468	-34	-54	-52	-2.8	-4.0	-3.4
Trucks	1459	842	1274	1808	1964	2249	-117	-216	-354	-6.1	-9.9	-13.6
Rail	216	77	60	75	79	70	3	-3	-1	3.8	-3.1	-1.7
Aviation	276	101	200	325	383	487	-9	-16	-27	-2.7	-4.1	-5.2
Inland navigation	18	1	2	3	3	3	0	0	0	0.4	0.0	-1.2

Source: PRIMES

Cyprus: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	6	42	44	51	106	151	210	237	279	23.0	9.1	7.1	2.9		
Solids	0	0	0	0	1	1	2	3	3			10.3	7.2		
Oil	0	0	0	0	0	0	0	0	0						
Natural gas	0	0	0	0	0	0	0	0	0						
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	6	42	44	51	105	150	208	235	276	23.0	9.0	7.1	2.8		
Hydro	0	0	0	0	0	0	0	0	0						
Biomass & Waste	6	11	9	10	14	18	23	28	33	4.7	5.0	4.6	4.0		
Wind	0	0	0	0	9	12	45	61	88			17.3	7.0		
Solar and others	0	31	35	41	82	121	141	145	154		8.7	5.6	0.9		
Geothermal	0	0	0	0	0	0	0	0	0			5.2	0.4		
Net Imports	1554	2017	2537	2808	2937	2688	2599	2593	2573	5.0	1.5	-1.2	-0.1		
Solids	68	17	36	44	35	35	35	35	35	-6.3	-0.1	-0.1	0.2		
Oil	1486	2000	2502	2764	2704	2169	2083	1952	1868	5.3	0.8	-2.6	-1.1		
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-1.3	-0.5		
- Oil products	761	1207	1353	2764	2702	2167	2081	1950	1866	5.9	7.2	-2.6	-1.1		
Natural gas	0	0	0	0	195	471	452	506	551			8.8	2.0		
Electricity	0	0	0	0	0	0	0	0	0						
Gross Inland Consumption	1500	1970	2381	2461	2708	2506	2478	2501	2523	4.7	1.3	-0.9	0.2		
Solids	60	13	35	36	36	36	36	37	39	-5.3	0.2	0.1	0.6		
Oil	1434	1914	2302	2374	2370	1836	1752	1623	1540	4.8	0.3	-3.0	-1.3		
Natural gas	0	0	0	0	195	471	452	506	551			8.8	2.0		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	0	0	0	0	0	0	0	0	0						
Renewable energy forms	6	42	44	51	108	163	237	335	394	23.0	9.3	8.2	5.2		
as % in Gross Inland Consumption															
Solids	4.0	0.7	1.5	1.5	1.3	1.4	1.5	1.5	1.5						
Oil	95.6	97.2	96.7	96.5	87.5	73.3	70.7	64.9	61.0						
Natural gas	0.0	0.0	0.0	0.0	7.2	18.8	18.3	20.2	21.8						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	0.4	2.2	1.9	2.1	4.0	6.5	9.6	13.4	15.6						
Gross Electricity Generation in GWh_e	1974	2473	3369	4377	4292	4482	4776	5559	6050	5.5	2.4	1.1	2.4		
Self consumption and grid losses	207	236	353	410	421	323	331	361	387	5.5	1.8	-2.4	1.6		
Fuel Inputs to Thermal Power Generation	509	641	884	1077	1013	770	729	770	767	5.7	1.4	-3.2	0.5		
Solids	0	0	0	0	0	0	0	0	0						
Oil (including refinery gas)	509	641	884	1077	817	295	262	179	115	5.7	-0.8	-10.7	-7.9		
Gas (including derived gases)	0	0	0	0	195	471	452	506	551			8.8	2.0		
Biomass & Waste	0	0	0	0	1	5	15	86	102			31.7	21.4		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	725	824	1167	0	7	15	26	33	42	4.9	-40.4	14.6	5.0		
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-1.3	-0.5		
Biofuels and hydrogen production	0	0	0	0	4	12	24	31	40			19.1	5.4		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0						
Energy Branch Consumption	35	43	54	22	23	13	12	12	12	4.3	-8.2	-5.9	-0.8		
Non-Energy Uses	111	155	188	185	186	186	194	199	203	5.4	-0.1	0.4	0.4		
Final Energy Demand	1013	1306	1527	1691	1831	1892	1881	1899	1924	4.2	1.8	0.3	0.2		
by sector															
Industry	281	201	229	201	201	202	213	221	228	-2.0	-1.3	0.6	0.7		
- energy intensive industries	246	125	117	78	74	73	70	68	68	-7.2	-4.5	-0.5	-0.3		
- other industrial sectors	35	76	113	122	127	129	143	153	160	12.3	1.2	1.2	1.1		
Residential	102	172	215	234	259	269	252	252	255	7.8	1.9	-0.3	0.2		
Tertiary	151	186	233	289	309	333	342	351	356	4.4	2.8	1.0	0.4		
Transport	479	747	850	967	1063	1089	1075	1074	1084	5.9	2.3	0.1	0.1		
by fuel															
Solids	76	13	35	36	36	36	36	37	39	-7.5	0.2	0.1	0.6		
Oil	781	1068	1190	1263	1367	1355	1296	1245	1222	4.3	1.4	-0.5	-0.6		
Gas	0	0	0	0	0	0	0	0	0			6.9	4.9		
Electricity	151	191	258	340	332	357	382	446	486	5.5	2.6	1.4	2.5		
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0						
Renewable energy forms	6	33	44	51	97	144	167	170	176	23.0	8.1	5.6	0.5		
Other	0	0	0	0	0	0	0	0	0			9.7	7.5		
RES in Gross Final Energy Consumption ^(A)			44	51	106	157	224	278	325		9.2	7.7	3.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8		7.8	8.6	8.4	7.2	6.9	6.5	6.2	3.1	0.7	-2.0	-1.0		
CO₂ Emissions (energy related)	4.4	5.4	6.6	7.4	7.3	6.2	5.9	5.6	5.5	4.3	0.9	-2.1	-0.8		
Power generation/District heating	1.6	2.1	2.8	3.5	3.1	2.0	1.9	1.8	1.7	5.7	0.8	-4.7	-1.4		
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8					
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	-2.2	0.3	0.4		
Residential	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	3.9	-1.8	-6.4	-14.2		
Tertiary	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	4.3	2.0	-3.1	-6.1		
Transport	1.4	2.2	2.5	2.9	3.1	3.2	3.1	3.1	3.1	6.0	2.2	-0.1	-0.1		
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Non-CO₂ GHGs Emissions	1.4		1.2	1.2	1.1	1.0	1.0	0.9	0.8	-1.5	-0.8	-1.3	-2.1		
TOTAL GHGs Emissions Index (1990=100)	100.0		136.4	149.0	145.9	125.3	119.6	112.5	108.5						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Cyprus: Cost Efficiency Scenario with high prices			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	165.6	128.2	106.1	93.2	84.2	0.2	-2.1	-4.4	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.74	2.79	2.99	2.69	2.48	2.38	2.25	2.16	-0.4	-0.4	-1.2	-1.0
Import Dependency %	100.1	99.1	98.8	100.7	96.5	94.7	92.5	91.6	90.2				
Total Energy-related Costs ^(B) (in 000 M€05)			1.1	1.5	2.1	2.4	2.8	3.2	3.5		6.5	3.2	2.2
as % of GDP			9.3	11.4	12.6	12.1	12.1	12.0	11.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	136.5	86.5	100.0	83.9	75.1	66.9	59.2	53.5	49.7	-3.1	-2.8	-2.4	-1.7
Residential (Energy on Private Income, index 2000=100)	85.0	98.4	100.0	91.0	83.5	72.2	56.3	49.5	45.3	1.6	-1.8	-3.9	-2.1
Tertiary (Energy on Value added, index 2000=100)	115.0	100.1	100.0	106.2	93.5	83.3	71.3	63.6	57.5	-1.4	-0.7	-2.7	-2.1
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.4	43.0	40.7	39.3	38.7	2.1	0.2	-0.9	-0.5
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	260.5	254.1	241.5	235.1	232.7	3.5	-0.7	-0.8	-0.4
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.83	0.84	0.79	0.72	0.46	0.40	0.32	0.27	0.2	-1.6	-5.7	-3.7
Final energy demand (t of CO ₂ /toe)	2.61	2.49	2.42	2.31	2.30	2.21	2.13	2.03	1.97	-0.8	-0.5	-0.8	-0.8
Industry	3.07	2.67	2.72	2.48	2.48	2.45	2.40	2.35	2.34	-1.2	-0.9	-0.3	-0.3
Residential	1.51	1.15	1.05	0.82	0.72	0.54	0.38	0.18	0.08	-3.6	-3.7	-6.2	-14.4
Tertiary	1.37	1.55	1.35	1.18	1.25	1.04	0.82	0.57	0.42	-0.1	-0.8	-4.1	-6.5
Transport	2.97	2.98	2.98	2.97	2.96	2.94	2.90	2.88	2.85	0.0	-0.1	-0.2	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.8	3.0	5.7	8.2	11.7	14.4	16.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.5	1.4	2.7	3.5	4.5				
Gross Electricity generation by source (in GWh)													
			3369	4377	4292	4482	4776	5559	6050		2.4	1.1	2.4
Nuclear energy			0	0	0	0	0	0	0				
Solids			0	0	0	0	0	0	0				
Oil (including refinery gas)			3369	4376	3422	1388	1262	866	556		0.2	-9.5	-7.9
Gas (including derived gases)			0	0	758	2934	2847	3421	3743			14.1	2.8
Biomass-waste			0	0	5	24	71	415	489			31.5	21.2
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	106	134	522	708	1029			17.3	7.0
Solar			0	1	1	1	35	48	65			42.3	6.3
Geothermal and other renewables			0	0	0	0	39	100	168				15.7
Net Generation Capacity in MW_e			930	1155	1404	1396	1585	2045	2197		4.2	1.2	3.3
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			1	1	57	62	244	348	525		52.3	15.7	8.0
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	56	61	200	265	395			13.6	7.0
Solar			1	1	1	1	23	32	43		0.0	39.3	6.3
Other renewables (tidal etc.)			0	0	0	0	20	52	87				15.7
<u>Thermal power</u>			929	1154	1347	1334	1341	1697	1672		3.8	0.0	2.2
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	483	862	937				6.9
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	1	5	12	103	117			23.7	25.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			39.3	40.8	32.8	35.5	33.4	30.3	30.8				
Efficiency of gross thermal power generation (%)			32.8	35.0	35.5	48.5	49.3	52.5	53.7				
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Carbon free gross electricity generation (%)			0.0	0.0	2.6	3.6	14.0	22.9	28.9				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	2.6	3.6	14.0	22.9	28.9				
Transport sector													
Passenger transport activity (Gpkm)	7.9	9.0	11.1	13.5	15.4	16.5	17.4	18.1	18.5	3.5	3.4	1.2	0.6
Public road transport	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.8	1.8	3.1	2.0	1.8	1.3
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.5	4.7	4.8	4.9	2.5	3.9	0.7	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.7	10.5	11.1	11.5	11.7	4.0	3.3	1.3	0.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.6	1.6	2.7	1.0	0.5	0.4
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.6	1.6	2.7	1.0	0.5	0.4
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Energy demand in transport (ktoe)	479	747	850	967	1063	1089	1075	1074	1084	5.9	2.3	0.1	0.1
Public road transport	8	14	16	16	18	19	19	19	18	6.4	1.2	1.0	-0.8
Private cars and motorcycles	117	145	177	288	323	328	322	323	333	4.2	6.2	0.0	0.3
Trucks	201	321	368	364	378	379	367	365	368	6.2	0.3	-0.3	0.0
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	344	363	366	367	365	6.6	1.7	0.6	0.0
Inland navigation	0	0	0	0	0	0	0	0	0				

Source: PRIMES

Cyprus: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6	44	51	151	210	279	37	45	47	32.8	27.1	20.2
Solids	0	0	0	1	2	3	0	0	-2	107.9	0.0	-35.9
Oil	0	0	0	0	0	0	0	0	0	87.8	-75.7	19.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6	44	51	150	208	276	37	45	49	32.5	27.4	21.4
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	6	9	10	18	23	33	0	0	-2	0.0	0.0	-5.6
Wind	0	0	0	12	45	88	2	1	5	14.9	3.3	5.4
Solar and others	0	35	41	121	141	154	35	43	46	41.5	44.4	42.5
Geothermal	0	0	0	0	0	0	0	0	0	42.9	93.2	135.4
Net Imports	1554	2537	2808	2688	2599	2573	-297	-414	-436	-9.9	-13.8	-14.5
Solids	68	36	44	35	35	35	-1	-1	-1	-1.8	-3.1	-2.5
Oil	1486	2502	2764	2169	2083	1868	-246	-345	-243	-10.2	-14.2	-11.5
- Crude oil and Feedstocks	725	1149	0	2	2	2	0	0	0	-3.0	-5.4	-3.9
- Oil products	761	1353	2764	2167	2081	1866	-246	-344	-243	-10.2	-14.2	-11.5
Natural gas	0	0	0	471	452	551	-47	-49	-91	-9.0	-9.8	-14.2
Electricity	0	0	0	0	0	0	0	0	0	-66.7	-100.0	-125.0
Gross Inland Consumption	1500	2381	2461	2506	2478	2523	-259	-370	-389	-9.4	-13.0	-13.4
Solids	60	35	36	36	36	39	0	-1	-3	-0.5	-2.9	-6.4
Oil	1434	2302	2374	1836	1752	1540	-246	-345	-243	-11.8	-16.4	-13.6
Natural gas	0	0	0	471	452	551	-47	-49	-91	-9.0	-9.8	-14.2
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	0	0	0	0	0	0	-66.7	-100.0	-125.0
Renewable energy forms	6	44	51	163	237	394	34	25	-52	26.4	11.9	-11.6
as % in Gross Inland Consumption												
Solids	4.0	1.5	1.5	1.4	1.5	1.5	0.1	0.2	0.1			
Oil	95.6	96.7	96.5	73.3	70.7	61.0	-2.0	-2.9	-0.2			
Natural gas	0.0	0.0	0.0	18.8	18.3	21.8	0.1	0.6	-0.2			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.4	1.9	2.1	6.5	9.6	15.6	1.8	2.1	0.3			
Gross Electricity Generation in GWh_e	1974	3369	4377	4482	4776	6050	-987	-1157	-1054	-18.0	-19.5	-14.8
Self consumption and grid losses	207	353	410	323	331	387	-89	-106	-101	-21.7	-24.3	-20.8
Fuel Inputs to Thermal Power Generation	509	884	1077	770	729	767	-229	-281	-230	-23.0	-27.8	-23.0
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	509	884	1077	295	262	115	-181	-217	-48	-38.1	-45.3	-29.6
Gas (including derived gases)	0	0	0	471	452	551	-47	-49	-91	-9.0	-9.8	-14.2
Biomass & Waste	0	0	0	5	15	102	-2	-15	-90	-26.8	-50.7	-47.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	725	1167	0	15	26	42	-1	-3	-7	-6.9	-11.5	-14.5
Refineries	725	1167	0	2	2	2	0	0	0	-3.0	-5.4	-3.9
Biofuels and hydrogen production	0	0	0	12	24	40	-1	-3	-7	-7.6	-12.0	-15.0
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	35	54	22	13	12	12	-4	-5	-4	-24.1	-27.9	-28.0
Non-Energy Uses	111	188	185	186	194	203	0	0	0	0.0	0.0	0.0
Final Energy Demand	1013	1527	1691	1892	1881	1924	-108	-183	-259	-5.4	-8.9	-11.9
by sector												
Industry	281	229	201	202	213	228	-5	-8	-12	-2.6	-3.6	-4.9
- energy intensive industries	246	117	78	73	70	68	-1	-1	-1	-1.0	-1.4	-1.1
- other industrial sectors	35	113	122	129	143	160	-5	-7	-11	-3.4	-4.7	-6.4
Residential	102	215	234	269	252	255	-3	-25	-29	-1.0	-9.0	-10.3
Tertiary	151	233	289	333	342	356	-59	-80	-130	-15.0	-19.0	-26.8
Transport	479	850	967	1089	1075	1084	-42	-70	-87	-3.7	-6.1	-7.5
by fuel												
Solids	76	35	36	36	36	39	0	-1	-3	-0.5	-2.9	-6.4
Oil	781	1190	1263	1355	1296	1222	-65	-127	-195	-4.6	-9.0	-13.7
Gas	0	0	0	0	0	0	0	0	0	11.0	2.5	50.2
Electricity	151	258	340	357	382	486	-77	-90	-82	-17.8	-19.1	-14.4
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	23.8	33.7	9627.6
Renewable energy forms	6	44	51	144	167	176	34	36	20	31.3	27.4	13.0
Other	0	0	0	0	0	0	0	0	0	5.2	-4.5	-6.5
RES in Gross Final Energy Consumption ^(A)		44	51	157	224	325	35	35	4	28.9	18.5	1.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	5.8	7.8	8.6	7.2	6.9	6.2	-1.0	-1.3	-1.1	-12.0	-16.2	-14.8
CO₂ Emissions (energy related)	4.4	6.6	7.4	6.2	5.9	5.5	-0.9	-1.2	-1.0	-12.5	-16.9	-15.1
Power generation/District heating	1.6	2.8	3.5	2.0	1.9	1.7	-0.7	-0.8	-0.4	-25.2	-30.0	-18.2
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.9	0.6	0.5	0.5	0.5	0.5	0.0	0.0	-0.1	-2.9	-6.4	-11.2
Residential	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	-0.1	-3.5	-21.5	-71.9
Tertiary	0.2	0.3	0.3	0.3	0.3	0.2	-0.1	-0.1	-0.2	-13.1	-29.1	-58.1
Transport	1.4	2.5	2.9	3.2	3.1	3.1	-0.1	-0.2	-0.3	-3.8	-6.4	-8.0
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	1.4	1.2	1.2	1.0	1.0	0.8	-0.1	-0.1	-0.1	-8.6	-12.1	-13.0
TOTAL GHGs Emissions Index (1990=100)	100.0	136.4	149.0	125.3	119.6	108.5	-17.1	-23.2	-18.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Cyprus: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.573	0.690	0.749	0.828	0.866	0.921	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	7.5	11.7	13.6	19.6	23.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	200.9	204.2	180.6	128.2	106.1	84.2	-13.3	-15.8	-13.0	-9.4	-13.0	-13.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.79	2.99	2.48	2.38	2.16	-0.09	-0.11	-0.04	-3.4	-4.5	-2.0
Import Dependency %	100.1	98.8	100.7	94.7	92.5	90.2	-1.7	-2.3	-2.6			
Total Energy-related Costs ^(B) (in 000 M€05)		1.1	1.5	2.4	2.8	3.5	0.0	0.0	0.0	0.7	0.1	0.8
as % of GDP		9.3	11.4	12.1	12.1	11.8	0.1	0.0	0.1			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.10	0.02	0.10						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	136.5	100.0	83.9	66.9	59.2	49.7	-1.8	-2.2	-2.5	-2.6	-3.6	-4.9
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	91.0	72.2	56.3	45.3	-0.7	-5.6	-5.2	-1.0	-9.0	-10.3
Tertiary (Energy on Value added, index 2000=100)	115.0	100.0	106.2	83.3	71.3	57.5	-14.7	-16.7	-21.0	-15.0	-19.0	-26.8
Passenger transport (toe/Mpkm)	35.4	43.5	44.8	43.0	40.7	38.7	-0.5	-1.0	-1.1	-1.1	-2.3	-2.7
Freight transport (toe/Mtkm)	199.1	280.6	261.2	254.1	241.5	232.7	-10.9	-19.9	-26.8	-4.1	-7.6	-10.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.83	0.84	0.79	0.46	0.40	0.27	-0.04	-0.06	-0.01	-8.8	-13.0	-4.0
Final energy demand (t of CO ₂ /toe)	2.61	2.42	2.31	2.21	2.13	1.97	0.02	0.00	-0.04	0.9	0.0	-2.0
Industry	3.07	2.72	2.48	2.45	2.40	2.34	-0.01	-0.07	-0.17	-0.3	-2.9	-6.7
Residential	1.51	1.05	0.82	0.54	0.38	0.08	-0.01	-0.06	-0.18	-2.5	-13.7	-68.6
Tertiary	1.37	1.35	1.18	1.04	0.82	0.42	0.02	-0.12	-0.32	2.1	-12.4	-42.8
Transport	2.97	2.98	2.97	2.94	2.90	2.85	0.00	-0.01	-0.02	-0.1	-0.3	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.8	3.0	8.2	11.7	16.6	2.2	2.7	2.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	1.4	2.7	4.5	0.0	-0.1	-0.3			
Gross Electricity generation by source (in GWh_e)												
	3369	4377	4482	4776	6050	6050	-987	-1157	-1054	-18.0	-19.5	-14.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3369	4376	1388	1262	556	556	-705	-845	-233	-33.7	-40.1	-29.6
Gas (including derived gases)	0	0	2934	2847	3743	3743	-291	-294	-602	-9.0	-9.4	-13.9
Biomass-waste	0	0	24	71	489	489	-8	-73	-439	-25.4	-50.4	-47.3
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	134	522	1029	1029	17	16	53	14.9	3.3	5.4
Solar	0	1	1	35	65	65	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	39	168	168	0	39	168	18418.0	71236.2	71236.2
Net Generation Capacity in MW_e												
	930	1155	1396	1585	2197	2197	9	4	-5	0.7	0.2	-0.2
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1	1	62	244	525	525	8	-5	69	14.6	-1.9	15.2
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	61	200	395	395	8	-25	-18	14.8	-11.1	-4.3
Solar	1	1	1	23	43	43	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	20	87	87	0	20	87	18418.0	71236.2	71236.2
<u>Thermal power</u>	929	1154	1334	1341	1672	1672	1	8	-75	0.1	0.6	-4.3
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	429	483	937	937	0	20	-35	0.0	4.4	-3.6
Oil fired	929	1154	899	846	618	618	0	0	0	0.0	0.0	0.0
Biomass-waste fired	0	0	5	12	117	117	1	-12	-40	36.5	-49.3	-25.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	39.3	40.8	35.5	33.4	30.8	30.8	-8.0	-8.0	-5.1			
Efficiency of gross thermal power generation (%)	32.8	35.0	48.5	49.3	53.7	53.7	2.5	3.4	1.4			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	3.6	14.0	28.9	28.9	0.8	2.4	1.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	3.6	14.0	28.9	28.9	0.8	2.4	1.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	7.9	11.1	13.5	16.5	17.4	18.5	-0.2	-0.3	-0.3	-1.1	-1.5	-1.6
Private cars and motorcycles	0.8	1.1	1.2	1.5	1.6	1.8	0.0	0.1	0.1	2.9	3.7	4.1
Rail	2.3	3.0	3.9	4.5	4.7	4.9	0.0	0.0	0.0	-0.8	-0.9	-0.9
Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	4.7	7.0	8.4	10.5	11.1	11.7	-0.2	-0.3	-0.3	-1.8	-2.5	-2.8
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	1.0	1.3	1.4	1.5	1.5	1.6	0.0	0.0	-0.1	-2.3	-2.9	-3.1
Rail	1.0	1.3	1.4	1.5	1.5	1.6	0.0	0.0	-0.1	-2.3	-2.9	-3.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	479	850	967	1089	1075	1084	-42	-70	-87	-3.7	-6.1	-7.5
Private cars and motorcycles	8	16	16	19	19	18	0	0	-1	0.2	-1.7	-5.4
Trucks	117	177	288	328	322	333	-8	-12	-11	-2.4	-3.6	-3.2
Rail	201	368	364	379	367	368	-25	-42	-55	-6.3	-10.3	-13.1
Aviation	0	0	0	0	0	0	0	0	0			
Inland navigation	152	290	299	363	366	365	-8	-15	-20	-2.2	-4.0	-5.2
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Czech Republic: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	38484	31733	29788	32779	28199	26309	26857	28805	30547	-2.5	-0.5	-0.5	1.3
Solids	34715	27481	25002	23520	17097	14069	12091	11089	10090	-3.2	-3.7	-3.4	-1.8
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0
Natural gas	201	198	169	154	161	140	118	106	95	-1.7	-0.5	-3.0	-2.1
Nuclear	3246	3155	3506	6379	7479	7592	9012	10720	12864	0.8	7.9	1.9	3.6
Renewable energy sources	100	627	727	2142	3263	4308	5436	6690	7298	22.0	16.2	5.2	3.0
Hydro	100	172	151	205	221	221	224	225	230	4.2	3.9	0.1	0.3
Biomass & Waste	0	455	576	1933	2900	3625	4531	5664	6133		17.5	4.6	3.1
Wind	0	0	0	2	75	122	173	206	242			8.7	3.4
Solar and others	0	0	0	2	67	340	507	595	691			22.5	3.1
Geothermal	0	0	0	0	0	0	0	0	0			7.3	2.6
Net Imports	7630	8417	9297	12271	17802	16576	17405	17692	18091	2.0	6.7	-0.2	0.4
Solids	-5685	-5784	-4751	-3489	719	-102	786	1263	1867			0.9	9.0
Oil	8589	7742	7428	9499	10493	10796	11059	11258	11700	-1.4	3.5	0.5	0.6
- Crude oil and Feedstocks	7382	6798	5492	7539	8403	8630	8828	8980	9314	-2.9	4.3	0.5	0.5
- Oil products	1207	944	1936	1960	2090	2166	2231	2279	2385	4.8	0.8	0.7	0.7
Natural gas	4786	6424	7482	7535	7877	6848	5785	5215	4671	4.6	0.5	-3.0	-2.1
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Gross Inland Consumption	47380	40801	40307	44798	46002	42885	44262	46497	48637	-1.6	1.3	-0.4	0.9
Solids	29882	22556	21645	20099	17816	13967	12878	12352	11957	-3.2	-1.9	-3.2	-0.7
Oil	8964	7876	7790	9748	10693	10996	11259	11458	11900	-1.4	3.2	0.5	0.6
Natural gas	5248	6552	7500	7703	8038	6987	5903	5321	4767	3.6	0.7	-3.0	-2.1
Nuclear	3246	3155	3506	6379	7479	7592	9012	10720	12864	0.8	7.9	1.9	3.6
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Renewable energy forms	100	627	727	1955	3390	4614	6316	8126	8853	22.0	16.6	6.4	3.4
as % in Gross Inland Consumption													
Solids	63.1	55.3	53.7	44.9	38.7	32.6	29.1	26.6	24.6				
Oil	18.9	19.3	19.3	21.8	23.2	25.6	25.4	24.6	24.5				
Natural gas	11.1	16.1	18.6	17.2	17.5	16.3	13.3	11.4	9.8				
Nuclear	6.9	7.7	8.7	14.2	16.3	17.7	20.4	23.1	26.4				
Renewable energy forms	0.2	1.5	1.8	4.4	7.4	10.8	14.3	17.5	18.2				
Gross Electricity Generation in GWh_e	62260	60564	72898	81916	84534	86420	91371	107159	123056	1.6	1.5	0.8	3.0
Self consumption and grid losses	8541	8837	10601	11632	10842	10491	11103	13289	16253	2.2	0.2	0.2	3.9
Fuel Inputs to Thermal Power Generation	10989	14575	15873	15591	13739	10234	9897	10990	11096	3.7	-1.4	-3.2	1.2
Solids	9947	13571	14031	13955	12650	8698	7838	7894	8087	3.5	-1.0	-4.7	0.3
Oil (including refinery gas)	741	311	203	126	132	0	0	0	0	-12.2	-4.2		
Gas (including derived gases)	300	573	1270	1286	825	779	232	288	298	15.5	-4.2	-11.9	2.5
Biomass & Waste	0	119	369	224	133	757	1826	2808	2711		-9.7	29.9	4.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	18634	14422	11312	13108	13476	13164	13218	12851	12931	-4.9	1.8	-0.2	-0.2
Refineries	7946	7026	6047	7957	8643	8889	9099	9253	9595	-2.7	3.6	0.5	0.5
Biofuels and hydrogen production	0	11	0	3	397	603	925	1001	1107			8.8	1.8
District heating	2138	1404	999	909	1182	740	708	278	192	-7.3	1.7	-5.0	-12.2
Derived gases, cokeries etc.	8549	5982	4266	4239	3254	2932	2486	2319	2037	-6.7	-2.7	-2.7	-2.0
Energy Branch Consumption	2124	1866	1919	1915	2203	2138	2125	2222	2390	-1.0	1.4	-0.4	1.2
Non-Energy Uses	1680	2132	1962	2419	2813	3153	3515	3710	3908	1.6	3.7	2.3	1.1
Final Energy Demand	36267	25697	23905	25801	27560	28046	28470	29166	29914	-4.1	1.4	0.3	0.5
by sector													
Industry	19215	12191	10031	9439	10002	10126	10178	10484	10701	-6.3	0.0	0.2	0.5
- energy intensive industries	8050	6719	6276	6588	6948	7008	6866	6959	7016	-2.5	1.0	-0.1	0.2
- other industrial sectors	11165	5472	3755	2851	3054	3118	3311	3525	3685	-10.3	-2.0	0.8	1.1
Residential	8625	5796	5260	6063	6436	6459	6490	6600	6633	-4.8	2.0	0.1	0.2
Tertiary	5622	4871	3893	3730	3699	3572	3687	3792	3858	-3.6	-0.5	0.0	0.5
Transport	2804	2840	4721	6569	7423	7889	8115	8290	8721	5.3	4.6	0.9	0.7
by fuel													
Solids	17789	6457	5164	3619	3653	3682	3481	3239	2796	-11.6	-3.4	-0.5	-2.2
Oil	6229	5018	5291	6913	7361	7643	7555	7585	7830	-1.6	3.4	0.3	0.4
Gas	5146	6119	6419	6581	6759	6123	5651	5250	4766	2.2	0.5	-1.8	-1.7
Electricity	4142	4129	4243	4750	4720	5062	5610	6406	7294	0.2	1.1	1.7	2.7
Heat (from CHP and District Heating)	2959	3664	2624	2478	2321	2251	2367	2235	2106	-1.2	-1.2	0.2	-1.2
Renewable energy forms	0	309	165	1460	2744	3283	3804	4448	5120		32.5	3.3	3.0
Other	0	0	0	0	1	1	2	2	3			11.1	3.4
RES in Gross Final Energy Consumption ^(A)			610	1832	3270	4369	5865	7433	8140		18.3	6.0	3.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1		148.9	145.3	141.1	120.8	111.7	105.3	97.6	-3.1	-0.5	-2.3	-1.3
CO₂ Emissions (energy related)	154.8	118.4	116.7	114.8	111.3	93.6	86.5	83.0	77.8	-2.8	-0.5	-2.5	-1.1
Power generation/District heating	48.8	60.4	62.1	61.0	55.2	38.4	33.8	32.6	30.2	2.4	-1.2	-4.8	-1.1
Energy Branch	2.3	1.5	2.2	2.3	2.7	2.5	2.4	2.0	1.5	-0.5	1.9	-1.1	-4.3
Industry	58.1	29.0	25.2	20.9	21.3	21.4	20.2	18.7	16.2	-8.0	-1.7	-0.5	-2.2
Residential	24.0	10.6	7.9	7.1	7.2	6.4	5.8	5.6	5.2	-10.5	-0.9	-2.2	-1.0
Tertiary	14.1	9.2	5.9	4.5	4.2	3.3	2.9	2.4	2.0	-8.4	-3.3	-3.8	-3.3
Transport	7.5	7.7	13.4	19.1	20.7	21.6	21.5	21.7	22.6	6.0	4.4	0.4	0.5
CO₂ Emissions (non energy related)	18.3	13.5	12.4	11.3	11.3	11.3	11.2	11.2	11.0	-3.8	-0.9	-0.1	-0.2
Non-CO₂ GHGs Emissions	31.0		19.8	19.2	18.6	15.9	14.0	11.1	8.8	-4.4	-0.6	-2.7	-4.5
TOTAL GHGs Emissions Index (1990=100)	100.0		72.9	71.2	69.1	59.2	54.7	51.6	47.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Czech Republic: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	369.3	288.8	248.4	228.1	214.2	-1.9	-2.7	-3.9	-1.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.90	2.89	2.56	2.42	2.18	1.95	1.78	1.60	-1.2	-1.8	-2.1	-2.0
Import Dependency %	16.1	20.6	23.1	27.4	38.7	38.7	39.3	38.0	37.2				
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.9	22.1	27.9	34.2	39.0	43.7		3.8	4.5	2.5
as % of GDP			18.3	16.9	17.8	18.8	19.2	19.1	19.3				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	212.7	162.3	100.0	72.4	59.3	50.9	43.5	39.5	36.4	-7.3	-5.1	-3.1	-1.8
Residential (Energy on Private Income, index 2000=100)	181.6	126.0	100.0	98.7	83.5	70.1	58.6	52.2	47.3	-5.8	-1.8	-3.5	-2.1
Tertiary (Energy on Value added, index 2000=100)	215.6	130.1	100.0	81.5	65.4	52.6	44.8	40.2	36.6	-7.4	-4.2	-3.7	-2.0
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.6	31.9	30.1	28.0	27.4	4.0	2.4	-0.8	-0.9
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	56.9	55.7	52.3	49.6	48.9	7.5	4.1	-0.9	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.55	0.56	0.51	0.45	0.31	0.26	0.23	0.19	1.8	-2.1	-5.3	-3.0
Final energy demand (t of CO ₂ /toe)	2.86	2.20	2.19	2.00	1.94	1.88	1.77	1.66	1.54	-2.6	-1.2	-0.9	-1.4
Industry	3.03	2.38	2.51	2.21	2.13	2.11	1.99	1.78	1.52	-1.8	-1.6	-0.7	-2.7
Residential	2.78	1.84	1.50	1.16	1.12	0.99	0.89	0.85	0.79	-6.0	-2.9	-2.3	-1.2
Tertiary	2.51	1.89	1.51	1.21	1.14	0.91	0.78	0.64	0.53	-5.0	-2.8	-3.8	-3.8
Transport	2.68	2.71	2.85	2.90	2.79	2.74	2.64	2.62	2.59	0.6	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.4	6.7	11.3	14.9	19.7	24.4	25.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.9	7.0	10.5	11.1	11.7				
Gross Electricity generation by source (in GWh)													
			72898	81916	84534	86420	91371	107159	123056		1.5	0.8	3.0
Nuclear energy			13588	24724	28995	29433	35583	43318	55633		7.9	2.1	4.6
Solids			50038	47938	44698	43290	39629	42426	45823		-1.1	-1.2	1.5
Oil (including refinery gas)			528	447	161	27	19	15	12		-11.2	-19.3	-4.3
Gas (including derived gases)			6087	5565	6136	5914	3336	3489	2818		0.1	-5.9	-1.7
Biomass-waste			899	841	1106	3769	8180	12883	13254		2.1	22.2	4.9
Hydro (pumping excluded)			1758	2380	2565	2569	2603	2619	2677		3.9	0.1	0.3
Wind			0	22	871	1415	2013	2392	2819			8.7	3.4
Solar			0	0	1	4	8	16	20			19.5	9.2
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			12048	13981	14890	17341	18687	19302	20464		2.1	2.3	0.9
<u>Nuclear energy</u>			1661	3504	3519	3534	4141	5035	6441		7.8	1.6	4.5
<u>Renewable energy</u>			1148	1227	1923	2310	2956	3320	3736		5.3	4.4	2.4
Hydro (pumping excluded)			1142	1196	1254	1256	1260	1261	1266		0.9	0.0	0.0
Wind			7	30	668	1048	1684	2038	2441		58.2	9.7	3.8
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			9239	9250	9447	11497	11590	10947	10287		0.2	2.1	-1.2
of which cogeneration units			3030	3110	2790	4098	4871	5671	5875		-0.8	5.7	1.9
Solids fired			7747	7661	7743	9392	8665	7329	6594		0.0	1.1	-2.7
Gas fired			1208	1302	1331	1264	1315	1257	1280		1.0	-0.1	-0.3
Oil fired			118	122	125	118	57	30	11		0.6	-7.5	-15.4
Biomass-waste fired			165	165	248	724	1552	2331	2402		4.2	20.1	4.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			63.9	61.7	60.3	53.6	52.7	59.7	64.1				
Efficiency of gross thermal power generation (%)			31.2	30.2	32.6	44.5	44.5	46.0	48.0				
% of gross electricity from CHP			21.1	16.7	15.8	28.8	28.8	29.5	27.0				
Carbon free gross electricity generation (%)			22.3	34.1	39.7	43.0	53.0	57.1	60.5				
- nuclear			18.6	30.2	34.3	34.1	38.9	40.4	45.2				
- renewable energy forms			3.6	4.0	5.4	9.0	14.0	16.7	15.3				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	92.9	95.4	101.3	105.1	115.7	127.6	141.7	155.1	166.1	0.9	1.3	2.0	1.6
Private cars and motorcycles	23.6	18.6	16.2	14.7	15.1	15.6	16.5	17.6	18.4	-3.7	-0.7	0.9	1.1
Rail	46.8	59.0	67.3	71.3	79.6	88.5	98.8	108.5	116.3	3.7	1.7	2.2	1.6
Aviation	20.6	15.7	15.4	15.6	16.1	17.1	18.3	19.5	20.4	-2.9	0.5	1.3	1.1
Inland navigation	1.9	2.1	2.5	3.5	4.9	6.4	8.1	9.5	10.9	2.8	6.9	5.1	3.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
Trucks	64.2	53.9	55.6	59.3	64.1	68.6	73.7	79.6	85.2	-1.4	1.4	1.4	1.5
Rail	26.3	31.3	37.3	43.4	50.5	55.8	60.5	65.6	70.5	3.6	3.1	1.8	1.5
Inland navigation	38.0	22.6	17.5	14.8	13.4	12.5	13.1	14.0	14.7	-7.5	-2.7	-0.2	1.2
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.6	-7.9	-5.0
Energy demand in transport (ktoe)													
Public road transport	2804	2840	4721	6569	7423	7889	8115	8290	8721	5.3	4.6	0.9	0.7
Private cars and motorcycles	132	110	98	111	112	111	109	103	98	-2.9	1.4	-0.3	-1.1
Trucks	1271	1373	2257	2850	3146	3347	3490	3596	3800	5.9	3.4	1.0	0.9
Rail	956	971	1868	2987	3451	3640	3680	3783	4016	6.9	6.3	0.6	0.9
Aviation	272	200	295	271	240	222	207	198	184	0.8	-2.0	-1.5	-1.2
Inland navigation	174	185	197	346	471	568	629	610	623	1.3	9.1	2.9	-0.1
Inland navigation	0	0	5	5	2	1	1	0	0		-11.0	-8.2	-5.2

Source: PRIMES

Czech Republic: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	38484	29788	32779	26309	26857	30547	450	553	1792	1.7	2.1	6.2
Solids	34715	25002	23520	14069	12091	10090	-23	0	-10	-0.2	0.0	-0.9
Oil	222	384	584	200	200	200	0	0	0	0.0	0.0	0.0
Natural gas	201	169	154	140	118	95	-16	-30	-49	-10.0	-20.2	-33.9
Nuclear	3246	3506	6379	7592	9012	12864	0	0	598	0.0	0.0	4.9
Renewable energy sources	100	727	2142	4308	5436	7298	488	583	1253	12.8	12.0	20.7
Hydro	100	151	205	221	224	230	9	6	0	4.2	2.8	0.0
Biomass & Waste	0	576	1933	3625	4531	6133	188	120	637	5.5	2.7	11.6
Wind	0	0	2	122	173	242	23	62	94	23.7	56.1	63.4
Solar and others	0	0	2	340	507	691	267	394	521	367.4	348.4	306.6
Geothermal	0	0	0	0	0	0	0	0	0	74.8	125.3	153.2
Net Imports	7630	9297	12271	16576	17405	18091	-3248	-3831	-4548	-16.4	-18.0	-20.1
Solids	-5685	-4751	-3489	-102	786	1867	-2344	-2741	-3035	-104.5	-77.7	-61.9
Oil	8589	7428	9499	10796	11059	11700	-594	-693	-903	-5.2	-5.9	-7.2
- Crude oil and Feedstocks	7382	5492	7539	8630	8828	9314	-453	-528	-686	-5.0	-5.6	-6.9
- Oil products	1207	1936	1960	2166	2231	2385	-141	-165	-217	-6.1	-6.9	-8.3
Natural gas	4786	7482	7535	6848	5785	4671	-760	-1463	-2397	-10.0	-20.2	-33.9
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47380	40307	44798	42885	44262	48637	-2798	-3278	-2756	-6.1	-6.9	-5.4
Solids	29882	21645	20099	13967	12878	11957	-2367	-2741	-3044	-14.5	-17.6	-20.3
Oil	8964	7790	9748	10996	11259	11900	-594	-693	-903	-5.1	-5.8	-7.1
Natural gas	5248	7500	7703	6987	5903	4767	-775	-1492	-2446	-10.0	-20.2	-33.9
Nuclear	3246	3506	6379	7592	9012	12864	0	0	598	0.0	0.0	4.9
Electricity	-60	-861	-1086	-1271	-1105	-1702	0	0	0	0.0	0.0	0.0
Renewable energy forms	100	727	1955	4614	6316	8853	938	1648	3039	25.5	35.3	52.3
as % in Gross Inland Consumption												
Solids	63.1	53.7	44.9	32.6	29.1	24.6	-3.2	-3.8	-4.6			
Oil	18.9	19.3	21.8	25.6	25.4	24.5	0.3	0.3	-0.4			
Natural gas	11.1	18.6	17.2	16.3	13.3	9.8	-0.7	-2.2	-4.2			
Nuclear	6.9	8.7	14.2	17.7	20.4	26.4	1.1	1.4	2.6			
Renewable energy forms	0.2	1.8	4.4	10.8	14.3	18.2	2.7	4.5	6.9			
Gross Electricity Generation in GWh_e	62260	72898	81916	86420	91371	123056	-12627	-11876	-1665	-12.7	-11.5	-1.3
Self consumption and grid losses	8541	10601	11632	10491	11103	16253	-1924	-1875	414	-15.5	-14.4	2.6
Fuel Inputs to Thermal Power Generation	10989	15873	15591	10234	9897	11096	-2573	-2480	-1204	-20.1	-20.0	-9.8
Solids	9947	14031	13955	8698	7838	8087	-2840	-3179	-2948	-24.6	-28.9	-26.7
Oil (including refinery gas)	741	203	126	0	0	0	-7	0	0	-100.0	-100.0	
Gas (including derived gases)	300	1270	1286	779	232	298	-441	-635	-142	-36.1	-73.2	-32.3
Biomass & Waste	0	369	224	757	1826	2711	715	1333	1886	1681.3	270.4	228.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	18634	11312	13108	13164	13218	12931	-102	-445	-1143	-0.8	-3.3	-8.1
Refineries	7946	6047	7957	8889	9099	9595	-454	-529	-686	-4.9	-5.5	-6.7
Biofuels and hydrogen production	0	0	3	603	925	1107	-52	-124	-185	-7.9	-11.9	-14.3
District heating	2138	999	909	740	708	192	128	191	-233	20.9	37.0	-54.8
Derived gases, cokeries etc.	8549	4266	4239	2932	2486	2037	276	17	-40	10.4	0.7	-1.9
Energy Branch Consumption	2124	1919	1915	2138	2125	2390	-93	-145	-44	-4.2	-6.4	-1.8
Non-Energy Uses	1680	1962	2419	3153	3515	3908	-30	-14	-6	-0.9	-0.4	-0.1
Final Energy Demand	36267	23905	25801	28046	28470	29914	-1318	-1842	-2458	-4.5	-6.1	-7.6
by sector												
Industry	19215	10031	9439	10126	10178	10701	-82	-333	-157	-0.8	-3.2	-1.5
- energy intensive industries	8050	6276	6588	7008	6866	7016	50	-177	-35	0.7	-2.5	-0.5
- other industrial sectors	11165	3755	2851	3118	3311	3685	-131	-156	-122	-4.0	-4.5	-3.2
Residential	8625	5260	6063	6459	6490	6633	-325	-245	-430	-4.8	-3.6	-6.1
Tertiary	5622	3893	3730	3572	3687	3858	-505	-579	-949	-12.4	-13.6	-19.7
Transport	2804	4721	6569	7889	8115	8721	-406	-685	-921	-4.9	-7.8	-9.6
by fuel												
Solids	17789	5164	3619	3682	3481	2796	232	43	-137	6.7	1.3	-4.7
Oil	6229	5291	6913	7643	7555	7830	-336	-587	-849	-4.2	-7.2	-9.8
Gas	5146	6419	6581	6123	5651	4766	-492	-671	-1728	-7.4	-10.6	-26.6
Electricity	4142	4243	4750	5062	5610	7294	-919	-850	-166	-15.4	-13.2	-2.2
Heat (from CHP and District Heating)	2959	2624	2478	2251	2367	2106	-42	-13	-392	-1.8	-0.5	-15.7
Renewable energy forms	0	165	1460	3283	3804	5120	239	235	813	7.9	6.6	18.9
Other	0	0	0	1	2	3	0	0	0	4.8	-7.2	-9.7
RES in Gross Final Energy Consumption ^(A)		610	1832	4369	5865	8140	849	1477	2689	24.1	33.7	49.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	204.1	148.9	145.3	120.8	111.7	97.6	-14.9	-19.5	-26.7	-11.0	-14.9	-21.5
CO₂ Emissions (energy related)	154.8	116.7	114.8	93.6	86.5	77.8	-12.9	-16.3	-23.6	-12.1	-15.9	-23.3
Power generation/District heating	48.8	62.1	61.0	38.4	33.8	30.2	-11.6	-13.1	-15.6	-23.2	-27.9	-34.1
Energy Branch	2.3	2.2	2.3	2.5	2.4	1.5	-0.2	-0.1	-0.8	-5.7	-4.5	-34.7
Industry	58.1	25.2	20.9	21.4	20.2	16.2	1.2	0.4	-1.4	5.7	2.1	-8.2
Residential	24.0	7.9	7.1	6.4	5.8	5.2	-0.8	-1.1	-1.7	-11.3	-15.7	-24.8
Tertiary	14.1	5.9	4.5	3.3	2.9	2.0	-0.3	-0.7	-1.5	-9.7	-18.7	-42.3
Transport	7.5	13.4	19.1	21.6	21.5	22.6	-1.1	-1.8	-2.5	-4.9	-7.9	-10.1
CO₂ Emissions (non energy related)	18.3	12.4	11.3	11.3	11.2	11.0	0.4	0.0	-0.4	3.4	-0.1	-3.8
Non-CO₂ GHGs Emissions	31.0	19.8	19.2	15.9	14.0	8.8	-2.4	-3.2	-2.7	-13.2	-18.6	-23.3
TOTAL GHGs Emissions Index (1990=100)	100.0	72.9	71.2	59.2	54.7	47.8	-7.3	-9.6	-13.1			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Czech Republic: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.362	10.278	10.221	10.012	9.902	9.693	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	81.3	83.4	99.7	148.5	178.2	227.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	582.6	483.2	449.2	288.8	248.4	214.2	-18.8	-18.4	-12.1	-6.1	-6.9	-5.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.27	2.89	2.56	2.18	1.95	1.60	-0.15	-0.21	-0.37	-6.4	-9.7	-18.9
Import Dependency %	16.1	23.1	27.4	38.7	39.3	37.2	-4.7	-5.3	-6.9			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.9	27.9	34.2	43.7	0.8	1.1	1.7	2.9	3.5	4.0
as % of GDP		18.3	16.9	18.8	19.2	19.3	0.5	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.2	1.8						
as % of GDP				0.55	0.68	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	212.7	100.0	72.4	50.9	43.5	36.4	-0.4	-1.4	-0.5	-0.8	-3.2	-1.5
Residential (Energy on Private Income, index 2000=100)	181.6	100.0	98.7	70.1	58.6	47.3	-3.5	-2.2	-3.1	-4.8	-3.6	-6.1
Tertiary (Energy on Value added, index 2000=100)	215.6	100.0	81.5	52.6	44.8	36.6	-7.4	-7.0	-9.0	-12.4	-13.6	-19.7
Passenger transport (toe/Mpkm)	17.4	25.6	31.9	31.9	30.1	27.4	-0.8	-1.3	-1.3	-2.5	-4.1	-4.7
Freight transport (toe/Mtkm)	18.5	38.3	54.3	55.7	52.3	48.9	-2.9	-4.9	-6.2	-5.0	-8.6	-11.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.46	0.56	0.51	0.31	0.26	0.19	-0.05	-0.07	-0.09	-14.8	-21.0	-31.0
Final energy demand (t of CO ₂ /toe)	2.86	2.19	2.00	1.88	1.77	1.54	0.05	0.00	-0.11	2.5	0.2	-6.4
Industry	3.03	2.51	2.21	2.11	1.99	1.52	0.13	0.10	-0.11	6.6	5.4	-6.8
Residential	2.78	1.50	1.16	0.99	0.89	0.79	-0.07	-0.13	-0.20	-6.8	-12.5	-19.9
Tertiary	2.51	1.51	1.21	0.91	0.78	0.53	0.03	-0.05	-0.21	3.1	-5.9	-28.1
Transport	2.68	2.85	2.90	2.74	2.64	2.59	0.00	0.00	-0.01	0.0	-0.2	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.4	6.7	14.9	19.7	25.9	3.5	5.9	9.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	7.0	10.5	11.7	-0.2	-0.5	-0.6			
Gross Electricity generation by source (in GWh_e)												
	72898	81916	86420	91371	123056	123056	-12627	-11876	-1665	-12.7	-11.5	-1.3
Nuclear energy	13588	24724	29433	35583	55633	55633	0	0	2730	0.0	0.0	5.2
Solids	50038	47938	43290	39629	45823	45823	-13192	-15463	-13860	-23.4	-28.1	-23.2
Oil (including refinery gas)	528	447	27	19	12	12	-2	-2	0	-7.6	-11.2	3.2
Gas (including derived gases)	6087	5565	5914	3336	2818	2818	-2784	-2948	-1183	-32.0	-46.9	-29.6
Biomass-waste	899	841	3769	8180	13254	13254	2976	5742	9553	375.3	235.6	258.1
Hydro (pumping excluded)	1758	2380	2569	2603	2677	2677	103	71	0	4.2	2.8	0.0
Wind	0	22	1415	2013	2819	2819	271	724	1094	23.7	56.1	63.4
Solar	0	0	4	8	20	20	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	12048	13981	17341	18687	20464	20464	-484	337	1200	-2.7	1.8	6.2
<u>Nuclear energy</u>	1661	3504	3534	4141	6441	6441	0	0	315	0.0	0.0	5.1
<u>Renewable energy</u>	1148	1227	2310	2956	3736	3736	237	768	1207	11.4	35.1	47.7
Hydro (pumping excluded)	1142	1196	1256	1266	1266	1266	10	9	4	0.8	0.7	0.3
Wind	7	30	1048	1684	2441	2441	226	759	1203	27.6	82.0	97.3
Solar	0	1	6	12	29	29	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	9239	9250	11497	11590	10287	10287	-720	-431	-323	-5.9	-3.6	-3.0
of which cogeneration units	3030	3110	4098	4871	5875	5875	-125	217	319	-3.0	4.7	5.7
Solids fired	7747	7661	9392	8665	6594	6594	-1076	-1271	-1837	-10.3	-12.8	-21.8
Gas fired	1208	1302	1264	1315	1280	1280	-166	-135	-81	-11.6	-9.3	-5.9
Oil fired	118	122	118	57	11	11	0	0	0	0.0	0.0	-1.9
Biomass-waste fired	165	165	724	1552	2402	2402	522	975	1595	257.6	168.9	197.7
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	63.9	61.7	53.6	52.7	64.1	64.1	-6.0	-7.8	-5.3			
Efficiency of gross thermal power generation (%)	31.2	30.2	44.5	44.5	48.0	48.0	0.2	0.1	0.9			
% of gross electricity from CHP	21.1	16.7	28.8	28.8	27.0	27.0	0.8	1.7	0.1			
Carbon free gross electricity generation (%)	22.3	34.1	43.0	53.0	60.5	60.5	8.9	12.4	11.5			
- nuclear	18.6	30.2	34.1	38.9	45.2	45.2	4.3	4.5	2.8			
- renewable energy forms	3.6	4.0	9.0	14.0	15.3	15.3	4.5	7.9	8.7			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	92.9	101.3	105.1	127.6	141.7	166.1	-1.1	-1.7	-2.1	-0.9	-1.2	-1.3
Private cars and motorcycles	23.6	16.2	14.7	15.6	16.5	18.4	0.3	0.3	0.4	1.7	2.0	2.1
Rail	46.8	67.3	71.3	88.5	98.8	116.3	-1.6	-2.1	-2.9	-1.7	-2.1	-2.4
Aviation	20.6	15.4	15.6	17.1	18.3	20.4	0.4	0.5	0.8	2.1	2.6	4.2
Inland navigation	1.9	2.5	3.5	6.4	8.1	10.9	-0.2	-0.3	-0.5	-2.9	-4.0	-4.2
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)	64.2	55.6	59.3	68.6	73.7	85.2	-1.1	-1.6	-2.0	-1.6	-2.1	-2.3
Trucks	26.3	37.3	43.4	55.8	60.5	70.5	-1.7	-2.3	-3.0	-2.9	-3.7	-4.0
Rail	38.0	17.5	14.8	12.5	13.1	14.7	0.6	0.7	1.0	4.8	5.9	7.2
Inland navigation	0.0	0.8	1.0	0.2	0.1	0.1	0.0	0.0	0.0	1.2	1.5	1.4
Energy demand in transport (ktoe)												
Public road transport	2804	4721	6569	7889	8115	8721	-406	-685	-921	-4.9	-7.8	-9.6
Private cars and motorcycles	132	98	111	111	109	98	-1	-3	-6	-0.9	-2.7	-5.6
Trucks	1271	2257	2850	3347	3490	3800	-114	-170	-159	-3.3	-4.6	-4.0
Rail	956	1868	2987	3640	3680	4016	-274	-448	-637	-7.0	-10.8	-13.7
Aviation	272	295	271	222	207	184	7	-3	-1	3.2	-1.4	-0.6
Inland navigation	174	197	346	568	629	623	-25	-61	-118	-4.2	-8.8	-16.0
Inland navigation	0	5	5	1	1	0	0	0	0	0.5	0.0	-1.1

Source: PRIMES

Denmark: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	10040	15562	27617	31173	28075	22113	18759	18300	17739	10.6	0.2	-4.0	-0.6
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	8150	3902	2589	2415	2296	10.3	1.0	-10.8	-1.2
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3425	4210	5170	5884	6444	5.6	5.2	4.2	2.2
Hydro	2	3	3	2	3	3	3	3	3	1.1	0.3	0.2	0.2
Biomass & Waste	1140	1423	1687	2313	2677	3206	3988	4503	4793	4.0	4.7	4.1	1.9
Wind	52	101	365	569	682	712	770	931	1120	21.4	6.5	1.2	3.8
Solar and others	2	5	7	10	63	290	409	447	528	12.5	24.0	20.6	2.6
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-36.0	5.6	3.9
Net Imports	8605	7534	-7076	-10498	-8137	-3368	-260	-162	118				
Solids	6216	7664	3784	3505	3719	3926	3621	3156	2597	-4.8	-0.2	-0.3	-3.3
Oil	2711	1429	-8094	-9381	-7739	-5783	-3213	-2771	-1987				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8777	-6532	-3740	-3015	-2129				
- Oil products	679	627	1512	1804	1037	749	527	244	142	8.3	-3.7	-6.5	-12.3
Natural gas	-928	-1496	-2882	-5010	-4329	-2073	-1375	-1283	-1219				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	17856	20244	19659	19534	19088	17875	17614	17233	16931	1.0	-0.3	-0.8	-0.4
Solids	6088	6498	3987	3715	3719	3926	3621	3156	2597	-4.1	-0.7	-0.3	-3.3
Oil	8144	9105	9043	8133	7911	7347	6902	6324	6086	1.1	-1.3	-1.4	-1.2
Natural gas	1818	3170	4449	4399	3821	1830	1214	1132	1076	9.4	-1.5	-10.8	-1.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3738	4586	5637	6412	7005	5.9	5.8	4.2	2.2
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	19.5	22.0	20.6	18.3	15.3				
Oil	45.6	45.0	46.0	41.6	41.4	41.1	39.2	36.7	35.9				
Natural gas	10.2	15.7	22.6	22.5	20.0	10.2	6.9	6.6	6.4				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	19.6	25.7	32.0	37.2	41.4				
Gross Electricity Generation in GWh_e	25733	36648	36043	36269	37155	31460	31762	36632	40324	3.4	0.3	-1.6	2.4
Self consumption and grid losses	3290	4659	4046	3775	3678	3343	3484	4199	4540	2.1	-0.9	-0.5	2.7
Fuel Inputs to Thermal Power Generation	6016	8423	7822	7129	6234	4980	4969	5327	5318	2.7	-2.2	-2.2	0.7
Solids	5541	6061	3667	3444	3474	3462	2959	2462	1915	-4.0	-0.5	-1.6	-4.3
Oil (including refinery gas)	237	1008	1344	344	269	0	15	10	95	19.0	-14.9	-25.2	20.6
Gas (including derived gases)	174	975	2112	2003	1338	0	0	0	0	28.4	-4.5		
Biomass & Waste	65	378	699	1338	1153	1518	1996	2855	3308	26.9	5.1	5.6	5.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9073	10750	8984	8343	8670	8516	8473	7901	7735	-0.1	-0.4	-0.2	-0.9
Refineries	8027	9958	8452	7821	7723	7468	7260	6985	6871	0.5	-0.9	-0.6	-0.5
Biofuels and hydrogen production	0	0	0	0	193	343	567	591	628			11.4	1.0
District heating	1005	761	515	509	754	705	646	326	236	-6.5	3.9	-1.5	-9.6
Derived gases, cokeries etc.	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	736	1014	1160	1258	1132	795	695	687	657	4.7	-0.2	-4.8	-0.6
Non-Energy Uses	293	291	292	276	275	274	269	267	268	-0.1	-0.6	-0.2	0.0
Final Energy Demand	13492	14720	14610	15324	15249	14925	14939	14507	14292	0.8	0.4	-0.2	-0.4
by sector													
Industry	2711	3026	2935	2831	2907	2916	2918	2911	2927	0.8	-0.1	0.0	0.0
- energy intensive industries	1076	1121	1243	1152	1174	1177	1154	1139	1126	1.5	-0.6	-0.2	-0.2
- other industrial sectors	1636	1905	1692	1679	1733	1739	1765	1772	1801	0.3	0.2	0.2	0.2
Residential	3946	4468	4154	4398	4298	4001	4115	4120	4103	0.5	0.3	-0.4	0.0
Tertiary	2822	2779	2801	2840	2597	2534	2497	2454	2386	-0.1	-0.8	-0.4	-0.5
Transport	4012	4447	4720	5254	5446	5474	5408	5022	4876	1.6	1.4	-0.1	-1.0
by fuel													
Solids	396	405	290	236	245	463	662	694	682	-3.1	-1.7	10.5	0.3
Oil	7097	7132	6950	7204	6986	6779	6398	5884	5607	-0.2	0.1	-0.9	-1.3
Gas	1159	1691	1667	1701	1754	1441	1022	990	949	3.7	0.5	-5.3	-0.7
Electricity	2517	2655	2791	2882	2746	2572	2641	2968	3214	1.0	-0.2	-0.4	2.0
Heat (from CHP and District Heating)	1758	2242	2255	2408	2327	2100	2271	1972	1836	2.5	0.3	-0.2	-2.1
Renewable energy forms	566	595	657	892	1191	1569	1944	1997	2001	1.5	6.1	5.0	0.3
Other	0	0	0	0	0	1	2	2	2			13.4	3.7
RES in Gross Final Energy Consumption ^(A)			1919	2512	3377	4160	4990	5711	6257		5.8	4.0	2.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8		70.6	66.0	62.7	56.2	52.0	47.3	43.7	0.1	-1.2	-1.9	-1.7
CO₂ Emissions (energy related)	51.7	59.3	52.4	48.9	46.3	40.8	36.8	33.1	30.2	0.1	-1.2	-2.3	-2.0
Power generation/District heating	24.5	30.2	24.0	19.7	17.9	13.7	11.7	9.7	7.9	-0.2	-2.9	-4.1	-3.9
Energy Branch	1.5	2.0	2.4	2.5	2.2	1.4	0.8	0.6	0.4	4.9	-0.7	-9.7	-5.7
Industry	5.4	6.0	5.4	5.0	4.9	5.2	5.0	4.9	4.9	-0.1	-0.9	0.3	-0.2
Residential	4.9	4.9	3.9	3.5	3.1	2.8	2.5	2.5	2.2	-2.3	-2.2	-2.3	-0.9
Tertiary	3.6	3.1	2.9	2.7	2.5	2.3	2.2	2.1	1.9	-2.1	-1.4	-1.3	-1.3
Transport	11.9	13.1	13.9	15.5	15.7	15.4	14.6	13.4	12.8	1.6	1.2	-0.7	-1.3
CO₂ Emissions (non energy related)	1.8	2.3	3.0	3.0	2.9	2.8	2.7	2.7	2.6	5.4	-0.3	-0.7	-0.4
Non-CO₂ GHGs Emissions	16.3		15.2	14.1	13.5	12.7	12.4	11.5	11.0	-0.7	-1.2	-0.8	-1.3
TOTAL GHGs Emissions Index (1990=100)	100.0		101.1	94.6	89.8	80.6	74.5	67.8	62.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Denmark: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1	
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3	
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	81.3	68.9	62.6	57.1	52.7	-1.6	-2.1	-2.6	-1.7	
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.93	2.67	2.50	2.42	2.28	2.09	1.92	1.78	-0.8	-0.9	-1.5	-1.6	
Import Dependency %	45.7	34.5	-33.7	-51.6	-40.8	-18.0	-1.4	-0.9	0.7					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	16.6	19.0	21.4	24.8	27.2	29.1		2.2	2.7	1.6	
as % of GDP			7.8	8.0	8.1	8.3	8.8	9.0	9.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	111.3	111.3	100.0	99.8	92.1	84.7	78.6	73.6	69.7	-1.1	-0.8	-1.6	-1.2	
Residential (Energy on Private Income, index 2000=100)	114.6	115.6	100.0	94.6	83.4	71.2	68.1	64.0	60.1	-1.4	-1.8	-2.0	-1.2	
Tertiary (Energy on Value added, index 2000=100)	132.1	115.3	100.0	94.6	75.6	66.7	60.5	55.3	50.4	-2.7	-2.8	-2.2	-1.8	
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.5	37.1	35.3	29.7	27.1	0.0	0.6	-0.9	-2.6	
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	72.9	69.8	66.6	64.4	61.9	0.1	0.5	-0.9	-0.7	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.43	0.35	0.27	0.25	0.22	0.19	0.15	0.12	-3.1	-3.2	-3.0	-4.2	
Final energy demand (t of CO ₂ /toe)	1.91	1.84	1.78	1.74	1.72	1.72	1.63	1.57	1.53	-0.7	-0.4	-0.5	-0.6	
Industry	2.00	1.98	1.83	1.76	1.68	1.77	1.72	1.68	1.68	-0.9	-0.8	0.2	-0.2	
Residential	1.24	1.09	0.93	0.80	0.72	0.70	0.60	0.60	0.54	-2.8	-2.5	-1.9	-0.9	
Tertiary	1.27	1.12	1.04	0.94	0.97	0.92	0.89	0.86	0.81	-2.0	-0.7	-0.9	-0.9	
Transport	2.96	2.95	2.95	2.96	2.88	2.81	2.70	2.67	2.62	0.0	-0.2	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			12.4	15.5	21.0	26.6	32.0	37.7	42.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.6	6.4	10.8	11.6	12.8					
Gross Electricity generation by source (in GWh)														
			36043	36269	37155	31460	31762	36632	40324		0.3	-1.6	2.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14345	13553	15280	15866	14343	13058	11262		0.6	-0.6	-2.4	
Oil (including refinery gas)			5222	1525	1565	117	185	165	554		-11.4	-19.2	11.6	
Gas (including derived gases)			9658	9549	8264	1611	1	1	193		-1.5	-60.4	73.7	
Biomass-waste			2548	5006	4081	5542	8220	12518	14798		4.8	7.3	6.1	
Hydro (pumping excluded)			30	23	31	31	32	32	32		0.3	0.2	0.2	
Wind			4240	6613	7928	8279	8957	10822	13019		6.5	1.2	3.8	
Solar			0	0	6	13	24	34	465			15.8	34.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			11888	12794	12774	12577	12053	12621	13483		0.7	-0.6	1.1	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2311	3014	3661	3780	4026	4630	5669		4.7	1.0	3.5	
Hydro (pumping excluded)			10	11	11	11	14	14	14		1.5	2.2	0.2	
Wind			2300	3000	3634	3732	3944	4520	5096		4.7	0.8	2.6	
Solar			2	3	16	37	68	97	559		24.9	15.8	23.4	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			9577	9781	9113	8797	8027	7991	7814		-0.5	-1.3	-0.3	
of which cogeneration units			7504	8538	5648	4168	4139	3601	3930		-2.8	-3.1	-0.5	
Solids fired			5528	5566	4819	4425	3541	3032	2554		-1.4	-3.0	-3.2	
Gas fired			2328	2485	2395	2411	2132	1992	1854		0.3	-1.2	-1.4	
Oil fired			1271	1236	1182	988	911	894	935		-0.7	-2.6	0.3	
Biomass-waste fired			450	494	717	973	1443	2073	2472		4.8	7.2	5.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			32.7	30.4	31.3	26.9	28.3	31.2	32.3					
Efficiency of gross thermal power generation (%)			34.9	35.8	40.3	40.0	39.4	41.6	43.3					
% of gross electricity from CHP			63.9	68.3	61.2	60.9	63.2	56.3	49.6					
Carbon free gross electricity generation (%)			18.9	32.1	32.4	44.1	54.3	63.9	70.2					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			18.9	32.1	32.4	44.1	54.3	63.9	70.2					
Transport sector														
Passenger transport activity (Gpkm)	70.1	73.0	77.8	81.6	86.4	89.6	92.0	94.8	97.3	1.1	1.0	0.6	0.6	
Public road transport	6.4	7.3	7.4	7.4	7.5	7.6	7.9	8.1	8.4	1.4	0.1	0.5	0.6	
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.0	58.0	58.3	59.2	60.1	0.8	0.9	0.2	0.3	
Rail	5.1	4.9	5.5	6.2	6.7	7.2	7.9	8.3	8.6	0.9	2.0	1.6	0.9	
Aviation	5.5	7.0	9.0	9.8	11.4	13.0	13.9	14.9	15.9	5.0	2.4	2.0	1.3	
Inland navigation	5.2	4.7	3.9	3.7	3.7	3.8	4.0	4.2	4.3	-2.9	-0.4	0.7	0.8	
Freight transport activity (Gtkm)	21.7	26.7	27.5	27.0	29.1	30.8	32.4	34.3	36.2	2.4	0.5	1.1	1.1	
Trucks	18.1	22.4	24.0	23.3	25.0	26.3	27.5	29.0	30.6	2.9	0.4	1.0	1.1	
Rail	1.7	2.0	2.0	2.0	2.2	2.4	2.6	2.8	2.9	1.6	0.8	1.7	1.3	
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	-2.4	2.5	1.9	1.4	
Energy demand in transport (ktoe)	4012	4447	4720	5254	5446	5474	5408	5022	4876	1.6	1.4	-0.1	-1.0	
Public road transport	57	76	78	83	81	78	78	73	68	3.1	0.4	-0.4	-1.3	
Private cars and motorcycles	1628	1709	1788	2034	2048	1981	1891	1719	1587	0.9	1.4	-0.8	-1.7	
Trucks	1374	1690	1816	1952	2022	2049	2055	2107	2183	2.8	1.1	0.2	0.6	
Rail	113	117	103	106	109	109	107	99	54	-1.0	0.6	-0.2	-6.6	
Aviation	690	675	820	944	1050	1116	1132	872	829	1.7	2.5	0.8	-3.1	
Inland navigation	150	181	115	136	138	142	147	152	155	-2.6	1.8	0.6	0.5	

Source: PRIMES

Denmark: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	10040	27617	31173	22113	18759	17739	-1000	-271	550	-4.3	-1.4	3.2
Solids	0	0	0	0	0	0	0	0	0			
Oil	6071	18142	18892	14000	11000	9000	0	0	0	0.0	0.0	0.0
Natural gas	2770	7412	9383	3902	2589	2296	-1554	-1241	-732	-28.5	-32.4	-24.2
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1199	2064	2897	4210	5170	6444	554	970	1281	15.1	23.1	24.8
Hydro	2	3	2	3	3	3	0	0	0	3.6	2.1	0.0
Biomass & Waste	1140	1687	2313	3206	3988	4793	357	696	944	12.5	21.1	24.5
Wind	52	365	569	712	770	1120	0	0	0	0.0	0.0	0.0
Solar and others	2	7	10	290	409	528	197	274	338	211.6	202.8	177.4
Geothermal	2	3	3	0	0	0	0	0	0	37.5	75.4	145.2
Net Imports	8605	-7076	-10498	-3368	-260	118	-1032	-1850	-2602	44.2	-116.3	-95.7
Solids	6216	3784	3505	3926	3621	2597	-769	-1419	-1856	-16.4	-28.2	-41.7
Oil	2711	-8094	-9381	-5783	-3213	-1987	-731	-892	-1024	14.5	38.4	106.2
- Crude oil and Feedstocks	2032	-9607	-11186	-6532	-3740	-2129	-346	-425	-504	5.6	12.8	31.0
- Oil products	679	1512	1804	749	527	142	-385	-466	-519	-33.9	-46.9	-78.5
Natural gas	-928	-2882	-5010	-2073	-1375	-1219	426	378	167	-17.0	-21.6	-12.0
Electricity	606	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	17856	19659	19534	17875	17614	16931	-2033	-2121	-2053	-10.2	-10.7	-10.8
Solids	6088	3987	3715	3926	3621	2597	-769	-1419	-1856	-16.4	-28.2	-41.7
Oil	8144	9043	8133	7347	6902	6086	-731	-892	-1024	-9.0	-11.4	-14.4
Natural gas	1818	4449	4399	1830	1214	1076	-1129	-862	-565	-38.2	-41.5	-34.4
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	608	57	118	186	240	166	0	0	0	0.0	0.0	0.0
Renewable energy forms	1199	2123	3168	4586	5637	7005	596	1052	1392	14.9	22.9	24.8
as % in Gross Inland Consumption												
Solids	34.1	20.3	19.0	22.0	20.6	15.3	-1.6	-5.0	-8.1			
Oil	45.6	46.0	41.6	41.1	39.2	35.9	0.5	-0.3	-1.5			
Natural gas	10.2	22.6	22.5	10.2	6.9	6.4	-4.6	-3.6	-2.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	6.7	10.8	16.2	25.7	32.0	41.4	5.6	8.8	11.8			
Gross Electricity Generation in GWh_e	25733	36043	36269	31460	31762	40324	-7744	-7764	-2025	-19.8	-19.6	-4.8
Self consumption and grid losses	3290	4046	3775	3343	3484	4540	-798	-887	-337	-19.3	-20.3	-6.9
Fuel Inputs to Thermal Power Generation	6016	7822	7129	4980	4969	5318	-1585	-1535	-846	-24.1	-23.6	-13.7
Solids	5541	3667	3444	3462	2959	1915	-956	-1512	-1955	-21.6	-33.8	-50.5
Oil (including refinery gas)	237	1344	344	0	15	95	-330	-299	-41	-100.0	-95.3	-30.0
Gas (including derived gases)	174	2112	2003	0	0	0	-604	-259	-24	-100.0	-100.0	-100.0
Biomass & Waste	65	699	1338	1518	1996	3308	305	536	1174	25.2	36.7	55.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9073	8984	8343	8516	8473	7735	-313	-432	-672	-3.5	-4.9	-8.0
Refineries	8027	8452	7821	7468	7260	6871	-346	-425	-504	-4.4	-5.5	-6.8
Biofuels and hydrogen production	0	0	0	343	567	628	-27	-70	-131	-7.3	-11.0	-17.2
District heating	1005	515	509	705	646	236	60	63	-37	9.3	10.8	-13.5
Derived gases, cokeries etc.	42	17	13	0	0	0	0	0	0			
Energy Branch Consumption	736	1160	1258	795	695	657	-203	-165	-120	-20.3	-19.1	-15.5
Non-Energy Uses	293	292	276	274	269	268	0	0	0	0.0	0.0	0.0
Final Energy Demand	13492	14610	15324	14925	14939	14292	-1233	-1296	-1694	-7.6	-8.0	-10.6
by sector												
Industry	2711	2935	2831	2916	2918	2927	-84	-106	-97	-2.8	-3.5	-3.2
- energy intensive industries	1076	1243	1152	1177	1154	1126	-19	-31	-23	-1.6	-2.7	-2.0
- other industrial sectors	1636	1692	1679	1739	1765	1801	-65	-74	-73	-3.6	-4.0	-3.9
Residential	3946	4154	4398	4001	4115	4103	-493	-376	-390	-11.0	-8.4	-8.7
Tertiary	2822	2801	2840	2534	2497	2386	-412	-428	-523	-14.0	-14.6	-18.0
Transport	4012	4720	5254	5474	5408	4876	-243	-386	-684	-4.2	-6.7	-12.3
by fuel												
Solids	396	290	236	463	662	682	188	94	99	68.1	16.5	16.9
Oil	7097	6950	7204	6779	6398	5607	-360	-571	-955	-5.0	-8.2	-14.6
Gas	1159	1667	1701	1441	1022	949	-351	-396	-401	-19.6	-27.9	-29.7
Electricity	2517	2791	2882	2572	2641	3214	-596	-590	-142	-18.8	-18.3	-4.2
Heat (from CHP and District Heating)	1758	2255	2408	2100	2271	1836	-309	-201	-503	-12.8	-8.1	-21.5
Renewable energy forms	566	657	892	1569	1944	2001	196	369	210	14.3	23.4	11.7
Other	0	0	0	1	2	2	0	0	0	6.7	-2.6	-5.8
RES in Gross Final Energy Consumption ^(A)		1919	2512	4160	4990	6257	622	1095	1548	17.6	28.1	32.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.8	70.6	66.0	56.2	52.0	43.7	-8.7	-11.4	-12.7	-13.4	-18.0	-22.5
CO₂ Emissions (energy related)	51.7	52.4	48.9	40.8	36.8	30.2	-7.9	-10.3	-11.7	-16.2	-21.9	-28.0
Power generation/District heating	24.5	24.0	19.7	13.7	11.7	7.9	-6.2	-7.5	-7.9	-31.3	-39.2	-50.1
Energy Branch	1.5	2.4	2.5	1.4	0.8	0.4	-0.5	-0.5	-0.4	-26.2	-37.9	-47.5
Industry	5.4	5.4	5.0	5.2	5.0	4.9	0.2	-0.3	-0.2	4.4	-6.5	-3.7
Residential	4.9	3.9	3.5	2.8	2.5	2.2	-0.4	-0.6	-0.8	-13.0	-18.7	-26.1
Tertiary	3.6	2.9	2.7	2.3	2.2	1.9	-0.3	-0.4	-0.6	-11.6	-13.9	-24.0
Transport	11.9	13.9	15.5	15.4	14.6	12.8	-0.7	-1.0	-1.9	-4.2	-6.6	-12.7
CO₂ Emissions (non energy related)	1.8	3.0	3.0	2.8	2.7	2.6	0.0	0.0	0.0	-1.3	-1.0	-0.7
Non-CO₂ GHGs Emissions	16.3	15.2	14.1	12.7	12.4	11.0	-0.7	-1.0	-1.0	-5.5	-7.7	-8.2
TOTAL GHGs Emissions Index (1990=100)	100.0	101.1	94.6	80.6	74.5	62.6	-12.4	-16.3	-18.2			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Denmark: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.135	5.330	5.411	5.498	5.526	5.577	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	150.8	194.8	208.3	259.3	281.3	321.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	118.4	100.9	93.8	68.9	62.6	52.7	-7.8	-7.5	-6.4	-10.2	-10.7	-10.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.90	2.67	2.50	2.28	2.09	1.78	-0.16	-0.30	-0.43	-6.7	-12.5	-19.3
Import Dependency %	45.7	-33.7	-51.6	-18.0	-1.4	0.7	-6.7	-9.1	-13.0			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	16.6	21.4	24.8	29.1	-0.3	0.3	1.3	-1.4	1.4	4.5
as % of GDP		7.8	8.0	8.3	8.8	9.1	-0.1	0.1	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				-0.3	0.4	1.3						
as % of GDP				-0.11	0.13	0.40						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.3	100.0	99.8	84.7	78.6	69.7	-2.4	-2.9	-2.3	-2.8	-3.5	-3.2
Residential (Energy on Private Income, index 2000=100)	114.6	100.0	94.6	71.2	68.1	60.1	-8.8	-6.2	-5.7	-11.0	-8.4	-8.7
Tertiary (Energy on Value added, index 2000=100)	132.1	100.0	94.6	66.7	60.5	50.4	-10.9	-10.4	-11.1	-14.0	-14.6	-18.0
Passenger transport (toe/Mpkm)	36.1	36.2	39.3	37.1	35.3	27.1	-0.8	-1.3	-3.2	-2.1	-3.4	-10.6
Freight transport (toe/Mtkm)	68.3	69.2	75.8	69.8	66.6	61.9	-3.0	-5.3	-7.5	-4.1	-7.4	-10.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.48	0.35	0.27	0.22	0.19	0.12	-0.05	-0.08	-0.09	-17.6	-28.9	-43.8
Final energy demand (t of CO ₂ /toe)	1.91	1.78	1.74	1.72	1.63	1.53	0.06	-0.01	-0.05	3.5	-0.7	-3.4
Industry	2.00	1.83	1.76	1.77	1.72	1.68	0.12	-0.05	-0.01	7.5	-3.1	-0.5
Residential	1.24	0.93	0.80	0.70	0.60	0.54	-0.02	-0.08	-0.13	-2.3	-11.3	-19.1
Tertiary	1.27	1.04	0.94	0.92	0.89	0.81	0.02	0.01	-0.06	2.8	0.9	-7.4
Transport	2.96	2.95	2.96	2.81	2.70	2.62	0.00	0.00	-0.01	0.1	0.1	-0.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		12.4	15.5	26.6	32.0	42.1	5.8	9.1	13.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	10.8	12.8	-0.2	-0.5	-0.6			
Gross Electricity generation by source (in GWh_e)												
	36043	36269	31460	31762	40324	40324	-7744	-7764	-2025	-19.8	-19.6	-4.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14345	13553	15866	14343	11262	11262	-2949	-5612	-6727	-15.7	-28.1	-37.4
Oil (including refinery gas)	5222	1525	117	185	554	554	-1729	-1784	-834	-93.7	-90.6	-60.1
Gas (including derived gases)	9658	9549	1611	1	193	193	-4157	-2680	-117	-72.1	-100.0	-37.7
Biomass-waste	2548	5006	5542	8220	14798	14798	1089	2312	5230	24.5	39.1	54.7
Hydro (pumping excluded)	30	23	31	32	32	32	1	1	0	3.6	2.1	0.0
Wind	4240	6613	8279	8957	13019	13019	0	0	0	0.0	0.0	0.0
Solar	0	0	13	24	465	465	0	0	423	0.0	0.0	998.9
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	11888	12794	12577	12053	13483	13483	-174	40	-5	-1.4	0.3	0.0
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2311	3014	3780	4026	5669	5669	0	3	398	0.0	0.1	7.5
Hydro (pumping excluded)	10	11	11	14	14	14	0	3	3	0.0	24.2	26.9
Wind	2300	3000	3732	3944	5096	5096	0	0	-44	0.0	0.0	-0.9
Solar	2	3	37	68	559	559	0	0	439	0.0	0.0	365.9
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	9577	9781	8797	8027	7814	7814	-174	37	-403	-1.9	0.5	-4.9
of which cogeneration units	7504	8538	4168	4139	3930	3930	-1239	-567	-675	-22.9	-12.0	-14.7
Solids fired	5528	5566	4425	3541	2554	2554	0	0	-409	0.0	0.0	-13.8
Gas fired	2328	2485	2411	2132	1854	1854	-364	-364	-364	-13.1	-14.6	-16.4
Oil fired	1271	1236	988	911	935	935	-52	-98	-131	-5.0	-9.7	-12.3
Biomass-waste fired	450	494	973	1443	2472	2472	242	499	502	33.1	52.8	25.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	32.7	30.4	26.9	28.3	32.3	32.3	-6.2	-7.1	-1.5			
Efficiency of gross thermal power generation (%)	34.9	35.8	40.0	39.4	43.3	43.3	-0.5	-1.0	2.5			
% of gross electricity from CHP	63.9	68.3	60.9	63.2	49.6	49.6	0.9	3.7	-3.3			
Carbon free gross electricity generation (%)	18.9	32.1	44.1	54.3	70.2	70.2	11.5	16.5	16.7			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	18.9	32.1	44.1	54.3	70.2	70.2	11.5	16.5	16.7			
Transport sector												
Passenger transport activity (Gpkm)												
	70.1	77.8	81.6	89.6	92.0	97.3	-1.1	-1.3	-1.4	-1.2	-1.4	-1.5
Public road transport	6.4	7.4	7.4	7.6	7.9	8.4	0.1	0.2	0.2	2.0	2.4	2.5
Private cars and motorcycles	47.8	51.9	54.4	58.0	58.3	60.1	-0.8	-1.1	-1.2	-1.4	-1.8	-2.0
Rail	5.1	5.5	6.2	7.2	7.9	8.6	0.0	0.1	0.2	-0.1	1.8	2.0
Aviation	5.5	9.0	9.8	13.0	13.9	15.9	-0.3	-0.5	-0.5	-2.6	-3.6	-3.3
Inland navigation	5.2	3.9	3.7	3.8	4.0	4.3	0.0	0.0	-0.1	-0.7	-1.0	-1.2
Freight transport activity (Gtkm)												
	21.7	27.5	27.0	30.8	32.4	36.2	-0.6	-0.7	-0.9	-1.8	-2.2	-2.3
Trucks	18.1	24.0	23.3	26.3	27.5	30.6	-0.7	-0.9	-1.1	-2.6	-3.2	-3.4
Rail	1.7	2.0	2.0	2.4	2.6	2.9	0.1	0.1	0.2	4.7	5.9	6.5
Inland navigation	1.9	1.5	1.7	2.1	2.3	2.7	0.0	0.0	0.1	1.6	2.0	2.1
Energy demand in transport (ktoe)												
	4012	4720	5254	5474	5408	4876	-243	-386	-684	-4.2	-6.7	-12.3
Public road transport	57	78	83	78	78	68	0	-2	-3	-0.5	-2.2	-4.6
Private cars and motorcycles	1628	1788	2034	1981	1891	1587	-65	-87	-230	-3.2	-4.4	-12.7
Trucks	1374	1816	1952	2049	2055	2183	-135	-226	-327	-6.2	-9.9	-13.0
Rail	113	103	106	109	107	54	1	0	-2	0.7	0.4	-4.0
Aviation	690	820	944	1116	1132	829	-42	-69	-116	-3.6	-5.7	-12.3
Inland navigation	150	115	136	142	147	155	-1	-2	-5	-0.9	-1.7	-3.0

Source: PRIMES

Estonia: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	6249	3618	3332	4304	3430	3772	3646	3549	3668	-6.1	0.3	0.6	0.1	
Solids	5798	3129	2830	3261	2515	2678	2083	1584	1508	-6.9	-1.2	-1.9	-3.2	
Oil	0	0	2	331	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	450	489	500	712	915	1094	1562	1965	2160	1.1	6.2	5.5	3.3	
Hydro	0	0	0	2	2	2	3	3	3		18.0	1.1	0.2	
Biomass & Waste	450	488	500	706	830	989	1418	1701	1846	1.0	5.2	5.5	2.7	
Wind	0	0	0	5	81	94	124	233	273		98.2	4.4	8.2	
Solar and others	0	0	0	0	2	9	18	28	37			21.7	7.7	
Geothermal	0	0	0	0	0	0	0	0	0			7.1	2.0	
Net Imports	4456	1987	1447	1463	1968	1838	1594	1496	1451	-10.6	3.1	-2.1	-0.9	
Solids	697	292	244	27	125	133	141	147	128	-10.0	-6.5	1.2	-1.0	
Oil	3139	1178	626	867	1448	1466	1370	1313	1334	-14.9	8.8	-0.6	-0.3	
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			-0.2	-0.1	
- Oil products	3139	1178	626	867	1447	1465	1368	1312	1333	-14.9	8.7	-0.6	-0.3	
Natural gas	1222	583	662	800	653	470	387	379	379	-5.9	-0.1	-5.1	-0.2	
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Gross Inland Consumption	10642	5630	4712	5627	5246	5440	5057	4856	4926	-7.8	1.1	-0.4	-0.3	
Solids	6703	3598	3119	3255	2640	2812	2224	1731	1636	-7.4	-1.7	-1.7	-3.0	
Oil	2858	1032	510	1090	1296	1295	1187	1124	1142	-15.8	9.8	-0.9	-0.4	
Natural gas	1222	583	662	800	653	470	387	379	379	-5.9	-0.1	-5.1	-0.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150					
Renewable energy forms	460	483	501	621	808	966	1379	1744	1920	0.9	4.9	5.5	3.4	
as % in Gross Inland Consumption														
Solids	63.0	63.9	66.2	57.8	50.3	51.7	44.0	35.7	33.2					
Oil	26.9	18.3	10.8	19.4	24.7	23.8	23.5	23.1	23.2					
Natural gas	11.5	10.3	14.1	14.2	12.5	8.6	7.7	7.8	7.7					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	8.6	10.6	11.0	15.4	17.8	27.3	35.9	39.0					
Gross Electricity Generation in GWh_e	17178	8691	8511	10203	11042	11395	12869	13559	15283	-6.8	2.6	1.5	1.7	
Self consumption and grid losses	2615	1409	1247	1422	1394	1489	1650	1636	1882	-7.1	1.1	1.7	1.3	
Fuel Inputs to Thermal Power Generation	5654	2682	2452	2539	2647	2731	2454	2197	2288	-8.0	0.8	-0.8	-0.7	
Solids	5085	2499	2213	2297	2473	2614	2020	1517	1439	-8.0	1.1	-2.0	-3.3	
Oil (including refinery gas)	210	80	12	10	16	0	0	0	0	-25.2	3.2	-41.4		
Gas (including derived gases)	357	100	226	227	119	0	0	3	4	-4.5	-6.2			
Biomass & Waste	2	2	2	5	40	117	433	676	846	-0.3	34.4	26.9	6.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2285	1007	783	769	376	382	274	242	260	-10.2	-7.1	-3.1	-0.5	
Refineries	1	1	1	1	1	1	1	1	1	0.0	1.6	-0.2	-0.1	
Biofuels and hydrogen production	0	0	0	0	44	70	99	104	115			8.4	1.4	
District heating	1755	527	485	511	317	303	168	132	141	-12.1	-4.2	-6.1	-1.8	
Derived gases, cokeries etc.	529	479	297	257	13	8	5	4	4	-5.6	-26.7	-8.5	-4.2	
Energy Branch Consumption	295	148	179	209	201	202	201	189	198	-4.9	1.1	0.0	-0.1	
Non-Energy Uses	69	225	219	230	224	215	205	204	203	12.2	0.2	-0.9	-0.1	
Final Energy Demand	6392	2627	2445	2854	3187	3307	3439	3488	3544	-9.2	2.7	0.8	0.3	
by sector														
Industry	2742	794	531	654	769	817	862	911	941	-15.1	3.8	1.1	0.9	
- energy intensive industries	738	430	203	215	227	241	255	269	277	-12.1	1.1	1.2	0.8	
- other industrial sectors	2004	364	328	440	543	576	607	642	664	-16.6	5.2	1.1	0.9	
Residential	1482	1054	984	977	961	929	970	949	949	-4.0	-0.2	0.1	-0.2	
Tertiary	1330	289	353	498	586	624	663	686	689	-12.4	5.2	1.2	0.4	
Transport	839	490	577	725	870	937	943	943	965	-3.7	4.2	0.8	0.2	
by fuel														
Solids	1059	201	122	102	105	113	123	135	138	-19.5	-1.5	1.6	1.2	
Oil	1803	855	748	960	1132	1153	1120	1081	1081	-8.4	4.2	-0.1	-0.4	
Gas	439	202	134	207	249	263	233	223	222	-11.2	6.4	-0.7	-0.5	
Electricity	608	510	506	584	644	714	808	865	967	-1.8	2.4	2.3	1.8	
Heat (from CHP and District Heating)	2086	593	511	547	491	468	474	469	469	-13.1	-0.4	-0.4	-0.1	
Renewable energy forms	397	265	424	453	566	597	680	710	667	0.7	2.9	1.8	-0.2	
Other	0	0	0	0	0	0	0	0	0			12.2	2.9	
RES in Gross Final Energy Consumption ^(A)			538	564	772	911	1285	1623	1777		3.7	5.2	3.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0		17.3	18.9	19.4	19.5	16.7	14.0	13.3	-9.1	1.2	-1.5	-2.2	
CO₂ Emissions (energy related)	39.2	16.2	14.1	15.2	15.8	16.1	13.1	10.9	10.5	-9.7	1.1	-1.8	-2.2	
Power generation/District heating	27.9	12.3	10.9	11.2	11.2	11.4	8.6	6.4	6.1	-9.0	0.2	-2.6	-3.3	
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-9.8	2.6	-2.3	-2.4	
Industry	4.6	1.7	0.8	0.8	1.0	1.1	1.0	0.9	1.0	-16.0	2.6	-0.2	-0.5	
Residential	2.0	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-17.7	1.1	-1.1	-0.3	
Tertiary	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.6	-17.6	7.9	-0.3	-0.2	
Transport	2.4	1.4	1.7	2.1	2.5	2.6	2.5	2.5	2.5	-3.6	3.8	0.3	-0.1	
CO₂ Emissions (non energy related)	0.6	0.2	0.4	0.7	0.9	1.1	1.2	1.4	1.4	-5.3	9.6	3.3	1.5	
Non-CO₂ GHGs Emissions	5.2		2.9	3.0	2.8	2.4	2.3	1.7	1.4	-5.7	-0.3	-1.6	-5.4	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.5	42.0	43.2	43.4	37.1	31.0	29.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Estonia: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4	
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4	
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	323.6	273.5	214.6	178.8	164.5	-7.1	-6.5	-4.0	-2.6	
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.87	2.99	2.69	3.01	2.96	2.60	2.24	2.14	-2.1	0.0	-1.5	-1.9	
Import Dependency %	41.2	34.8	30.0	25.5	36.5	32.8	30.4	29.7	28.3					
Total Energy-related Costs ^(B) (in 000 M€05)			1.7	1.9	2.6	3.3	4.0	4.7	5.2		4.7	4.4	2.5	
as % of GDP			22.2	16.8	16.2	16.5	17.1	17.2	17.3					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	364.5	222.2	100.0	75.1	56.5	48.9	43.7	39.8	37.2	-12.1	-5.6	-2.5	-1.6	
Residential (Energy on Private Income, index 2000=100)	144.8	146.1	100.0	67.2	46.1	36.7	32.6	27.9	25.4	-3.6	-7.5	-3.4	-2.5	
Tertiary (Energy on Value added, index 2000=100)	376.5	108.2	100.0	96.7	79.0	68.8	61.7	55.3	50.2	-12.4	-2.3	-2.4	-2.0	
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.2	28.0	26.3	25.0	25.4	0.2	-0.8	-1.0	-0.3	
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	19.8	20.4	19.9	19.3	19.1	-7.9	1.0	0.0	-0.4	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.71	0.69	0.63	0.62	0.63	0.44	0.32	0.29	0.5	-1.0	-3.3	-4.3	
Final energy demand (t of CO ₂ /toe)	1.70	1.48	1.25	1.33	1.38	1.37	1.28	1.23	1.22	-3.1	1.0	-0.8	-0.5	
Industry	1.67	2.20	1.51	1.28	1.35	1.29	1.18	1.01	1.03	-1.0	-1.1	-1.4	-1.4	
Residential	1.33	0.44	0.29	0.36	0.33	0.32	0.29	0.31	0.29	-14.2	1.3	-1.2	-0.1	
Tertiary	1.42	0.87	0.77	0.94	1.00	0.93	0.85	0.85	0.80	-5.9	2.6	-1.6	-0.6	
Transport	2.89	2.90	2.92	2.94	2.82	2.77	2.68	2.66	2.61	0.1	-0.4	-0.5	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			20.2	18.3	22.8	26.0	35.3	44.2	47.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.5	6.4	9.2	9.7	10.6					
Gross Electricity generation by source (in GWh)														
			8511	10203	11042	11395	12869	13559	15283		2.6	1.5	1.7	
Nuclear energy			0	0	0	0	0	0	0					
Solids			7611	8927	9323	9636	9225	7409	7928		2.1	-0.1	-1.5	
Oil (including refinery gas)			51	42	64	0	0	0	0		2.4	-41.2		
Gas (including derived gases)			787	1000	482	22	0	20	24		-4.8			
Biomass-waste			57	158	209	617	2171	3392	4123		13.9	26.3	6.6	
Hydro (pumping excluded)			5	22	26	28	29	29	30		18.0	1.1	0.2	
Wind			1	54	937	1092	1443	2707	3178		98.2	4.4	8.2	
Solar			0	0	0	0	0	0	0				4.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2999	2998	2832	2901	2652	3403	3990		-0.6	-0.7	4.2	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			2	39	361	414	567	1191	1513		68.4	4.6	10.3	
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1	
Wind			1	32	354	407	559	1184	1505		82.4	4.7	10.4	
Solar			0	0	0	0	1	1	1				4.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2997	2959	2470	2488	2086	2212	2477		-1.9	-1.7	1.7	
of which cogeneration units			477	513	448	305	634	795	927		-0.6	3.5	3.9	
Solids fired			2738	2672	2159	2142	1405	1048	1073		-2.3	-4.2	-2.7	
Gas fired			175	200	207	214	217	544	554		1.7	0.5	9.8	
Oil fired			65	65	66	7	0	0	0		0.2	-46.7	0.0	
Biomass-waste fired			19	21	37	124	464	620	849		7.1	28.6	6.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			28.9	34.7	40.4	40.7	50.5	41.9	40.2					
Efficiency of gross thermal power generation (%)			29.8	34.3	32.7	32.4	39.9	42.4	45.4					
% of gross electricity from CHP			17.6	33.1	19.4	16.1	28.4	33.4	32.1					
Carbon free gross electricity generation (%)			0.7	2.3	10.6	15.2	28.3	45.2	48.0					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.7	2.3	10.6	15.2	28.3	45.2	48.0					
Transport sector														
Passenger transport activity (Gpkm)	11.8	9.0	11.4	13.8	15.8	16.6	17.2	17.8	18.0	-0.3	3.3	0.8	0.5	
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.5	2.5	2.5	-5.1	0.0	-0.4	-0.2	
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.0	12.7	13.1	13.5	13.5	4.2	4.5	0.9	0.3	
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.1	2.7	2.2	
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	0.9	2.5	3.2	5.2	4.3	
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	-2.1	-0.3	0.9	0.6	
Freight transport activity (Gtkm)	11.5	5.4	12.0	16.5	20.7	23.2	24.7	25.8	26.4	0.5	5.6	1.8	0.7	
Trucks	4.5	1.5	3.9	5.8	8.3	10.1	11.3	12.2	12.7	-1.4	7.8	3.1	1.2	
Rail	7.0	3.8	8.1	10.6	12.3	13.1	13.4	13.6	13.8	1.5	4.3	0.9	0.2	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	839	490	577	725	870	937	943	943	965	-3.7	4.2	0.8	0.2	
Public road transport	44	21	25	23	21	20	18	16	15	-5.5	-1.6	-1.4	-2.0	
Private cars and motorcycles	273	263	307	338	380	387	372	359	366	1.2	2.1	-0.2	-0.2	
Trucks	414	139	167	263	356	416	440	454	482	-8.7	7.8	2.2	0.9	
Rail	65	44	51	48	54	57	51	45	25	-2.4	0.5	-0.5	-6.9	
Aviation	36	18	20	42	49	46	50	56	65	-5.9	9.6	0.2	2.7	
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.4	0.7	0.2	

Source: PRIMES

Estonia: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	6249	3332	4304	3772	3646	3668	211	-132	-477	5.9	-3.5	-11.5
Solids	5798	2830	3261	2678	2083	1508	-29	-725	-1317	-1.1	-25.8	-46.6
Oil	0	2	331	0	0	0	0	0	0	-136.2	-181.9	-26.3
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	450	500	712	1094	1562	2160	240	593	840	28.0	61.2	63.7
Hydro	0	0	2	2	3	3	0	0	0	7.3	1.9	0.0
Biomass & Waste	450	500	706	989	1418	1846	192	520	643	24.0	58.0	53.4
Wind	0	0	5	94	124	273	42	59	167	79.6	90.2	156.2
Solar and others	0	0	0	9	18	37	6	14	30	251.6	330.1	437.5
Geothermal	0	0	0	0	0	0	0	0	0	54.9	113.2	140.7
Net Imports	4456	1447	1463	1838	1594	1451	-466	-460	-594	-20.2	-22.4	-29.1
Solids	697	244	27	133	141	128	-4	-9	-14	-3.1	-5.8	-10.1
Oil	3139	626	867	1466	1370	1334	-100	-159	-180	-6.4	-10.4	-11.9
- Crude oil and Feedstocks	0	0	0	1	1	1	0	0	0	-6.1	-8.1	-9.2
- Oil products	3139	626	867	1465	1368	1333	-100	-159	-180	-6.4	-10.4	-11.9
Natural gas	1222	662	800	470	387	379	-337	-225	-317	-41.8	-36.7	-45.5
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10642	4712	5627	5440	5057	4926	-255	-592	-1071	-4.5	-10.5	-17.9
Solids	6703	3119	3255	2812	2224	1636	-33	-734	-1331	-1.2	-24.8	-44.9
Oil	2858	510	1090	1295	1187	1142	-100	-159	-180	-7.2	-11.8	-13.6
Natural gas	1222	662	800	470	387	379	-337	-225	-317	-41.8	-36.7	-45.5
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	-602	-80	-138	-102	-120	-150	0	0	0	0.0	0.0	0.0
Renewable energy forms	460	501	621	966	1379	1920	215	525	757	28.6	61.6	65.0
as % in Gross Inland Consumption												
Solids	63.0	66.2	57.8	51.7	44.0	33.2	1.7	-8.4	-16.3			
Oil	26.9	10.8	19.4	23.8	23.5	23.2	-0.7	-0.3	1.1			
Natural gas	11.5	14.1	14.2	8.6	7.7	7.7	-5.5	-3.2	-3.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	10.6	11.0	17.8	27.3	39.0	4.6	12.2	19.6			
Gross Electricity Generation in GWh_e	17178	8511	10203	11395	12869	15283	-1644	-2089	-2243	-12.6	-14.0	-12.8
Self consumption and grid losses	2615	1247	1422	1489	1650	1882	-202	-433	-718	-11.9	-20.8	-27.6
Fuel Inputs to Thermal Power Generation	5654	2452	2539	2731	2454	2288	-198	-462	-841	-6.7	-15.8	-26.9
Solids	5085	2213	2297	2614	2020	1439	-34	-731	-1332	-1.3	-26.6	-48.1
Oil (including refinery gas)	210	12	10	0	0	0	-6	-28	0	-100.0	-99.7	-100.0
Gas (including derived gases)	357	226	227	0	0	4	-236	-86	-106	-100.0	-100.0	-96.8
Biomass & Waste	2	2	5	117	433	846	78	382	598	201.6	750.7	240.9
Geothermal heat	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Input to other conversion processes	2285	783	769	382	274	260	-46	-93	-136	-10.8	-25.4	-34.3
Refineries	1	1	1	1	1	1	0	0	0	-6.1	-8.1	-9.2
Biofuels and hydrogen production	0	0	0	70	99	115	-7	-16	-24	-9.2	-13.5	-17.2
District heating	1755	485	511	303	168	141	-37	-76	-111	-11.0	-31.2	-44.0
Derived gases, cokeries etc.	529	297	257	8	5	4	-2	-1	-1	-16.6	-19.2	-22.7
Energy Branch Consumption	295	179	209	202	201	198	-18	-42	-70	-8.3	-17.2	-26.1
Non-Energy Uses	69	219	230	215	205	203	0	-1	-1	-0.1	-0.6	-0.3
Final Energy Demand	6392	2445	2854	3307	3439	3544	-238	-268	-439	-6.7	-7.2	-11.0
by sector												
Industry	2742	531	654	817	862	941	-35	-58	-86	-4.1	-6.3	-8.4
- energy intensive industries	738	203	215	241	255	277	-9	-14	-16	-3.5	-5.3	-5.4
- other industrial sectors	2004	328	440	576	607	664	-26	-44	-70	-4.3	-6.7	-9.6
Residential	1482	984	977	929	970	949	-65	-31	-107	-6.5	-3.1	-10.1
Tertiary	1330	353	498	624	663	689	-74	-90	-126	-10.6	-12.0	-15.4
Transport	839	577	725	937	943	965	-65	-90	-120	-6.5	-8.7	-11.1
by fuel												
Solids	1059	122	102	113	123	138	2	5	17	2.0	4.0	14.4
Oil	1803	748	960	1153	1120	1081	-91	-101	-175	-7.3	-8.3	-13.9
Gas	439	134	207	263	233	222	-25	-77	-184	-8.8	-24.9	-45.4
Electricity	608	506	584	714	808	967	-123	-142	-130	-14.7	-14.9	-11.9
Heat (from CHP and District Heating)	2086	511	547	468	474	469	-62	-29	-42	-11.7	-5.8	-8.3
Renewable energy forms	397	424	453	597	680	667	61	76	75	11.4	12.6	12.8
Other	0	0	0	0	0	0	0	0	0	3.1	-6.8	-8.4
RES in Gross Final Energy Consumption ^(A)		538	564	911	1285	1777	200	481	708	28.2	59.8	66.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	45.0	17.3	18.9	19.5	16.7	13.3	-1.6	-4.5	-7.1	-7.4	-21.4	-34.9
CO₂ Emissions (energy related)	39.2	14.1	15.2	16.1	13.1	10.5	-1.2	-4.1	-6.8	-7.1	-23.6	-39.3
Power generation/District heating	27.9	10.9	11.2	11.4	8.6	6.1	-0.9	-3.6	-5.9	-7.2	-29.3	-49.0
Energy Branch	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	-0.1	-8.7	-19.1	-30.6
Industry	4.6	0.8	0.8	1.1	1.0	1.0	-0.1	-0.1	-0.4	-8.6	-12.7	-29.3
Residential	2.0	0.3	0.4	0.3	0.3	0.3	0.0	0.0	-0.1	-12.0	-14.5	-19.9
Tertiary	1.9	0.3	0.5	0.6	0.6	0.6	0.0	0.0	-0.1	-1.9	-5.3	-14.9
Transport	2.4	1.7	2.1	2.6	2.5	2.5	-0.2	-0.2	-0.3	-6.5	-8.6	-11.5
CO₂ Emissions (non energy related)	0.6	0.4	0.7	1.1	1.2	1.4	0.0	0.0	0.0	-1.7	-2.5	-1.3
Non-CO₂ GHGs Emissions	5.2	2.9	3.0	2.4	2.3	1.4	-0.3	-0.5	-0.3	-11.9	-16.4	-18.4
TOTAL GHGs Emissions Index (1990=100)	100.0	38.5	42.0	43.4	37.1	29.6	-3.5	-10.1	-15.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Estonia: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.571	1.372	1.348	1.279	1.248	1.202	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	8.1	7.4	11.1	19.9	23.6	29.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	1316.2	633.3	508.7	273.5	214.6	164.5	-12.8	-25.1	-35.8	-4.5	-10.5	-17.9
Carbon intensity (t of CO ₂ /toe of GIC)	3.69	2.99	2.69	2.96	2.60	2.14	-0.08	-0.45	-0.75	-2.7	-14.7	-26.0
Import Dependency %	41.2	30.0	25.5	32.8	30.4	28.3	-6.5	-4.8	-4.7			
Total Energy-related Costs ^(B) (in 000 M€05)		1.7	1.9	3.3	4.0	5.2	0.1	0.2	0.5	2.0	6.2	9.9
as % of GDP		22.2	16.8	16.5	17.1	17.3	0.3	1.0	1.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.2	0.5						
as % of GDP				0.35	1.04	1.57						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	364.5	100.0	75.1	48.9	43.7	37.2	-2.1	-2.9	-3.4	-4.1	-6.3	-8.4
Residential (Energy on Private Income, index 2000=100)	144.8	100.0	67.2	36.7	32.6	25.4	-2.6	-1.0	-2.9	-6.5	-3.1	-10.1
Tertiary (Energy on Value added, index 2000=100)	376.5	100.0	96.7	68.8	61.7	50.2	-8.2	-8.4	-9.1	-10.6	-12.0	-15.4
Passenger transport (toe/Mpkm)	30.9	31.5	29.9	28.0	26.3	25.4	-1.2	-1.0	-0.8	-4.2	-3.7	-3.0
Freight transport (toe/Mtkm)	41.2	18.0	18.8	20.4	19.9	19.1	-1.3	-2.1	-3.0	-5.9	-9.4	-13.7
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.65	0.69	0.63	0.63	0.44	0.29	0.03	-0.11	-0.21	5.7	-20.1	-42.3
Final energy demand (t of CO ₂ /toe)	1.70	1.25	1.33	1.37	1.28	1.22	0.00	-0.03	-0.09	-0.1	-2.5	-6.9
Industry	1.67	1.51	1.28	1.29	1.18	1.03	-0.06	-0.09	-0.30	-4.7	-6.9	-22.8
Residential	1.33	0.29	0.36	0.32	0.29	0.29	-0.02	-0.04	-0.04	-5.9	-11.8	-10.9
Tertiary	1.42	0.77	0.94	0.93	0.85	0.80	0.08	0.06	0.00	9.8	7.6	0.6
Transport	2.89	2.92	2.94	2.77	2.68	2.61	0.00	0.00	-0.01	0.0	0.1	-0.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		20.2	18.3	26.0	35.3	47.5	7.1	14.9	22.3			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	6.4	9.2	10.6	-0.3	-0.5	-0.7			
Gross Electricity generation by source (in GWh_e)												
	8511	10203	11395	12869	15283	15283	-1644	-2089	-2243	-12.6	-14.0	-12.8
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	7611	8927	9636	9225	7928	7928	-1080	-3922	-7182	-10.1	-29.8	-47.5
Oil (including refinery gas)	51	42	0	0	0	0	-25	-113	-1	-100.0	-99.7	-100.0
Gas (including derived gases)	787	1000	22	0	24	24	-1405	-604	-373	-98.4	-100.0	-94.1
Biomass-waste	57	158	617	2171	4123	4123	379	1866	3376	159.3	610.7	451.8
Hydro (pumping excluded)	5	22	28	29	30	30	2	1	0	7.3	1.9	0.0
Wind	1	54	1092	1443	3178	3178	484	684	1938	79.6	90.2	156.2
Solar	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	2999	2998	2901	2652	3990	3990	-211	-100	695	-6.8	-3.7	21.1
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	2	39	414	567	1513	1513	162	258	1046	64.6	83.7	223.8
Hydro (pumping excluded)	1	7	7	7	7	7	0	0	0	0.0	0.0	0.0
Wind	1	32	407	559	1505	1505	162	258	1046	66.5	85.8	227.5
Solar	0	0	0	1	1	1	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2997	2959	2488	2086	2477	2477	-373	-359	-351	-13.1	-14.7	-12.4
of which cogeneration units	477	513	305	634	927	927	-153	34	240	-33.4	5.7	34.9
Solids fired	2738	2672	2142	1405	1073	1073	-255	-494	-827	-10.6	-26.0	-43.5
Gas fired	175	200	214	217	554	554	-199	-208	-134	-48.2	-48.9	-19.5
Oil fired	65	65	7	0	0	0	-5	-59	-54	-38.1	-99.8	-99.8
Biomass-waste fired	19	21	124	464	849	849	85	402	665	216.5	646.4	362.4
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	28.9	34.7	40.7	50.5	40.2	40.2	-2.8	-5.4	-14.2			
Efficiency of gross thermal power generation (%)	29.8	34.3	32.4	39.9	45.4	45.4	-4.1	-1.9	0.7			
% of gross electricity from CHP	17.6	33.1	16.1	28.4	32.1	32.1	-7.4	8.6	18.6			
Carbon free gross electricity generation (%)	0.7	2.3	15.2	28.3	48.0	48.0	8.6	21.0	36.5			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.7	2.3	15.2	28.3	48.0	48.0	8.6	21.0	36.5			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	11.8	11.4	13.8	16.6	17.2	18.0	-0.2	-0.3	-0.3	-1.2	-1.5	-1.7
Private cars and motorcycles	4.5	2.6	2.7	2.5	2.5	2.5	0.0	0.0	0.1	1.6	1.9	2.1
Rail	5.1	7.7	10.1	12.7	13.1	13.5	-0.2	-0.3	-0.3	-1.8	-2.2	-2.4
Aviation	1.5	0.4	0.3	0.4	0.5	0.6	0.0	0.0	0.0	1.4	1.7	2.5
Inland navigation	0.2	0.3	0.3	0.5	0.6	0.9	0.0	0.0	0.0	-2.9	-2.9	-3.4
Freight transport activity (Gtkm)	0.6	0.4	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-1.1	-1.4	-1.7
Freight transport activity (Gtkm)												
Trucks	11.5	12.0	16.5	23.2	24.7	26.4	-0.4	-0.6	-0.8	-1.8	-2.5	-2.9
Rail	4.5	3.9	5.8	10.1	11.3	12.7	-0.6	-0.8	-1.0	-5.4	-6.7	-7.3
Inland navigation	7.0	8.1	10.6	13.1	13.4	13.8	0.1	0.2	0.2	1.1	1.3	1.4
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Public road transport	839	577	725	937	943	965	-65	-90	-120	-6.5	-8.7	-11.1
Private cars and motorcycles	44	25	23	20	18	15	0	0	-1	-0.7	-2.4	-5.6
Trucks	273	307	338	387	372	366	-13	-19	-16	-3.3	-4.8	-4.2
Rail	414	167	263	416	440	482	-39	-65	-96	-8.6	-12.9	-16.6
Aviation	65	51	48	57	51	25	0	0	-2	0.7	0.4	-6.1
Inland navigation	36	20	42	46	50	65	-13	-5	-5	-21.5	-9.8	-7.5
Inland navigation	7	7	11	11	12	12	0	0	0	-1.5	-2.4	-3.8

Source: PRIMES

Finland: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	11860	13166	15001	16461	16917	20631	22882	24968	26053	2.4	1.2	3.1	1.3
Solids	1581	2061	1207	2129	1643	1679	1738	1709	1564	-2.7	3.1	0.6	-1.0
Oil	0	15	37	205	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	5006	4957	5799	6003	6054	8994	8994	9451	8978	1.5	0.4	4.0	0.0
Renewable energy sources	5273	6133	7959	8124	9221	9958	12150	13808	15511	4.2	1.5	2.8	2.5
Hydro	934	1111	1261	1185	1204	1214	1218	1227	1234	3.0	-0.5	0.1	0.1
Biomass & Waste	4338	5021	6691	6924	7923	8612	10701	12217	13664	4.4	1.7	3.1	2.5
Wind	0	1	7	15	84	94	142	245	463		28.7	5.4	12.5
Solar and others	0	0	1	1	10	39	89	119	150	3.8	32.9	25.1	5.3
Geothermal	0	0	0	0	0	0	0	0	0			5.5	1.3
Net Imports	18031	15542	18512	19163	18396	15996	12989	10983	9229	0.3	-0.1	-3.4	-3.4
Solids	4378	3774	3533	3338	3813	3668	3179	2068	1224	-2.1	0.8	-1.8	-9.1
Oil	10477	8205	10535	10844	9403	8680	7749	7350	7014	0.1	-1.1	-1.9	-1.0
- Crude oil and Feedstocks	8890	8548	12115	11017	11380	10932	10334	10068	9839	3.1	-0.6	-1.0	-0.5
- Oil products	1587	-343	-1580	-173	-1976	-2252	-2585	-2718	-2825				
Natural gas	2261	2839	3422	3598	3890	2575	1563	1159	519	4.2	1.3	-8.7	-10.4
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1
Gross Inland Consumption	28956	28959	32483	34515	34812	36132	35384	35467	34800	1.2	0.7	0.2	-0.2
Solids	5327	5950	5087	4925	5455	5347	4917	3777	2788	-0.5	0.7	-1.0	-5.5
Oil	9939	8344	9195	10482	8902	8184	7261	6866	6532	-0.8	-0.3	-2.0	-1.1
Natural gas	2261	2839	3422	3598	3890	2575	1563	1159	519	4.2	1.3	-8.7	-10.4
Nuclear	5006	4957	5799	6003	6054	8994	8994	9451	8978	1.5	0.4	4.0	0.0
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1
Renewable energy forms	5508	6146	7959	8046	9131	9861	12029	13670	15357	3.8	1.4	2.8	2.5
as % in Gross Inland Consumption													
Solids	18.4	20.5	15.7	14.3	15.7	14.8	13.9	10.6	8.0				
Oil	34.3	28.8	28.3	30.4	25.6	22.7	20.5	19.4	18.8				
Natural gas	7.8	9.8	10.5	10.4	11.2	7.1	4.4	3.3	1.5				
Nuclear	17.3	17.1	17.9	17.4	17.4	24.9	25.4	26.6	25.8				
Renewable energy forms	19.0	21.2	24.5	23.3	26.2	27.3	34.0	38.5	44.1				
Gross Electricity Generation in GWh_e	54367	64023	69976	70536	76884	84357	93603	101497	108028	2.6	0.9	2.0	1.4
Self consumption and grid losses	5547	6510	5449	5710	6436	7338	8262	9657	10707	-0.2	1.7	2.5	2.6
Fuel Inputs to Thermal Power Generation	5451	6715	6923	7538	6928	6322	7186	7596	8067	2.4	0.0	0.4	1.2
Solids	3216	3882	3168	2974	3548	3485	3170	2100	1241	-0.1	1.1	-1.1	-9.0
Oil (including refinery gas)	294	257	131	107	0	0	0	0	0		-7.8		
Gas (including derived gases)	1015	1581	2106	2384	2296	1341	468	321	253	7.6	0.9	-14.7	-6.0
Biomass & Waste	926	996	1518	2073	1085	1496	3549	5175	6573	5.1	-3.3	12.6	6.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	12055	14028	15309	15473	15211	14838	14033	13458	12791	2.4	-0.1	-0.8	-0.9
Refineries	10689	12029	13200	13194	11811	11369	10767	10497	10261	2.1	-1.1	-0.9	-0.5
Biofuels and hydrogen production	0	0	0	0	101	245	371	417	477			13.9	2.5
District heating	573	548	803	954	2050	2066	1938	1682	1286	3.4	9.8	-0.6	-4.0
Derived gases, cokeries etc.	793	1451	1306	1325	1250	1158	957	862	767	5.1	-0.4	-2.6	-2.2
Energy Branch Consumption	781	965	1285	1228	1197	1179	1194	1246	1270	5.1	-0.7	0.0	0.6
Non-Energy Uses	1441	1152	896	1095	1173	1199	1195	1198	1197	-4.6	2.7	0.2	0.0
Final Energy Demand	21727	22041	24159	25121	26016	25697	25094	24891	24598	1.1	0.7	-0.4	-0.2
by sector													
Industry	9618	9988	12053	11988	12592	12599	12420	12486	12629	2.3	0.4	-0.1	0.2
- energy intensive industries	7351	7628	9456	9067	9410	9362	9150	9156	9259	2.6	0.0	-0.3	0.1
- other industrial sectors	2267	2359	2596	2921	3183	3238	3270	3329	3370	1.4	2.1	0.3	0.3
Residential	5321	5418	4536	4846	4956	4769	4504	4362	4210	-1.6	0.9	-1.0	-0.7
Tertiary	2479	2484	3127	3471	3444	3384	3344	3282	3151	2.3	1.0	-0.3	-0.6
Transport	4309	4151	4443	4816	5024	4944	4826	4762	4609	0.3	1.2	-0.4	-0.5
by fuel													
Solids	1621	1277	1099	966	1048	1051	966	952	942	-3.8	-0.5	-0.8	-0.3
Oil	8100	7563	7507	7890	7067	6500	5947	5630	5304	-0.8	-0.6	-1.7	-1.1
Gas	1501	1523	1328	1156	1418	916	788	647	429	-1.2	0.7	-5.7	-5.9
Electricity	5068	5608	6487	6959	7361	7719	7887	8373	8928	2.5	1.3	0.7	1.2
Heat (from CHP and District Heating)	1915	2126	2780	3597	3826	3968	4126	3975	3685	3.8	3.2	0.8	-1.1
Renewable energy forms	3522	3944	4957	4552	5297	5542	5378	5314	5309	3.5	0.7	0.2	-0.1
Other	0	0	0	0	0	1	1	2	2			13.1	1.6
RES in Gross Final Energy Consumption ^(A)			7701	7458	8651	9238	10856	12288	13838		1.2	2.3	2.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5		70.3	69.1	68.0	60.6	52.8	45.0	37.6	-0.3	-0.3	-2.5	-3.3
CO₂ Emissions (energy related)	54.4	55.6	53.8	54.1	53.4	47.7	41.1	34.5	28.1	-0.1	-0.1	-2.6	-3.7
Power generation/District heating	17.8	21.8	20.2	20.5	21.8	19.4	16.1	11.1	7.2	1.3	0.8	-3.0	-7.7
Energy Branch	1.4	1.7	2.7	2.5	2.2	2.0	1.1	0.9	0.1	7.0	-1.8	-7.0	-22.3
Industry	14.1	12.4	12.5	11.8	10.5	9.0	7.8	6.9	6.1	-1.2	-1.7	-3.0	-2.4
Residential	6.4	5.9	2.3	2.1	1.7	1.1	0.8	0.6	0.5	-9.6	-3.3	-6.7	-4.2
Tertiary	2.1	1.7	3.0	3.0	2.6	2.3	2.0	2.0	1.9	3.8	-1.3	-2.6	-0.6
Transport	12.7	12.2	13.1	14.2	14.5	13.9	13.3	12.9	12.3	0.3	1.1	-0.9	-0.8
CO₂ Emissions (non energy related)	3.9	3.5	3.9	3.9	3.8	3.7	3.4	3.2	3.0	0.1	-0.3	-1.3	-1.1
Non-CO₂ GHGs Emissions	14.3		12.7	11.1	10.8	9.2	8.4	7.2	6.4	-1.2	-1.6	-2.5	-2.6
TOTAL GHGs Emissions Index (1990=100)	100.0		97.0	95.3	93.8	83.5	72.8	62.0	51.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Finland: Cost Efficiency Scenario with high prices			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Int. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	190.1	178.3	159.9	147.9	136.5	-0.8	-2.0	-1.7	-1.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.92	1.65	1.57	1.53	1.32	1.16	0.97	0.81	-1.3	-0.8	-2.7	-3.6
Import Dependency %	61.1	53.1	55.8	54.7	52.1	43.7	36.2	30.6	26.2				
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	16.6	20.3	23.5	27.1	30.9	35.0		3.8	3.0	2.6
as % of GDP			10.1	10.5	11.1	11.6	12.3	12.9	13.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	134.5	125.6	100.0	83.1	73.1	65.7	59.5	55.6	53.4	-2.9	-3.1	-2.0	-1.1
Residential (Energy on Private Income, index 2000=100)	132.0	141.2	100.0	90.5	81.8	72.3	63.3	57.1	52.1	-2.7	-2.0	-2.5	-1.9
Tertiary (Energy on Value added, index 2000=100)	91.0	94.6	100.0	102.5	87.0	77.2	69.5	62.5	56.0	1.0	-1.4	-2.2	-2.1
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.5	32.2	31.0	29.6	27.7	-0.3	0.3	-0.8	-1.1
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.0	41.9	39.5	38.3	37.0	-1.7	0.3	-1.1	-0.6
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.24	0.19	0.18	0.17	0.14	0.11	0.07	0.05	-1.6	-1.0	-4.4	-8.2
Final energy demand (t of CO ₂ /toe)	1.62	1.46	1.28	1.24	1.13	1.03	0.95	0.90	0.85	-2.3	-1.3	-1.7	-1.2
Industry	1.46	1.24	1.03	0.98	0.83	0.71	0.62	0.55	0.48	-3.4	-2.1	-2.8	-2.6
Residential	1.21	1.09	0.52	0.43	0.34	0.24	0.19	0.15	0.13	-8.1	-4.1	-5.8	-3.6
Tertiary	0.84	0.70	0.96	0.86	0.77	0.68	0.61	0.61	0.61	1.4	-2.3	-2.3	0.0
Transport	2.94	2.93	2.94	2.94	2.89	2.82	2.75	2.72	2.67	0.0	-0.2	-0.5	-0.3
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			31.0	28.8	32.1	34.7	41.6	47.4	53.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.7	7.2	8.2	9.5				
Gross Electricity generation by source (in GWh)													
			69976	70536	76884	84357	93603	101497	108028		0.9	2.0	1.4
Nuclear energy			22475	23267	23470	36243	36243	38315	37261		0.4	4.4	0.3
Solids			10359	9486	13890	12759	12131	8022	5464		3.0	-1.3	-7.7
Oil (including refinery gas)			444	419	561	350	166	0	0		2.4	-11.5	-46.6
Gas (including derived gases)			10776	11400	12377	7097	3976	3975	2002		1.4	-10.7	-6.6
Biomass-waste			11185	12010	11600	12692	25257	34045	43538		0.4	8.1	5.6
Hydro (pumping excluded)			14657	13782	14004	14113	14160	14266	14348		-0.5	0.1	0.1
Wind			78	170	975	1093	1650	2848	5379		28.7	5.4	12.5
Solar			2	3	7	11	18	27	35		12.5	11.0	6.7
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			17044	17512	18313	18718	19642	20836	22626		0.7	0.7	1.4
<u>Nuclear energy</u>			2687	2690	2691	4207	4207	4447	4319		0.0	4.6	0.3
<u>Renewable energy</u>			3057	3104	3456	3533	3815	4267	5192		1.2	1.0	3.1
Hydro (pumping excluded)			3016	3018	3089	3105	3130	3149	3164		0.2	0.1	0.1
Wind			38	82	358	414	663	1084	1984		25.2	6.3	11.6
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			11300	11718	12166	10978	11620	12123	13115		0.7	-0.5	1.2
of which cogeneration units			7129	7583	6875	7217	8779	9611	10664		-0.4	2.5	2.0
Solids fired			5539	5687	5630	4860	3601	2888	2032		0.2	-4.4	-5.6
Gas fired			2479	2444	2753	2675	2460	2373	2143		1.1	-1.1	-1.4
Oil fired			1341	1340	1341	590	533	448	176		0.0	-8.8	-10.5
Biomass-waste fired			1942	2247	2442	2854	5026	6414	8765		2.3	7.5	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			45.1	44.2	45.9	49.2	51.8	52.6	51.5				
Efficiency of gross thermal power generation (%)			40.7	38.0	47.7	44.7	49.7	52.1	54.4				
% of gross electricity from CHP			44.9	45.7	45.3	37.2	43.9	45.0	46.9				
Carbon free gross electricity generation (%)			69.2	69.8	65.1	76.0	82.6	88.2	93.1				
- nuclear			32.1	33.0	30.5	43.0	38.7	37.8	34.5				
- renewable energy forms			37.0	36.8	34.6	33.1	43.9	50.4	58.6				
Transport sector													
Passenger transport activity (Gpkm)	74.8	74.1	81.0	88.2	94.4	98.1	100.7	103.8	106.1	0.8	1.5	0.6	0.5
Public road transport	8.5	8.0	7.7	7.4	7.6	7.8	8.1	8.4	8.6	-1.0	-0.2	0.7	0.5
Private cars and motorcycles	51.9	50.8	56.6	63.4	68.3	70.3	71.2	72.5	72.8	0.9	1.9	0.4	0.2
Rail	3.7	3.6	3.9	4.0	4.2	4.5	4.9	5.3	5.8	0.6	0.7	1.6	1.7
Aviation	5.3	6.1	7.9	8.6	9.7	10.8	11.6	12.8	14.0	4.1	2.1	1.9	1.9
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.7	4.8	4.9	-0.8	-0.6	0.2	0.4
Freight transport activity (Gtkm)	35.8	34.5	42.4	41.8	42.3	42.7	43.2	44.1	45.0	1.7	0.0	0.2	0.4
Trucks	26.3	24.5	32.0	31.9	32.1	32.1	31.9	32.2	32.4	2.0	0.0	0.0	0.2
Rail	8.4	9.6	10.1	9.7	10.1	10.4	11.1	11.7	12.4	1.9	-0.1	1.0	1.1
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.3
Energy demand in transport (ktoe)	4309	4151	4443	4816	5024	4944	4826	4762	4609	0.3	1.2	-0.4	-0.5
Public road transport	97	84	55	57	58	57	57	57	56	-5.4	0.5	-0.1	-0.3
Private cars and motorcycles	1840	1867	1904	2137	2282	2236	2197	2136	2134	0.3	1.8	-0.4	-0.3
Trucks	1699	1557	1715	1764	1767	1688	1608	1594	1594	0.1	0.3	-0.9	-0.1
Rail	99	102	94	97	101	104	103	100	75	-0.6	0.7	0.2	-3.1
Aviation	459	408	505	565	625	669	670	685	561	1.0	2.2	0.7	-1.8
Inland navigation	116	134	170	195	191	190	190	190	190	3.9	1.2	0.0	0.0

Source: PRIMES

Finland: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	11860	15001	16461	20631	22882	26053	621	633	1129	3.1	2.8	4.5
Solids	1581	1207	2129	1679	1738	1564	0	-15	-246	0.0	-0.8	-13.6
Oil	0	37	205	0	0	0	0	0	0	-2546.3	-32.3	-1.9
Natural gas	0	0	0	0	0	0	0	0	0	0.0	-14.2	-14.0
Nuclear	5006	5799	6003	8994	8994	8978	0	-1488	-1461	0.0	-14.2	-14.0
Renewable energy sources	5273	7959	8124	9958	12150	15511	621	2136	2836	6.7	21.3	22.4
Hydro	934	1261	1185	1214	1218	1234	19	16	0	1.6	1.3	0.0
Biomass & Waste	4338	6691	6924	8612	10701	13664	536	1987	2688	6.6	22.8	24.5
Wind	0	7	15	94	142	463	36	66	36	63.4	85.8	8.4
Solar and others	0	1	1	39	89	150	29	68	112	310.5	320.9	292.6
Geothermal	0	0	0	0	0	0	0	0	0	46.0	81.9	95.7
Net Imports	18031	18512	19163	15996	12989	9229	-2206	-3534	-4805	-12.1	-21.4	-34.2
Solids	4378	3533	3338	3668	3179	1224	-247	-803	-2492	-6.3	-20.2	-67.1
Oil	10477	10535	10844	8680	7749	7014	-472	-770	-1131	-5.2	-9.0	-13.9
- Crude oil and Feedstocks	8890	12115	11017	10932	10334	9839	-292	-498	-758	-2.6	-4.6	-7.1
- Oil products	1587	-1580	-173	-2252	-2585	-2825	-180	-272	-373	8.7	11.8	15.2
Natural gas	2261	3422	3598	2575	1563	519	-1482	-1938	-1152	-36.5	-55.4	-68.9
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28956	32483	34515	36132	35384	34800	-1585	-2900	-3676	-4.2	-7.6	-9.6
Solids	5327	5087	4925	5347	4917	2788	-247	-818	-2738	-4.4	-14.3	-49.5
Oil	9939	9195	10482	8184	7261	6532	-472	-770	-1131	-5.5	-9.6	-14.8
Natural gas	2261	3422	3598	2575	1563	519	-1482	-1938	-1152	-36.5	-55.4	-68.9
Nuclear	5006	5799	6003	8994	8994	8978	0	-1488	-1461	0.0	-14.2	-14.0
Electricity	915	1021	1461	1171	620	626	0	0	0	0.0	0.0	0.0
Renewable energy forms	5508	7959	8046	9861	12029	15357	615	2114	2805	6.7	21.3	22.4
as % in Gross Inland Consumption												
Solids	18.4	15.7	14.3	14.8	13.9	8.0	0.0	-1.1	-6.4			
Oil	34.3	28.3	30.4	22.7	20.5	18.8	-0.3	-0.5	-1.1			
Natural gas	7.8	10.5	10.4	7.1	4.4	1.5	-3.6	-4.7	-2.9			
Nuclear	17.3	17.9	17.4	24.9	25.4	25.8	1.0	-2.0	-1.3			
Renewable energy forms	19.0	24.5	23.3	27.3	34.0	44.1	2.8	8.1	11.5			
Gross Electricity Generation in GWh_e	54367	69976	70536	84357	93603	108028	-5707	-7971	-473	-6.3	-7.8	-0.4
Self consumption and grid losses	5547	5449	5710	7338	8262	10707	-453	-749	67	-5.8	-8.3	0.6
Fuel Inputs to Thermal Power Generation	5451	6923	7538	6322	7186	8067	-616	-351	274	-8.9	-4.7	3.5
Solids	3216	3168	2974	3485	3170	1241	-318	-755	-2707	-8.4	-19.2	-68.6
Oil (including refinery gas)	294	131	107	0	0	0	0	0	0		-100.0	-100.0
Gas (including derived gases)	1015	2106	2384	1341	468	253	-922	-1513	5	-40.7	-76.4	2.0
Biomass & Waste	926	1518	2073	1496	3549	6573	624	1917	2976	71.5	117.5	82.7
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	12055	15309	15473	14838	14033	12791	-767	-1081	-1743	-4.9	-7.1	-12.0
Refineries	10689	13200	13194	11369	10767	10261	-292	-499	-757	-2.5	-4.4	-6.9
Biofuels and hydrogen production	0	0	0	245	371	477	-21	-46	-94	-7.9	-11.1	-16.4
District heating	573	803	954	2066	1938	1286	-500	-531	-870	-19.5	-21.5	-40.3
Derived gases, cokeries etc.	793	1306	1325	1158	957	767	46	-4	-22	4.2	-0.4	-2.8
Energy Branch Consumption	781	1285	1228	1179	1194	1270	-61	-81	-95	-4.9	-6.4	-7.0
Non-Energy Uses	1441	896	1095	1199	1195	1197	0	-1	0	0.0	-0.1	0.0
Final Energy Demand	21727	24159	25121	25697	25094	24598	-1183	-1674	-2565	-4.4	-6.3	-9.4
by sector												
Industry	9618	12053	11988	12599	12420	12629	-193	-303	-249	-1.5	-2.4	-1.9
- energy intensive industries	7351	9456	9067	9362	9150	9259	-96	-193	-159	-1.0	-2.1	-1.7
- other industrial sectors	2267	2596	2921	3238	3270	3370	-96	-110	-90	-2.9	-3.3	-2.6
Residential	5321	4536	4846	4769	4504	4210	-368	-605	-944	-7.2	-11.8	-18.3
Tertiary	2479	3127	3471	3384	3344	3151	-382	-404	-611	-10.1	-10.8	-16.2
Transport	4309	4443	4816	4944	4826	4609	-241	-363	-762	-4.7	-7.0	-14.2
by fuel												
Solids	1621	1099	966	1051	966	942	23	-69	-24	2.3	-6.7	-2.5
Oil	8100	7507	7890	6500	5947	5304	-403	-556	-1120	-5.8	-8.5	-17.4
Gas	1501	1328	1156	916	788	429	-259	-70	-403	-22.1	-8.2	-48.5
Electricity	5068	6487	6959	7719	7887	8928	-449	-617	-38	-5.5	-7.2	-0.4
Heat (from CHP and District Heating)	1915	2780	3597	3968	4126	3685	-251	-514	-993	-6.0	-11.1	-21.2
Renewable energy forms	3522	4957	4552	5542	5378	5309	156	151	13	2.9	2.9	0.2
Other	0	0	0	1	1	2	0	0	0	2.6	-2.4	-8.1
RES in Gross Final Energy Consumption ^(A)		7701	7458	9238	10856	13838	569	1727	2443	6.6	18.9	21.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	72.5	70.3	69.1	60.6	52.8	37.6	-7.5	-12.3	-19.1	-11.0	-18.9	-33.7
CO₂ Emissions (energy related)	54.4	53.8	54.1	47.7	41.1	28.1	-5.9	-10.0	-16.9	-11.0	-19.6	-37.5
Power generation/District heating	17.8	20.2	20.5	19.4	16.1	7.2	-4.0	-7.3	-11.6	-17.3	-31.1	-61.7
Energy Branch	1.4	2.7	2.5	2.0	1.1	0.1	-0.1	-0.6	-0.9	-5.8	-36.5	-91.0
Industry	14.1	12.5	11.8	9.0	7.8	6.1	-0.4	-0.4	-1.1	-4.7	-5.4	-15.2
Residential	6.4	2.3	2.1	1.1	0.8	0.5	-0.3	-0.3	-0.6	-17.9	-25.2	-52.6
Tertiary	2.1	3.0	3.0	2.3	2.0	1.9	-0.3	-0.4	-0.6	-12.7	-15.8	-23.2
Transport	12.7	13.1	14.2	13.9	13.3	12.3	-0.7	-1.0	-2.1	-4.7	-7.1	-14.7
CO ₂ Emissions (non energy related)	3.9	3.9	3.9	3.7	3.4	3.0	0.0	-0.1	-0.2	-0.1	-3.9	-7.3
Non-CO₂ GHGs Emissions	14.3	12.7	11.1	9.2	8.4	6.4	-1.6	-2.2	-2.0	-15.2	-20.6	-23.6
TOTAL GHGs Emissions Index (1990=100)	100.0	97.0	95.3	83.5	72.8	51.8	-10.4	-17.0	-26.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Finland: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	4.974	5.171	5.237	5.353	5.405	5.443	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	114.5	139.1	157.4	202.7	221.3	254.9	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	252.9	233.5	219.3	178.3	159.9	136.5	-7.8	-13.1	-14.4	-4.2	-7.6	-9.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.88	1.65	1.57	1.32	1.16	0.81	-0.10	-0.17	-0.36	-7.0	-13.0	-30.9
Import Dependency %	61.1	55.8	54.7	43.7	36.2	26.2	-4.0	-6.4	-9.9			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	16.6	23.5	27.1	35.0	0.3	0.2	1.3	1.4	0.7	3.9
as % of GDP		10.1	10.5	11.6	12.3	13.7	0.2	0.1	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.3	0.2	1.4						
as % of GDP				0.17	0.10	0.54						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	134.5	100.0	83.1	65.7	59.5	53.4	-1.0	-1.5	-1.1	-1.5	-2.4	-1.9
Residential (Energy on Private Income, index 2000=100)	132.0	100.0	90.5	72.3	63.3	52.1	-5.6	-8.5	-11.7	-7.2	-11.8	-18.3
Tertiary (Energy on Value added, index 2000=100)	91.0	100.0	102.5	77.2	69.5	56.0	-8.7	-8.4	-10.9	-10.1	-10.8	-16.2
Passenger transport (toe/Mpkm)	33.5	32.5	33.5	32.2	31.0	27.7	-0.6	-1.0	-4.1	-2.0	-3.1	-12.8
Freight transport (toe/Mtkm)	50.4	42.6	44.5	41.9	39.5	37.0	-2.3	-3.8	-5.0	-5.2	-8.7	-11.8
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.23	0.19	0.18	0.14	0.11	0.05	-0.02	-0.04	-0.07	-11.8	-24.4	-58.6
Final energy demand (t of CO ₂ /toe)	1.62	1.28	1.24	1.03	0.95	0.85	-0.02	-0.02	-0.08	-1.8	-2.0	-8.8
Industry	1.46	1.03	0.98	0.71	0.62	0.48	-0.02	-0.02	-0.08	-3.2	-3.1	-13.6
Residential	1.21	0.52	0.43	0.24	0.19	0.13	-0.03	-0.03	-0.09	-11.6	-15.1	-42.0
Tertiary	0.84	0.96	0.86	0.68	0.61	0.61	-0.02	-0.04	-0.06	-2.9	-5.7	-8.3
Transport	2.94	2.94	2.94	2.82	2.75	2.67	0.00	0.00	-0.02	0.0	-0.1	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		31.0	28.8	34.7	41.6	53.9	3.6	8.8	13.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	7.2	9.5	-0.2	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
	69976	70536	84357	93603	108028	108028	-5707	-7971	-473	-6.3	-7.8	-0.4
Nuclear energy	22475	23267	36243	36243	37261	37261	0	-6591	-6465	0.0	-15.4	-14.8
Solids	10359	9486	12759	12131	5464	5464	-1966	-2808	-8037	-13.3	-18.8	-59.5
Oil (including refinery gas)	444	419	350	166	0	0	-184	-285	0	-34.4	-63.2	-44.1
Gas (including derived gases)	10776	11400	7097	3976	2002	2002	-4126	-6023	-1573	-36.8	-60.2	-44.0
Biomass-waste	11185	12010	12692	25257	43538	43538	-82	6793	15187	-0.6	36.8	53.6
Hydro (pumping excluded)	14657	13782	14113	14160	14348	14348	226	181	0	1.6	1.3	0.0
Wind	78	170	1093	1650	5379	5379	424	762	415	63.4	85.8	8.4
Solar	2	3	11	18	35	35	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e	17044	17512	18718	19642	22626	22626	-214	-507	32	-1.1	-2.5	0.1
<u>Nuclear energy</u>	2687	2690	4207	4207	4319	4319	0	-761	-747	0.0	-15.3	-14.7
<u>Renewable energy</u>	3057	3104	3533	3815	5192	5192	175	350	190	5.2	10.1	3.8
Hydro (pumping excluded)	3016	3018	3105	3130	3164	3164	33	33	33	1.1	1.1	1.0
Wind	38	82	414	663	1984	1984	142	317	157	52.3	91.8	8.6
Solar	3	4	14	23	44	44	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	11300	11718	10978	11620	13115	13115	-389	-95	588	-3.4	-0.8	4.7
of which cogeneration units	7129	7583	7217	8779	10664	10664	-435	-575	353	-5.7	-6.1	3.4
Solids fired	5539	5687	4860	3601	2032	2032	-252	-308	-1163	-4.9	-7.9	-36.4
Gas fired	2479	2444	2675	2460	2143	2143	-381	-528	-589	-12.5	-17.7	-21.6
Oil fired	1341	1340	590	533	176	176	-187	-194	-223	-24.1	-26.6	-56.0
Biomass-waste fired	1942	2247	2854	5026	8765	8765	431	934	2563	17.8	22.8	41.3
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.1	44.2	49.2	51.8	51.5	51.5	-2.8	-3.0	-0.3			
Efficiency of gross thermal power generation (%)	40.7	38.0	44.7	49.7	54.4	54.4	-3.9	-0.3	4.2			
% of gross electricity from CHP	44.9	45.7	37.2	43.9	46.9	46.9	-2.1	1.6	5.4			
Carbon free gross electricity generation (%)	69.2	69.8	76.0	82.6	93.1	93.1	5.4	7.6	8.8			
- nuclear	32.1	33.0	43.0	38.7	34.5	34.5	2.7	-3.5	-5.8			
- renewable energy forms	37.0	36.8	33.1	43.9	58.6	58.6	2.7	11.1	14.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	74.8	81.0	88.2	98.1	100.7	106.1	-1.2	-1.6	-1.8	-1.2	-1.6	-1.7
Private cars and motorcycles	8.5	7.7	7.4	7.8	8.1	8.6	0.1	0.2	0.2	1.8	2.3	2.5
Rail	51.9	56.6	63.4	70.3	71.2	72.8	-1.1	-1.4	-1.6	-1.5	-1.9	-2.1
Aviation	3.7	3.9	4.0	4.5	4.9	5.8	0.1	0.1	0.2	1.7	2.1	2.9
Inland navigation	5.3	7.9	8.6	10.8	11.6	14.0	-0.3	-0.4	-0.6	-2.7	-3.6	-3.9
Freight transport activity (Gtkm)	5.4	5.0	4.7	4.7	4.7	4.9	0.0	0.0	-0.1	-0.8	-1.0	-1.2
Freight transport activity (Gtkm)												
Trucks	35.8	42.4	41.8	42.7	43.2	45.0	-0.9	-1.1	-1.2	-2.1	-2.5	-2.6
Rail	26.3	32.0	31.9	32.1	31.9	32.4	-1.2	-1.5	-1.7	-3.7	-4.6	-5.0
Inland navigation	8.4	10.1	9.7	10.4	11.1	12.4	0.3	0.4	0.5	3.3	3.9	4.5
Energy demand in transport (ktoe)	1.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.1	0.1	-0.1
Energy demand in transport (ktoe)												
Public road transport	4309	4443	4816	4944	4826	4609	-241	-363	-762	-4.7	-7.0	-14.2
Private cars and motorcycles	97	55	57	57	57	56	0	-1	-3	-0.8	-2.5	-5.4
Trucks	1840	1904	2137	2236	2197	2134	-76	-105	-282	-3.3	-4.6	-11.7
Rail	1699	1715	1764	1688	1608	1594	-140	-212	-271	-7.7	-11.7	-14.5
Aviation	99	94	97	104	103	75	2	0	-3	2.0	0.3	-3.5
Inland navigation	459	505	565	669	670	561	-25	-40	-197	-3.6	-5.7	-25.9
Inland navigation	116	170	195	190	190	190	-2	-4	-7	-1.3	-2.1	-3.5

Source: PRIMES

France: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	110428	126844	131806	135848	139196	149622	175447	162166	170791	1.8	0.5	2.3	-0.3	
Solids	7625	5359	2267	383	393	216	17	18	19	-11.4	-16.1	-26.8	0.6	
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9				
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0				
Nuclear	81018	97308	107093	116474	116590	122274	142775	125982	130804	2.8	0.9	2.0	-0.9	
Renewable energy sources	15778	17903	18065	16695	22213	27132	32655	36167	39969	1.4	2.1	3.9	2.0	
Hydro	4635	6322	5822	4491	5839	5774	5833	6065	6110	2.3	0.0	0.0	0.5	
Biomass & Waste	11014	11434	12087	11968	15184	18368	22097	23647	24483	0.9	2.3	3.8	1.0	
Wind	0	0	7	82	810	1480	2263	3768	6532		61.7	10.8	11.2	
Solar and others	19	15	26	24	206	1256	2186	2450	2657	2.8	23.1	26.6	2.0	
Geothermal	110	132	124	130	175	253	275	237	187	1.2	3.5	4.7	-3.8	
Net Imports	120027	116049	133463	143600	137848	126246	109204	111778	101815	1.1	0.3	-2.3	-0.7	
Solids	13004	9010	13201	13660	13275	8935	6037	8811	5650	0.2	0.1	-7.6	-0.7	
Oil	86558	85551	90452	94460	89472	87383	80664	78542	77873	0.4	-0.1	-1.0	-0.4	
- Crude oil and Feedstocks	76007	78951	84375	84707	83487	82465	79213	78149	77800	1.0	-0.1	-0.5	-0.2	
- Oil products	10551	6600	6077	9753	5984	4918	1450	393	73	-5.4	-0.2	-13.2	-25.9	
Natural gas	24371	27493	35778	40720	40402	35113	26883	27484	20376	3.9	1.2	-4.0	-2.7	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Gross Inland Consumption	226550	239896	258985	275439	274133	272872	281608	270825	269404	1.3	0.6	0.3	-0.4	
Solids	19955	15287	15240	14428	13668	9151	6054	8829	5668	-2.7	-1.1	-7.8	-0.7	
Oil	87673	85826	88790	92086	86561	84388	77621	75423	74671	0.1	-0.3	-1.1	-0.4	
Natural gas	26032	29577	35766	40996	40402	35113	26883	27484	20376	3.2	1.2	-4.0	-2.7	
Nuclear	81018	97308	107093	116474	116590	122274	142775	125982	130804	2.8	0.9	2.0	-0.9	
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971					
Renewable energy forms	15778	17903	18070	16640	22143	27047	32553	36058	39856	1.4	2.1	3.9	2.0	
as % in Gross Inland Consumption														
Solids	8.8	6.4	5.9	5.2	5.0	3.4	2.1	3.3	2.1					
Oil	38.7	35.8	34.3	33.4	31.6	30.9	27.6	27.8	27.7					
Natural gas	11.5	12.3	13.8	14.9	14.7	12.9	9.5	10.1	7.6					
Nuclear	35.8	40.6	41.4	42.3	42.5	44.8	50.7	46.5	48.6					
Renewable energy forms	7.0	7.5	7.0	6.0	8.1	9.9	11.6	13.3	14.8					
Gross Electricity Generation in GWh_e	416667	490848	536004	570542	593663	613049	667295	703061	757174	2.6	1.0	1.2	1.3	
Self consumption and grid losses	48047	53203	56438	59733	58542	59489	68330	74604	87094	1.6	0.4	1.6	2.5	
Fuel Inputs to Thermal Power Generation	11117	8486	13129	15985	11346	7907	4573	13573	9353	1.7	-1.4	-8.7	7.4	
Solids	7334	5441	6231	6402	6246	2204	53	3263	604	-1.6	0.0	-37.9	27.5	
Oil (including refinery gas)	1921	605	1272	1653	0	0	1	1	1	-4.0			-2.0	
Gas (including derived gases)	1423	1216	4062	6291	3396	2487	807	2981	824	11.1	-1.8	-13.4	0.2	
Biomass & Waste	439	1224	1565	1640	1704	3216	3712	7328	7925	13.6	0.9	8.1	7.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	89549	90896	97392	94237	93835	93666	90786	89866	89751	0.8	-0.4	-0.3	-0.1	
Refineries	79634	83057	90084	87693	85051	84099	80851	79809	79488	1.2	-0.6	-0.5	-0.2	
Biofuels and hydrogen production	0	155	328	434	2242	3604	5079	5614	6141		21.2	8.5	1.9	
District heating	1019	605	312	273	252	239	236	197	185	-11.1	-2.1	-0.7	-2.4	
Derived gases, cokeries etc.	8896	7079	6668	5837	6291	5724	4619	4245	3936	-2.8	-0.6	-3.0	-1.6	
Energy Branch Consumption	9230	10345	10689	10095	9158	7326	7247	7119	7646	1.5	-1.5	-2.3	0.5	
Non-Energy Uses	13272	16593	15672	15786	16411	16956	17017	17444	17726	1.7	0.5	0.4	0.4	
Final Energy Demand	136214	141436	152315	156523	159666	158220	153281	150833	149398	1.1	0.5	-0.4	-0.3	
by sector														
Industry	36205	36949	36579	35580	36156	36862	36308	36362	36115	0.1	-0.1	0.0	-0.1	
- energy intensive industries	24279	21310	22143	20671	20720	20685	19945	19570	19158	-0.9	-0.7	-0.4	-0.4	
- other industrial sectors	11926	15639	14436	14909	15435	16177	16363	16791	16956	1.9	0.7	0.6	0.4	
Residential	36375	36198	42516	45491	45931	44367	43223	40954	39146	1.6	0.8	-0.6	-1.0	
Tertiary	21726	24164	21620	25696	26464	25043	24024	23155	22182	0.0	2.0	-1.0	-0.8	
Transport	41908	44125	51599	49756	51115	51948	49725	50362	51956	2.1	-0.1	-0.3	0.4	
by fuel														
Solids	9017	6905	5775	4685	4107	3992	3711	3440	3074	-4.4	-3.4	-1.0	-1.9	
Oil	67377	67964	71964	71245	69412	66988	60709	58333	57601	0.7	-0.4	-1.3	-0.5	
Gas	23400	27098	30880	33902	34460	29947	24449	22494	17517	2.8	1.1	-3.4	-3.3	
Electricity	25960	29456	33096	36330	38379	41437	46095	50047	54538	2.5	1.5	1.8	1.7	
Heat (from CHP and District Heating)	774	459	237	207	222	219	240	207	207	-11.1	-0.7	0.8	-1.5	
Renewable energy forms	9686	9553	10364	10153	13082	15629	18067	16295	16443	0.7	2.4	3.3	-0.9	
Other	0	0	0	0	4	8	11	17	18			10.5	5.7	
RES in Gross Final Energy Consumption (A)			16928	15420	21236	25780	30881	33914	37444		2.3	3.8	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9		561.5	560.9	526.9	480.4	424.0	419.6	381.7	-0.1	-0.6	-2.1	-1.0	
CO₂ Emissions (energy related)	352.9	344.7	373.5	378.4	356.0	318.3	267.3	272.0	240.3	0.6	-0.5	-2.8	-1.1	
Power generation/District heating	40.1	27.6	39.6	46.7	34.0	15.9	3.4	21.1	5.5	-0.1	-1.5	-20.6	5.0	
Energy Branch	17.1	19.1	19.6	16.6	13.7	12.7	7.7	6.9	6.9	1.4	-3.5	-5.7	-1.1	
Industry	79.1	76.1	70.1	66.0	64.6	62.7	54.5	54.1	48.6	-1.2	-0.8	-1.7	-1.1	
Residential	55.2	52.2	61.5	64.8	60.4	50.9	42.9	32.8	24.1	1.1	-0.2	-3.4	-5.6	
Tertiary	39.2	40.9	32.1	39.2	38.1	31.8	25.2	22.4	18.3	-2.0	1.7	-4.0	-3.2	
Transport	122.1	129.0	150.6	145.2	145.3	144.3	133.7	134.0	136.9	2.1	-0.4	-0.8	0.2	
CO₂ Emissions (non energy related)	36.8	32.6	30.7	31.1	30.6	29.4	28.1	27.4	26.6	-1.8	0.0	-0.9	-0.5	
Non-CO₂ GHGs Emissions	175.1		157.2	151.4	140.3	132.7	128.6	120.2	114.8	-1.1	-1.1	-0.9	-1.1	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.4	99.3	93.3	85.0	75.1	74.3	67.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	France: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	142.6	125.2	115.7	101.0	92.7	-0.7	-1.3	-2.1	-2.2
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.44	1.37	1.30	1.17	0.95	1.00	0.89	-0.8	-1.0	-3.1	-0.6
Import Dependency %	52.4	47.9	50.9	51.6	49.8	45.8	38.4	40.8	37.3				
Total Energy-related Costs ^(B) (in 000 M€05)			140.9	147.1	174.6	203.3	228.2	251.9	274.5		2.2	2.7	1.9
as % of GDP			8.9	8.6	9.1	9.3	9.4	9.4	9.4				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	116.3	109.8	100.0	91.6	82.7	74.3	65.3	59.3	54.4	-1.5	-1.9	-2.3	-1.8
Residential (Energy on Private Income, index 2000=100)	101.5	96.8	100.0	95.8	87.9	76.7	68.1	59.5	53.0	-0.1	-1.3	-2.5	-2.5
Tertiary (Energy on Value added, index 2000=100)	125.8	130.8	100.0	110.6	101.0	84.2	72.3	63.1	55.7	-2.3	0.1	-3.3	-2.6
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	30.8	29.3	25.7	24.4	23.9	-0.2	-1.8	-1.8	-0.7
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.0	72.8	69.3	66.7	64.7	0.8	0.7	-0.8	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.06	0.07	0.08	0.06	0.03	0.01	0.03	0.01	-2.4	-2.5		
Final energy demand (t of CO ₂ /toe)	2.17	2.11	2.06	2.01	1.93	1.83	1.67	1.61	1.53	-0.5	-0.7	-1.4	-0.9
Industry	2.18	2.06	1.92	1.85	1.79	1.70	1.50	1.49	1.35	-1.3	-0.7	-1.7	-1.1
Residential	1.52	1.44	1.45	1.43	1.31	1.15	0.99	0.80	0.62	-0.5	-0.9	-2.8	-4.7
Tertiary	1.81	1.69	1.48	1.53	1.44	1.27	1.05	0.97	0.82	-2.0	-0.3	-3.1	-2.4
Transport	2.91	2.92	2.92	2.92	2.84	2.78	2.69	2.66	2.64	0.0	-0.3	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			10.8	9.5	12.9	15.8	19.4	21.6	23.9				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.3	6.8	9.7	10.7	11.4				
Gross Electricity generation by source (in GWh)													
			536004	570542	593663	613049	667295	703061	757174		1.0	1.2	1.3
Nuclear energy			415087	451448	451980	475395	554853	495692	558328		0.9	2.1	0.1
Solids			25644	27018	26816	12106	289	16399	3418		0.4	-36.4	28.0
Oil (including refinery gas)			6896	7042	1794	1706	30	1159	246		-12.6	-33.5	23.3
Gas (including derived gases)			16214	26341	28044	24255	4040	31123	12255		5.6	-17.6	11.7
Biomass-waste			4381	5496	7201	14675	13292	42564	33802		5.1	6.3	9.8
Hydro (pumping excluded)			67698	52224	67893	67142	67830	70519	71050		0.0	0.0	0.5
Wind			77	959	9415	17208	26317	43809	75956		61.7	10.8	11.2
Solar			6	15	56	99	181	297	492		24.9	12.6	10.5
Geothermal and other renewables			0	0	463	463	463	1499	1627			0.0	13.4
Net Generation Capacity in MW_e			111945	113154	115748	119708	122742	134277	157458		0.3	0.6	2.5
<u>Nuclear energy</u>			62547	62570	62811	64567	64687	57710	64769		0.0	0.3	0.0
<u>Renewable energy</u>			25092	26102	29363	32718	35976	43280	55668		1.6	2.1	4.5
Hydro (pumping excluded)			25016	25313	25351	25405	25489	25691	25912		0.1	0.1	0.2
Wind			66	756	3704	6956	10040	16482	28370		49.6	10.5	10.9
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	240	778	844			0.0	13.4
<u>Thermal power</u>			24306	24482	23575	22423	22078	33287	37021		-0.3	-0.7	5.3
of which cogeneration units			4205	5546	5487	7092	8359	13907	13784		2.7	4.3	5.1
Solids fired			9912	9150	4273	4039	3774	3691	2456		-8.1	-1.2	-4.2
Gas fired			4408	5210	10273	9948	9792	19058	22865		8.8	-0.5	8.9
Oil fired			9128	8975	7345	5100	2160	1646	1387		-2.1	-11.5	-4.3
Biomass-waste fired			860	1147	1683	3336	6354	8891	10313		6.9	14.2	5.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			52.2	54.9	56.1	56.3	59.9	57.6	52.7				
Efficiency of gross thermal power generation (%)			34.8	35.5	48.4	57.4	33.2	57.8	45.7				
% of gross electricity from CHP			3.1	2.9	5.3	6.5	2.6	10.6	6.1				
Carbon free gross electricity generation (%)			90.9	89.4	90.5	93.8	99.3	93.1	97.9				
- nuclear			77.4	79.1	76.1	77.5	83.1	70.5	73.7				
- renewable energy forms			13.5	10.3	14.3	16.2	16.2	22.6	24.2				
Transport sector													
Passenger transport activity (Gpkm)	746.0	799.7	886.4	940.3	994.2	1047.8	1096.3	1153.8	1211.0	1.7	1.2	1.0	1.0
Public road transport	41.3	41.6	42.4	44.0	46.9	50.1	54.6	58.7	62.7	0.3	1.0	1.5	1.4
Private cars and motorcycles	599.7	654.3	713.2	749.5	782.1	806.6	825.2	852.5	878.1	1.7	0.9	0.5	0.6
Rail	73.9	64.6	80.7	89.7	99.5	113.9	128.6	140.8	153.6	0.9	2.1	2.6	1.8
Aviation	26.1	34.1	46.0	53.1	62.0	73.5	84.0	97.5	112.0	5.8	3.0	3.1	2.9
Inland navigation	4.9	5.1	4.1	3.9	3.7	3.7	4.0	4.3	4.5	-1.7	-0.9	0.6	1.3
Freight transport activity (Gtkm)	211.8	233.0	268.4	254.9	273.4	292.6	310.4	332.3	355.0	2.4	0.2	1.3	1.4
Trucks	153.5	178.2	204.0	205.3	228.6	246.9	262.1	280.8	299.6	2.9	1.1	1.4	1.3
Rail	50.7	48.1	55.3	40.7	35.9	36.8	39.3	42.2	46.0	0.9	-4.2	0.9	1.6
Inland navigation	7.6	6.6	9.1	8.9	8.9	8.8	9.0	9.2	9.4	1.8	-0.2	0.1	0.4
Energy demand in transport (ktoe)	41908	44125	51599	49756	51115	51948	49725	50362	51956	2.1	-0.1	-0.3	0.4
Public road transport	384	403	417	424	425	437	452	440	425	0.8	0.2	0.6	-0.6
Private cars and motorcycles	23233	22171	24945	23052	22745	22422	21632	21322	21558	0.7	-0.9	-0.5	0.0
Trucks	12587	14909	17407	18419	19450	20256	20487	21218	22148	3.3	1.1	0.5	0.8
Rail	1150	1220	1373	1264	1169	1170	1136	1064	955	1.8	-1.6	-0.3	-1.7
Aviation	3839	4690	6683	6291	7029	7370	5716	6006	6550	5.7	0.5	-2.0	1.4
Inland navigation	714	731	775	305	298	294	302	313	321	0.8	-9.1	0.2	0.6

Source: PRIMES

France: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	110428	131806	135848	149622	175447	170791	3183	5232	13207	2.2	3.1	8.4
Solids	7625	2267	383	216	17	19	0	0	0	0.0	0.0	0.0
Oil	3491	2877	1468	0	0	0	0	0	0	-216.7	-100.0	
Natural gas	2516	1505	828	0	0	0	0	0	0			
Nuclear	81018	107093	116474	122274	142775	130804	0	-46	6269	0.0	0.0	5.0
Renewable energy sources	15778	18065	16695	27132	32655	39969	3183	5278	6937	13.3	19.3	21.0
Hydro	4635	5822	4491	5774	5833	6110	323	266	0	5.9	4.8	0.0
Biomass & Waste	11014	12087	11968	18368	22097	24483	1651	2871	1975	9.9	14.9	8.8
Wind	0	7	82	1480	2263	6532	243	464	3161	19.6	25.8	93.8
Solar and others	19	26	24	1256	2186	2657	857	1553	1764	214.8	245.6	197.3
Geothermal	110	124	130	253	275	187	109	125	37	75.9	82.5	24.9
Net Imports	120027	133463	143600	126246	109204	101815	-16467	-20195	-28394	-11.5	-15.6	-21.8
Solids	13004	13201	13660	8935	6037	5650	-4764	-1648	-692	-34.8	-21.4	-10.9
Oil	86558	90452	94460	87383	80664	77873	-4834	-8026	-11654	-5.2	-9.0	-13.0
- Crude oil and Feedstocks	76007	84375	84707	82465	79213	77800	-2493	-4093	-6406	-2.9	-4.9	-7.6
- Oil products	10551	6077	9753	4918	1450	73	-2341	-3933	-5247	-32.2	-73.1	-98.6
Natural gas	24371	35778	40720	35113	26883	20376	-6862	-10508	-16039	-16.3	-28.1	-44.0
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	226550	258985	275439	272872	281608	269404	-13285	-14963	-15188	-4.6	-5.0	-5.3
Solids	19955	15240	14428	9151	6054	5668	-4764	-1648	-692	-34.2	-21.4	-10.9
Oil	87673	88790	92086	84388	77621	74671	-4834	-8026	-11655	-5.4	-9.4	-13.5
Natural gas	26032	35766	40996	35113	26883	20376	-6862	-10508	-16039	-16.3	-28.1	-44.0
Nuclear	81018	107093	116474	122274	142775	130804	0	-46	6269	0.0	0.0	5.0
Electricity	-3907	-5974	-5185	-5101	-4278	-1971	0	0	0	0.0	0.0	0.0
Renewable energy forms	15778	18070	16640	27047	32553	39856	3176	5265	6928	13.3	19.3	21.0
as % in Gross Inland Consumption												
Solids	8.8	5.9	5.2	3.4	2.1	2.1	-1.5	-0.4	-0.1			
Oil	38.7	34.3	33.4	30.9	27.6	27.7	-0.3	-1.3	-2.6			
Natural gas	11.5	13.8	14.9	12.9	9.5	7.6	-1.8	-3.1	-5.2			
Nuclear	35.8	41.4	42.3	44.8	50.7	48.6	2.1	2.5	4.8			
Renewable energy forms	7.0	7.0	6.0	9.9	11.6	14.8	1.6	2.4	3.2			
Gross Electricity Generation in GWh_e	416667	536004	570542	613049	667295	757174	-21026	-1967	100440	-3.3	-0.3	15.3
Self consumption and grid losses	48047	56438	59733	59489	68330	87094	-2869	1225	13233	-4.6	1.8	17.9
Fuel Inputs to Thermal Power Generation	11117	13129	15985	7907	4573	9353	-5826	-937	4064	-42.4	-17.0	76.8
Solids	7334	6231	6402	2204	53	604	-4676	-1247	-48	-68.0	-95.9	-7.3
Oil (including refinery gas)	1921	1272	1653	0	1	1	0	0	0	0.0	0.0	-5.0
Gas (including derived gases)	1423	4062	6291	2487	807	824	-2703	-977	12	-52.1	-54.8	1.5
Biomass & Waste	439	1565	1640	3216	3712	7925	1553	1287	4100	93.4	53.1	107.2
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	89549	97392	94237	93666	90786	89751	-2785	-4891	-7702	-2.9	-5.1	-7.9
Refineries	79634	90084	87693	84099	80851	79488	-2493	-4093	-6406	-2.9	-4.8	-7.5
Biofuels and hydrogen production	0	328	434	3604	5079	6141	-272	-613	-945	-7.0	-10.8	-13.3
District heating	1019	312	273	239	236	185	-24	-23	-85	-9.2	-8.9	-31.4
Derived gases, cokeries etc.	8896	6668	5837	5724	4619	3936	4	-163	-266	0.1	-3.4	-6.3
Energy Branch Consumption	9230	10689	10095	7326	7247	7646	-345	-250	-112	-4.5	-3.3	-1.4
Non-Energy Uses	13272	15672	15786	16956	17017	17726	0	0	2	0.0	0.0	0.0
Final Energy Demand	136214	152315	156523	158220	153281	149398	-9199	-14266	-20502	-5.5	-8.5	-12.0
by sector												
Industry	36205	36579	35580	36862	36308	36115	-372	-1603	-1967	-1.0	-4.2	-5.2
- energy intensive industries	24279	22143	20671	20685	19945	19158	-87	-721	-900	-0.4	-3.5	-4.5
- other industrial sectors	11926	14436	14909	16177	16363	16956	-286	-882	-1067	-1.7	-5.1	-5.9
Residential	36375	42516	45491	44367	43223	39146	-2709	-3273	-6754	-5.8	-7.0	-14.7
Tertiary	21726	21620	25696	25043	24024	22182	-3542	-4858	-6178	-12.4	-16.8	-21.8
Transport	41908	51599	49756	51948	49725	51956	-2576	-4532	-5404	-4.7	-8.4	-9.4
by fuel												
Solids	9017	5775	4685	3992	3711	3074	-104	-371	-574	-2.5	-9.1	-15.7
Oil	67377	71964	71245	66988	60709	57601	-4743	-7794	-11371	-6.6	-11.4	-16.5
Gas	23400	30880	33902	29947	24449	17517	-3911	-7772	-15092	-11.6	-24.1	-46.3
Electricity	25960	33096	36330	41437	46095	54538	-1546	-244	7509	-3.6	-0.5	16.0
Heat (from CHP and District Heating)	774	237	207	219	240	207	-24	-5	-64	-9.8	-2.1	-23.7
Renewable energy forms	9686	10364	10153	15629	18067	16443	1128	1921	-708	7.8	11.9	-4.1
Other	0	0	0	8	11	18	0	-1	-1	5.0	-5.8	-7.6
RES in Gross Final Energy Consumption ^(A)	16928	15420	25780	30881	37444	3155	5060	6523	13.9	19.6	21.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	564.9	561.5	560.9	480.4	424.0	381.7	-59.6	-69.9	-89.6	-11.0	-14.1	-19.0
CO₂ Emissions (energy related)	352.9	373.5	378.4	318.3	267.3	240.3	-49.3	-54.9	-74.8	-13.4	-17.0	-23.7
Power generation/District heating	40.1	39.6	46.7	15.9	3.4	5.5	-24.7	-7.3	-0.3	-60.9	-68.4	-5.1
Energy Branch	17.1	19.6	16.6	12.7	7.7	6.9	-0.6	-4.4	-2.6	-4.4	-36.4	-27.6
Industry	79.1	70.1	66.0	62.7	54.5	48.6	-1.3	-7.3	-10.2	-2.0	-11.7	-17.3
Residential	55.2	61.5	64.8	50.9	42.9	24.1	-8.5	-12.5	-29.6	-14.4	-22.5	-55.1
Tertiary	39.2	32.1	39.2	31.8	25.2	18.3	-6.8	-10.7	-16.5	-17.7	-29.8	-47.4
Transport	122.1	150.6	145.2	144.3	133.7	136.9	-7.3	-12.8	-15.7	-4.8	-8.8	-10.3
CO₂ Emissions (non energy related)	36.8	30.7	31.1	29.4	28.1	26.6	-0.4	-1.0	-1.6	-1.2	-3.3	-5.8
Non-CO₂ GHGs Emissions	175.1	157.2	151.4	132.7	128.6	114.8	-10.0	-13.9	-13.1	-7.0	-9.8	-10.3
TOTAL GHGs Emissions Index (1990=100)	100.0	99.4	99.3	85.0	75.1	67.6	-10.6	-12.4	-15.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							France: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.577	58.825	60.702	62.616	63.571	65.118	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1301.2	1587.9	1710.0	2178.6	2434.9	2906.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	174.1	163.1	161.1	125.2	115.7	92.7	-6.1	-6.1	-5.2	-4.6	-5.0	-5.3
Carbon intensity (t of CO ₂ /toe of GIC)	1.56	1.44	1.37	1.17	0.95	0.89	-0.12	-0.14	-0.22	-9.2	-12.6	-19.4
Import Dependency %	52.4	50.9	51.6	45.8	38.4	37.3	-3.6	-4.8	-7.9			
Total Energy-related Costs ^(B) (in 000 M€05)		140.9	147.1	203.3	228.2	274.5	5.0	6.3	9.8	2.5	2.9	3.7
as % of GDP		8.9	8.6	9.3	9.4	9.4	0.2	0.3	0.3			
Total Compliance Costs ^(D) (in 000 M€05)				5.2	6.6	10.1						
as % of GDP				0.24	0.27	0.35						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	116.3	100.0	91.6	74.3	65.3	54.4	-0.8	-2.9	-3.0	-1.0	-4.2	-5.2
Residential (Energy on Private Income, index 2000=100)	101.5	100.0	95.8	76.7	68.1	53.0	-4.7	-5.2	-9.2	-5.8	-7.0	-14.7
Tertiary (Energy on Value added, index 2000=100)	125.8	100.0	110.6	84.2	72.3	55.7	-11.9	-14.6	-15.5	-12.4	-16.8	-21.8
Passenger transport (toe/Mpkm)	37.7	37.0	32.1	29.3	25.7	23.9	-0.9	-1.6	-1.1	-2.8	-6.0	-4.4
Freight transport (toe/Mtkm)	65.0	70.2	76.8	72.8	69.3	64.7	-3.1	-5.7	-8.4	-4.1	-7.6	-11.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.09	0.07	0.08	0.03	0.01	0.01	-0.04	-0.01	0.00	-59.5	-68.3	-17.5
Final energy demand (t of CO ₂ /toe)	2.17	2.06	2.01	1.83	1.67	1.53	-0.04	-0.12	-0.24	-2.3	-6.5	-13.7
Industry	2.18	1.92	1.85	1.70	1.50	1.35	-0.02	-0.13	-0.20	-1.0	-7.8	-12.8
Residential	1.52	1.45	1.43	1.15	0.99	0.62	-0.12	-0.20	-0.55	-9.1	-16.6	-47.3
Tertiary	1.81	1.48	1.53	1.27	1.05	0.82	-0.08	-0.19	-0.40	-6.0	-15.7	-32.8
Transport	2.91	2.92	2.92	2.78	2.69	2.64	0.00	-0.01	-0.03	-0.1	-0.5	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		10.8	9.5	15.8	19.4	23.9	2.7	4.5	6.3			
Biofuels share in transport gasoline and diesel (%)		0.8	1.0	6.8	9.7	11.4	-0.2	-0.4	-0.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	415087	451448	475395	554853	558328	558328	0	-179	28925	0.0	0.0	5.5
Solids	25644	27018	12106	289	3418	3418	-19850	-7118	-316	-62.1	-96.1	-8.5
Oil (including refinery gas)	6896	7042	1706	30	246	246	147	-202	242	9.4	-86.9	7284.9
Gas (including derived gases)	16214	26341	24255	4040	12255	12255	-13662	-8629	9471	-36.0	-68.1	340.1
Biomass-waste	4381	5496	14675	13292	33802	33802	5760	5671	24195	64.6	74.4	251.8
Hydro (pumping excluded)	67698	52224	67142	67830	71050	71050	3755	3094	0	5.9	4.8	0.0
Wind	77	959	17208	26317	75956	75956	2825	5396	36758	19.6	25.8	93.8
Solar	6	15	99	181	492	492	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	463	463	1627	1627	0	0	1165	0.0	0.0	251.8
Net Generation Capacity in MW_e	111945	113154	119708	122742	157458	157458	-1060	1078	33163	-0.9	0.9	26.7
<u>Nuclear energy</u>	62547	62570	64567	64687	64769	64769	0	0	3358	0.0	0.0	5.5
<u>Renewable energy</u>	25092	26102	32718	35976	55668	55668	1035	2116	14809	3.3	6.2	36.2
Hydro (pumping excluded)	25016	25313	25405	25489	25912	25912	0	19	23	0.0	0.1	0.1
Wind	66	756	6956	10040	28370	28370	1035	2097	14182	17.5	26.4	100.0
Solar	11	33	117	207	542	542	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	240	240	844	844	0	0	604	0.0	0.0	251.8
<u>Thermal power</u>	24306	24482	22423	22078	37021	37021	-2095	-1038	14995	-8.5	-4.5	68.1
of which cogeneration units	4205	5546	7092	8359	13784	13784	-2045	-1889	4240	-22.4	-18.4	44.4
Solids fired	9912	9150	4039	3774	2456	2456	0	0	2	0.0	0.0	0.1
Gas fired	4408	5210	9948	9792	22865	22865	-3496	-4164	10716	-26.0	-29.8	88.2
Oil fired	9128	8975	5100	2160	1387	1387	0	0	-646	0.0	0.0	-31.8
Biomass-waste fired	860	1147	3336	6354	10313	10313	1401	3126	4923	72.4	96.9	91.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	52.2	54.9	56.3	59.9	52.7	52.7	-1.4	-0.7	-5.2			
Efficiency of gross thermal power generation (%)	34.8	35.5	57.4	33.2	45.7	45.7	7.1	-10.4	19.5			
% of gross electricity from CHP	3.1	2.9	6.5	2.6	6.1	6.1	-0.7	-0.4	4.2			
Carbon free gross electricity generation (%)	90.9	89.4	93.8	99.3	97.9	97.9	5.1	2.4	-1.1			
- nuclear	77.4	79.1	77.5	83.1	73.7	73.7	2.6	0.2	-6.9			
- renewable energy forms	13.5	10.3	16.2	16.2	24.2	24.2	2.5	2.2	5.8			
Transport sector												
Passenger transport activity (Gpkm)	746.0	886.4	940.3	1047.8	1096.3	1211.0	-12.0	-15.7	-18.1	-1.1	-1.4	-1.5
Public road transport	41.3	42.4	44.0	50.1	54.6	62.7	0.9	1.2	1.5	1.8	2.3	2.5
Private cars and motorcycles	599.7	713.2	749.5	806.6	825.2	878.1	-13.0	-16.7	-19.5	-1.6	-2.0	-2.2
Rail	73.9	80.7	89.7	113.9	128.6	153.6	2.2	3.0	4.3	2.0	2.4	2.9
Aviation	26.1	46.0	53.1	73.5	84.0	112.0	-2.1	-3.1	-4.5	-2.7	-3.6	-3.8
Inland navigation	4.9	4.1	3.9	3.7	4.0	4.5	0.0	0.0	-0.1	-0.8	-1.0	-1.2
Freight transport activity (Gtkm)	211.8	268.4	254.9	292.6	310.4	355.0	-5.3	-7.2	-8.8	-1.8	-2.3	-2.4
Trucks	153.5	204.0	205.3	246.9	262.1	299.6	-7.1	-9.4	-11.7	-2.8	-3.5	-3.8
Rail	50.7	55.3	40.7	36.8	39.3	46.0	1.7	2.1	2.8	4.7	5.6	6.4
Inland navigation	7.6	9.1	8.9	8.8	9.0	9.4	0.1	0.1	0.2	1.3	1.6	1.6
Energy demand in transport (ktoe)	41908	51599	49756	51948	49725	51956	-2576	-4532	-5404	-4.7	-8.4	-9.4
Public road transport	384	417	424	437	452	425	-2	-10	-24	-0.5	-2.2	-5.4
Private cars and motorcycles	23233	24945	23052	22422	21632	21558	-747	-1026	-837	-3.2	-4.5	-3.7
Trucks	12587	17407	18419	20256	20487	22148	-1337	-2313	-3592	-6.2	-10.1	-14.0
Rail	1150	1373	1264	1170	1136	955	7	-1	-20	0.6	-0.1	-2.0
Aviation	3839	6683	6291	7370	5716	6550	-496	-1178	-921	-6.3	-17.1	-12.3
Inland navigation	714	775	305	294	302	321	-2	-4	-9	-0.6	-1.3	-2.7

Source: PRIMES

Germany: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	186698	141981	133330	135237	115792	110899	98957	90017	91615	-3.3	-1.4	-1.6	-0.8	
Solids	125210	78868	59628	56514	42787	41743	37996	37472	36999	-7.2	-3.3	-1.2	-0.3	
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6		
Natural gas	13532	15099	15800	14224	13500	11981	11000	10000	8500	1.6	-1.6	-2.0	-2.5	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Renewable energy sources	6320	7420	10656	16718	22924	28508	38965	42545	46116	5.4	8.0	5.4	1.7	
Hydro	1498	1873	1869	1684	1791	1837	1844	1866	1889	2.2	-0.4	0.3	0.2	
Biomass & Waste	4797	5351	7877	12190	16277	20091	25840	27717	29450	5.1	7.5	4.7	1.3	
Wind	6	147	804	2341	3660	4177	6224	7882	9242	62.9	16.4	5.5	4.0	
Solar and others	11	41	96	365	969	2054	4616	4660	5157	24.3	26.0	16.9	1.1	
Geothermal	7	9	10	138	228	349	441	420	379	3.4	37.1	6.8	-1.5	
Net Imports	164822	195060	204678	214351	206437	199870	196323	194355	189465	2.2	0.1	-0.5	-0.4	
Solids	2881	10931	21576	26781	31902	37670	43801	48069	49901	22.3	4.0	3.2	1.3	
Oil	120126	130810	125974	122228	108194	102864	96721	91662	87710	0.5	-1.5	-1.1	-1.0	
- Crude oil and Feedstocks	88505	101168	101801	113120	108299	105719	102817	101179	99058	1.4	0.6	-0.5	-0.4	
- Oil products	31621	29643	24173	9108	-105	-2855	-6096	-9517	-11347	-2.7				
Natural gas	41747	52904	56865	65734	65805	58399	54438	53189	50403	3.1	1.5	-1.9	-0.8	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Gross Inland Consumption	354795	338258	340167	345456	319674	308173	292652	281701	278373	-0.4	-0.6	-0.9	-0.5	
Solids	131510	92177	83727	82805	74690	79413	81797	85541	86900	-4.4	-1.1	0.9	0.6	
Oil	124248	133627	129918	123409	108499	102797	96292	88991	85003	0.4	-1.8	-1.2	-1.2	
Natural gas	54976	67298	71853	80856	79305	70379	65438	63189	58903	2.7	1.0	-1.9	-1.0	
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6		
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6	
Renewable energy forms	6320	7420	10656	16718	22924	28508	38965	42545	46116	5.4	8.0	5.4	1.7	
as % in Gross Inland Consumption														
Solids	37.1	27.3	24.6	24.0	23.4	25.8	28.0	30.4	31.2					
Oil	35.0	39.5	38.2	35.7	33.9	33.4	32.9	31.6	30.5					
Natural gas	15.5	19.9	21.1	23.4	24.8	22.8	22.4	22.4	21.2					
Nuclear	10.6	11.0	12.9	12.2	10.5	8.5	3.0	0.0	0.0					
Renewable energy forms	1.8	2.2	3.1	4.8	7.2	9.3	13.3	15.1	16.6					
Gross Electricity Generation in GWh_e	547549	533711	567219	613054	591332	607143	614658	658147	715558	0.4	0.4	0.4	1.5	
Self consumption and grid losses	65998	62673	74099	72965	67714	69462	72095	79327	86464	1.2	-0.9	0.6	1.8	
Fuel Inputs to Thermal Power Generation	93214	85878	85253	92546	73681	78599	86256	94286	98467	-0.9	-1.4	1.6	1.3	
Solids	75843	69147	68066	66172	58409	63715	67266	71992	74351	-1.1	-1.5	1.4	1.0	
Oil (including refinery gas)	2871	2083	1108	2038	173	0	23	18	8	-9.1	-17.0	-18.1	-10.2	
Gas (including derived gases)	12676	11982	12906	19233	11129	10168	9992	10756	10538	0.2	-1.5	-1.1	0.5	
Biomass & Waste	1824	2665	3174	5102	3941	4677	8926	11462	13506	5.7	2.2	8.5	4.2	
Geothermal heat	0	0	0	0	29	38	49	59	63			5.4	2.6	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	164613	140203	136936	144522	139020	135739	131967	126683	123247	-1.8	0.2	-0.5	-0.7	
Refineries	106658	116715	119856	127082	118181	115044	111208	106905	104356	1.2	-0.1	-0.6	-0.6	
Biofuels and hydrogen production	0	31	222	1942	4316	6002	7812	8000	8227		34.5	6.1	0.5	
District heating	6389	3638	1435	873	3120	2463	2514	2307	2012	-13.9	8.1	-2.1	-2.2	
Derived gases, cokeries etc.	51565	19819	15423	14625	13403	12230	10434	9471	8652	-11.4	-1.4	-2.5	-1.9	
Energy Branch Consumption	15384	14906	14242	15144	13147	12492	11482	10461	10176	-0.8	-0.8	-1.3	-1.2	
Non-Energy Uses	23249	22912	25272	24779	24699	24561	23740	23199	22659	0.8	-0.2	-0.4	-0.5	
Final Energy Demand	228372	223799	220163	216010	217280	210439	205109	198440	195211	-0.4	-0.1	-0.6	-0.5	
by sector														
Industry	72116	61981	59715	56706	56929	54688	51301	50641	50388	-1.9	-0.5	-1.0	-0.2	
- energy intensive industries	49422	42778	40359	38652	38511	36869	33751	32753	32115	-2.0	-0.5	-1.3	-0.5	
- other industrial sectors	22693	19203	19356	18053	18418	17819	17549	17888	18273	-1.6	-0.5	-0.5	0.4	
Residential	58400	62212	61905	65931	65698	62483	62707	60346	59060	0.6	0.6	-0.5	-0.6	
Tertiary	39361	35275	32547	33416	31911	30161	28987	28079	26994	-1.9	-0.2	-1.0	-0.7	
Transport	58494	62910	65997	61958	62742	63108	62114	59373	58769	1.2	-0.5	-0.1	-0.6	
by fuel														
Solids	38693	14917	10951	9639	10030	9961	9164	8627	7816	-11.9	-0.9	-0.9	-1.6	
Oil	96422	104474	98052	87411	79109	73688	69357	64094	61589	0.2	-2.1	-1.3	-1.2	
Gas	42724	52595	58030	61814	64617	58326	53762	50158	45952	3.1	1.1	-1.8	-1.6	
Electricity	38391	38912	41496	44497	44175	45922	47079	50444	54806	0.8	0.6	0.6	1.5	
Heat (from CHP and District Heating)	9150	8747	6831	7428	7252	7106	7340	6978	6685	-2.9	0.6	0.1	-0.9	
Renewable energy forms	2991	2734	4804	7222	12093	15427	18395	18117	18340	4.9	9.7	4.3	0.0	
Other	0	0	0	0	5	9	11	22	23			9.4	7.3	
RES in Gross Final Energy Consumption (A)			8812	13195	21276	26595	35127	38941	42399		9.2	5.1	1.9	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2		1040.6	1003.2	924.0	890.9	861.6	829.5	797.7	-1.7	-1.2	-0.7	-0.8	
CO₂ Emissions (energy related)	959.8	860.5	823.3	804.8	728.7	711.8	694.6	685.2	671.3	-1.5	-1.2	-0.5	-0.3	
Power generation/District heating	375.1	328.9	316.2	325.0	272.3	289.5	304.6	324.2	332.3	-1.7	-1.5	1.1	0.9	
Energy Branch	26.2	27.7	27.1	28.9	23.1	20.6	16.3	13.9	12.9	0.3	-1.6	-3.4	-2.3	
Industry	170.5	130.6	118.3	105.6	102.1	93.5	85.2	81.0	76.2	-3.6	-1.5	-1.8	-1.1	
Residential	134.3	127.4	117.7	120.0	111.9	98.2	89.6	80.2	70.7	-1.3	-0.5	-2.2	-2.3	
Tertiary	84.7	64.1	53.1	51.1	48.1	41.6	37.7	33.2	29.3	-4.6	-1.0	-2.4	-2.5	
Transport	168.9	181.9	190.9	174.3	171.2	168.3	161.4	152.7	149.9	1.2	-1.1	-0.6	-0.7	
CO₂ Emissions (non energy related)	84.5	80.6	82.9	75.8	75.6	75.2	72.3	70.7	68.2	-0.2	-0.9	-0.4	-0.6	
Non-CO₂ GHGs Emissions	195.9		134.3	122.6	119.7	103.9	94.7	73.6	58.2	-3.7	-1.1	-2.3	-4.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		83.9	80.9	74.5	71.8	69.5	66.9	64.3					

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)										Germany: Cost Efficiency Scenario with high prices			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2	
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1	
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	129.4	113.6	100.0	90.4	84.9	-2.1	-1.9	-2.5	-1.6	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.54	2.42	2.33	2.28	2.31	2.37	2.43	2.41	-1.1	-0.6	0.4	0.2	
Import Dependency %	46.1	57.3	59.8	61.6	64.1	64.3	66.5	68.3	67.4					
Total Energy-related Costs ^(B) (in 000 M€05)			199.7	236.2	274.0	311.2	351.5	370.4	390.7		3.2	2.5	1.1	
as % of GDP			9.2	10.5	11.1	11.5	12.0	11.9	11.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	132.2	116.0	100.0	88.5	79.7	69.8	60.3	55.6	52.4	-2.8	-2.2	-2.8	-1.4	
Residential (Energy on Private Income, index 2000=100)	113.6	109.8	100.0	105.3	96.3	84.3	78.9	71.6	66.7	-1.3	-0.4	-2.0	-1.7	
Tertiary (Energy on Value added, index 2000=100)	155.1	123.5	100.0	97.3	83.8	71.3	63.1	57.1	52.0	-4.3	-1.8	-2.8	-1.9	
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.0	35.9	33.6	30.1	28.7	-1.2	-1.6	-1.2	-1.6	
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	32.6	30.7	29.3	28.4	27.5	0.6	-2.4	-1.0	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.51	0.48	0.46	0.40	0.41	0.43	0.43	0.42	-1.4	-1.9	0.8	-0.3	
Final energy demand (t of CO ₂ /toe)	2.45	2.27	2.18	2.07	1.99	1.91	1.82	1.75	1.67	-1.1	-0.9	-0.9	-0.9	
Industry	2.36	2.11	1.98	1.86	1.79	1.71	1.66	1.60	1.51	-1.8	-1.0	-0.8	-0.9	
Residential	2.30	2.05	1.90	1.82	1.70	1.57	1.43	1.33	1.20	-1.9	-1.1	-1.7	-1.8	
Tertiary	2.15	1.82	1.63	1.53	1.51	1.38	1.30	1.18	1.08	-2.7	-0.8	-1.5	-1.8	
Transport	2.89	2.89	2.89	2.81	2.73	2.67	2.60	2.57	2.55	0.0	-0.6	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.9	5.9	9.5	12.3	16.6	18.9	20.9					
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	6.9	9.7	12.7	13.1	13.7					
Gross Electricity generation by source (in GWh)														
			567219	613054	591332	607143	614658	658147	715558		0.4	0.4	1.5	
Nuclear energy			169575	163026	130723	101327	34100	0	0		-2.6	-12.6		
Solids			286571	262420	297593	325543	349394	387189	418229		0.4	1.6	1.8	
Oil (including refinery gas)			5476	23814	939	2176	6134	5983	5775		-16.2	20.6	-0.6	
Gas (including derived gases)			64676	96524	78567	79259	82121	89747	90464		2.0	0.4	1.0	
Biomass-waste			9782	19186	17599	25492	45045	57329	66700		6.0	9.9	4.0	
Hydro (pumping excluded)			21728	19577	20821	21363	21436	21692	21960		-0.4	0.3	0.2	
Wind			9350	27224	42553	48573	72374	91653	107466		16.4	5.5	4.0	
Solar			60	1282	2505	3366	3997	4486	4891		45.2	4.8	2.0	
Geothermal and other renewables			0	0	33	45	57	69	73			5.4	2.6	
Net Generation Capacity in MW_e			112509	122874	130864	132365	142283	153923	163371		1.5	0.8	1.4	
<u>Nuclear energy</u>			21301	20680	15608	12165	4105	0	0		-3.1	-12.5		
<u>Renewable energy</u>			9611	23545	30334	33045	42332	49798	53015		12.2	3.4	2.3	
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2	
Wind			6113	18428	23976	25689	34239	41141	43888		14.6	3.6	2.5	
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			81597	78649	84922	87155	95846	104125	110356		0.4	1.2	1.4	
of which cogeneration units			40073	37870	28901	31328	37321	36804	35486		-3.2	2.6	-0.5	
Solids fired			47883	45326	47666	50606	52171	59141	62111		0.0	0.9	1.8	
Gas fired			24817	24439	27817	29027	32720	32815	34420		1.1	1.6	0.5	
Oil fired			7114	6403	5466	2167	2401	1916	1759		-2.6	-7.9	-3.1	
Biomass-waste fired			1783	2481	3966	5346	8543	10240	12052		8.3	8.0	3.5	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	6	9	11	13	14			5.4	2.6	
Avg. Load factor of net power capacity (%)			53.7	53.1	48.2	49.1	46.1	45.6	46.8					
Efficiency of gross thermal power generation (%)			37.0	37.4	46.1	47.3	48.1	49.3	50.8					
% of gross electricity from CHP			16.9	15.5	20.2	21.4	27.8	26.8	25.9					
Carbon free gross electricity generation (%)			37.1	37.6	36.2	33.0	28.8	26.6	28.1					
- nuclear			29.9	26.6	22.1	16.7	5.5	0.0	0.0					
- renewable energy forms			7.2	11.0	14.1	16.3	23.3	26.6	28.1					
Transport sector														
Passenger transport activity (Gpkm)	889.5	1041.7	1081.9	1142.4	1224.8	1305.6	1366.6	1428.6	1478.6	2.0	1.2	1.1	0.8	
Public road transport	73.1	68.5	69.0	68.2	67.1	70.7	76.3	81.1	85.5	-0.6	-0.3	1.3	1.1	
Private cars and motorcycles	702.1	838.2	858.2	911.1	977.4	1030.3	1061.7	1090.7	1109.6	2.0	1.3	0.8	0.4	
Rail	76.1	85.4	90.0	90.2	94.0	101.9	111.4	125.5	141.1	1.7	0.4	1.7	2.4	
Aviation	34.3	46.2	62.0	70.5	83.8	100.3	114.6	128.5	139.6	6.1	3.1	3.2	2.0	
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.6	2.7	2.8	-3.6	-1.0	0.7	0.8	
Freight transport activity (Gtkm)	352.9	371.3	424.7	463.9	497.9	527.3	550.7	574.9	595.9	1.9	1.6	1.0	0.8	
Trucks	196.4	237.8	280.7	310.1	327.5	342.9	357.5	374.8	390.0	3.6	1.6	0.9	0.9	
Rail	101.7	69.5	77.5	89.7	103.6	113.4	117.6	120.2	122.1	-2.7	2.9	1.3	0.4	
Inland navigation	54.8	64.0	66.5	64.1	66.8	71.0	75.7	80.0	83.8	1.9	0.0	1.3	1.0	
Energy demand in transport (ktoe)	58494	62910	65997	61958	62742	63108	62114	59373	58769	1.2	-0.5	-0.1	-0.6	
Public road transport	656	611	612	529	479	473	485	479	488	-0.7	-2.4	0.1	0.0	
Private cars and motorcycles	38247	40001	39981	36421	36070	35397	34012	33577	32931	0.4	-1.0	-0.6	-0.3	
Trucks	11518	13643	15834	14528	14198	14043	14037	14330	14641	3.2	-1.1	-0.1	0.4	
Rail	2111	2126	1946	1858	2011	2064	2010	1879	1617	-0.8	0.3	0.0	-2.2	
Aviation	5307	5975	7345	8304	9658	10790	11211	8735	8708	3.3	2.8	1.5	-2.5	
Inland navigation	656	554	279	318	327	342	358	373	385	-8.2	1.6	0.9	0.7	

Source: PRIMES

Germany: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	186698	133330	135237	110899	98957	91615	-455	6864	7744	-0.4	7.5	9.2
Solids	125210	59628	56514	41743	37996	36999	-2815	-165	-216	-6.3	-0.4	-0.6
Oil	3963	3495	5720	2530	2200	0	0	0	0	0.0	0.0	-431.6
Natural gas	13532	15800	14224	11981	11000	8500	-19	0	0	-0.2	0.0	0.0
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Renewable energy sources	6320	10656	16718	28508	38965	46116	2379	7029	7960	9.1	22.0	20.9
Hydro	1498	1869	1684	1837	1844	1889	49	43	0	2.8	2.4	0.0
Biomass & Waste	4797	7877	12190	20091	25840	29450	1249	3529	3768	6.6	15.8	14.7
Wind	6	804	2341	4177	6224	9242	0	33	657	0.0	0.5	7.7
Solar and others	11	96	365	2054	4616	5157	922	3200	3403	81.4	225.8	194.0
Geothermal	7	10	138	349	441	379	159	224	132	84.0	103.6	53.7
Net Imports	164822	204678	214351	199870	196323	189465	-17861	-27463	-30044	-8.2	-12.3	-13.7
Solids	2881	21576	26781	37670	43801	49901	-1572	-4512	336	-4.0	-9.3	0.7
Oil	120126	125974	122228	102864	96721	87710	-5279	-6820	-10094	-4.9	-6.6	-10.3
- Crude oil and Feedstocks	88505	101801	113120	105719	102817	99058	-2690	-3563	-5538	-2.5	-3.3	-5.3
- Oil products	31621	24173	9108	-2855	-6096	-11347	-2588	-3258	-4556	969.3	114.8	67.1
Natural gas	41747	56865	65734	58399	54438	50403	-11010	-16130	-20286	-15.9	-22.9	-28.7
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	354795	340167	345456	308173	292652	278373	-18316	-20600	-22302	-5.6	-6.6	-7.4
Solids	131510	83727	82805	79413	81797	86900	-4387	-4677	121	-5.2	-5.4	0.1
Oil	124248	129918	123409	102797	96292	85003	-5279	-6822	-10096	-4.9	-6.6	-10.6
Natural gas	54976	71853	80856	70379	65438	58903	-11029	-16130	-20286	-13.5	-19.8	-25.6
Nuclear	37674	43750	42061	26138	8796	0	0	0	0	0.0	0.0	0.0
Electricity	68	263	-393	937	1364	1451	0	0	0	0.0	0.0	0.0
Renewable energy forms	6320	10656	16718	28508	38965	46116	2379	7029	7960	9.1	22.0	20.9
as % in Gross Inland Consumption												
Solids	37.1	24.6	24.0	25.8	28.0	31.2	0.1	0.3	2.4			
Oil	35.0	38.2	35.7	33.4	32.9	30.5	0.3	0.0	-1.1			
Natural gas	15.5	21.1	23.4	22.8	22.4	21.2	-2.1	-3.7	-5.2			
Nuclear	10.6	12.9	12.2	8.5	3.0	0.0	0.5	0.2	0.0			
Renewable energy forms	1.8	3.1	4.8	9.3	13.3	16.6	1.2	3.1	3.9			
Gross Electricity Generation in GWh_e	547549	567219	613054	607143	614658	715558	-61808	-60084	24394	-9.2	-8.9	3.5
Self consumption and grid losses	65998	74099	72965	69462	72095	86464	-6581	-5108	5853	-8.7	-6.6	7.3
Fuel Inputs to Thermal Power Generation	93214	85253	92546	78599	86256	98467	-10795	-9717	1816	-12.1	-10.1	1.9
Solids	75843	68066	66172	63715	67266	74351	-4867	-4763	1352	-7.1	-6.6	1.9
Oil (including refinery gas)	2871	1108	2038	0	23	8	-111	-90	-10	-99.9	-79.5	-56.4
Gas (including derived gases)	12676	12906	19233	10168	9992	10538	-5897	-8052	-4417	-36.7	-44.6	-29.5
Biomass & Waste	1824	3174	5102	4677	8926	13506	63	3177	4892	1.4	55.3	56.8
Geothermal heat	0	0	0	38	49	63	18	12	0	86.2	33.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	164613	136936	144522	135739	131967	123247	-2585	-4312	-7432	-1.9	-3.2	-5.7
Refineries	106658	119856	127082	115044	111208	104356	-2706	-3596	-5560	-2.3	-3.1	-5.1
Biofuels and hydrogen production	0	222	1942	6002	7812	8227	-464	-861	-1062	-7.2	-9.9	-11.4
District heating	6389	1435	873	2463	2514	2012	-229	-71	-1089	-8.5	-2.7	-35.1
Derived gases, cokeries etc.	51565	15423	14625	12230	10434	8652	813	216	278	7.1	2.1	3.3
Energy Branch Consumption	15384	14242	15144	12492	11482	10176	-551	-639	-455	-4.2	-5.3	-4.3
Non-Energy Uses	23249	25272	24779	24561	23740	22659	-48	-104	-78	-0.2	-0.4	-0.3
Final Energy Demand	228372	220163	218010	210439	205109	195211	-12579	-15070	-22313	-5.6	-6.8	-10.3
by sector												
Industry	72116	59715	56706	54688	51301	50388	-239	-1941	-1760	-0.4	-3.6	-3.4
- energy intensive industries	49422	40359	38652	36869	33751	32115	318	-1176	-962	0.9	-3.4	-2.9
- other industrial sectors	22693	19356	18053	17819	17549	18273	-557	-765	-798	-3.0	-4.2	-4.2
Residential	58400	61905	65931	62483	62707	59060	-4729	-3715	-8502	-7.0	-5.6	-12.6
Tertiary	39361	32547	33416	30161	28987	26994	-4949	-5437	-6868	-14.1	-15.8	-20.3
Transport	58494	65997	61958	63108	62114	58769	-2661	-3976	-5182	-4.0	-6.0	-8.1
by fuel												
Solids	38693	10951	9639	9961	9164	7816	63	-541	-437	0.6	-5.6	-5.3
Oil	96422	98052	87411	73688	69357	61589	-4409	-6065	-9337	-5.6	-8.0	-13.2
Gas	42724	58030	61814	58326	53762	45952	-4423	-6740	-14895	-7.0	-11.1	-24.5
Electricity	38391	41496	44497	45922	47079	54806	-4732	-4690	1648	-9.3	-9.1	3.1
Heat (from CHP and District Heating)	9150	6831	7428	7106	7340	6685	-886	-206	-1202	-11.1	-2.7	-15.2
Renewable energy forms	2991	4804	7222	15427	18395	18340	1809	3173	1912	13.3	20.8	11.6
Other	0	0	0	9	11	23	0	-1	-1	3.4	-5.4	-3.9
RES in Gross Final Energy Consumption ^(A)		8812	13195	26595	35127	42399	2707	6247	7240	11.3	21.6	20.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	1240.2	1040.6	1003.2	890.9	861.6	797.7	-69.9	-92.9	-91.7	-7.3	-9.7	-10.3
CO₂ Emissions (energy related)	959.8	823.3	804.8	711.8	694.6	671.3	-59.3	-76.3	-77.0	-7.7	-9.9	-10.3
Power generation/District heating	375.1	316.2	325.0	289.5	304.6	332.3	-34.3	-37.1	-9.2	-10.6	-10.9	-2.7
Energy Branch	26.2	27.1	28.9	20.6	16.3	12.9	-2.1	-3.2	-3.2	-9.1	-16.3	-20.1
Industry	170.5	118.3	105.6	93.5	85.2	76.2	4.0	1.8	1.4	4.5	2.1	1.8
Residential	134.3	117.7	120.0	98.2	89.6	70.7	-12.9	-18.6	-36.1	-11.6	-17.2	-33.8
Tertiary	84.7	53.1	51.1	41.6	37.7	29.3	-7.0	-9.0	-15.3	-14.5	-19.4	-34.3
Transport	168.9	190.9	174.3	168.3	161.4	149.9	-6.9	-10.2	-14.6	-4.0	-6.0	-8.9
CO ₂ Emissions (non energy related)	84.5	82.9	75.8	75.2	72.3	68.2	2.1	0.3	-2.0	2.9	0.4	-2.9
Non-CO₂ GHGs Emissions	195.9	134.3	122.6	103.9	94.7	58.2	-12.7	-16.8	-12.7	-10.9	-15.1	-17.9
TOTAL GHGs Emissions Index (1990=100)	100.0	83.9	80.9	71.8	69.5	64.3	-5.6	-7.5	-7.4			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Germany: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	79.113	82.163	82.501	82.864	82.676	81.146	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1824.8	2170.7	2241.0	2712.0	2927.4	3277.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	156.7	154.2	113.6	100.0	84.9	-6.8	-7.0	-6.8	-5.6	-6.6	-7.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.33	2.31	2.37	2.41	-0.05	-0.09	-0.08	-2.2	-3.6	-3.1
Import Dependency %	46.1	59.8	61.6	64.3	66.5	67.4	-1.8	-4.4	-4.9			
Total Energy-related Costs ^(B) (in 000 M€05)		199.7	236.2	311.2	351.5	390.7	7.3	9.8	17.6	2.4	2.9	4.7
as % of GDP		9.2	10.5	11.5	12.0	11.9	0.3	0.3	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				7.5	10.1	17.9						
as % of GDP				0.27	0.35	0.55						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	132.2	100.0	88.5	69.8	60.3	52.4	-0.3	-2.3	-1.8	-0.4	-3.6	-3.4
Residential (Energy on Private Income, index 2000=100)	113.6	100.0	105.3	84.3	78.9	66.7	-6.4	-4.7	-9.6	-7.0	-5.6	-12.6
Tertiary (Energy on Value added, index 2000=100)	155.1	100.0	97.3	71.3	63.1	52.0	-11.7	-11.8	-13.2	-14.1	-15.8	-20.3
Passenger transport (toe/Mpkm)	50.2	44.7	39.9	35.9	33.6	28.7	-0.8	-1.2	-1.5	-2.2	-3.5	-4.8
Freight transport (toe/Mtkm)	39.2	41.5	35.3	30.7	29.3	27.5	-1.3	-2.1	-3.1	-4.1	-6.7	-10.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.46	0.41	0.43	0.42	-0.01	-0.01	-0.02	-1.3	-3.0	-3.9
Final energy demand (t of CO ₂ /toe)	2.45	2.18	2.07	1.91	1.82	1.67	0.00	-0.04	-0.13	0.3	-2.1	-7.0
Industry	2.36	1.98	1.86	1.71	1.66	1.51	0.08	0.09	0.08	4.9	6.0	5.4
Residential	2.30	1.90	1.82	1.57	1.43	1.20	-0.08	-0.20	-0.38	-4.9	-12.3	-24.3
Tertiary	2.15	1.63	1.53	1.38	1.30	1.08	-0.01	-0.06	-0.23	-0.4	-4.3	-17.6
Transport	2.89	2.89	2.81	2.67	2.60	2.55	0.00	0.00	-0.02	0.1	0.1	-0.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.9	5.9	12.3	16.6	20.9	1.9	3.9	5.3			
Biofuels share in transport gasoline and diesel (%)		0.4	3.7	9.7	12.7	13.7	-0.3	-0.5	-0.6			
Gross Electricity generation by source (in GWh_e)												
	567219	613054	607143	614658	715558		-61808	-60084	24394	-9.2	-8.9	3.5
Nuclear energy	169575	163026	101327	34100	0	0	0	0	0	0.0	0.0	
Solids	286571	262420	325543	349394	418229		-27431	-27910	17009	-7.8	-7.4	4.2
Oil (including refinery gas)	5476	23814	2176	6134	5775		-4847	-923	-478	-69.0	-13.1	-7.6
Gas (including derived gases)	64676	96524	79259	82121	90464		-31178	-47053	-23540	-28.2	-36.4	-20.6
Biomass-waste	9782	19186	25492	45045	66700		1055	14904	23764	4.3	49.4	55.3
Hydro (pumping excluded)	21728	19577	21363	21436	21960		573	503	0	2.8	2.4	0.0
Wind	9350	27224	48573	72374	107466		0	380	7640	0.0	0.5	7.7
Solar	60	1282	3366	3997	4891		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	45	57	73		21	14	0	86.2	33.6	0.0
Net Generation Capacity in MW_e												
	112509	122874	132365	142283	163371		-12031	-12156	610	-8.3	-7.9	0.4
<u>Nuclear energy</u>	21301	20680	12165	4105	0		0	0	0	0.0	0.0	
<u>Renewable energy</u>	9611	23545	33045	42332	53015		-17	-634	900	-0.1	-1.5	1.7
Hydro (pumping excluded)	3408	3580	3732	3790	3862		0	0	0	0.0	0.0	0.0
Wind	6113	18428	25689	34239	43888		-17	-634	900	-0.1	-1.8	2.1
Solar	90	1537	3624	4303	5266		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	81597	78649	87155	95846	110356		-12014	-11522	-289	-12.1	-10.7	-0.3
of which cogeneration units	40073	37870	31328	37321	35486		-5059	-2488	-5870	-13.9	-6.2	-14.2
Solids fired	47883	45326	50606	52171	62111		-3747	-4281	2409	-6.9	-7.6	4.0
Gas fired	24817	24439	29027	32720	34420		-7926	-9832	-6958	-21.4	-23.1	-16.8
Oil fired	7114	6403	2167	2401	1759		-1284	-308	-121	-37.2	-11.4	-6.4
Biomass-waste fired	1783	2481	5346	8543	12052		938	2896	4380	21.3	51.3	57.1
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	9	11	14		4	3	0	85.0	33.3	0.0
Avg. Load factor of net power capacity (%)	53.7	53.1	49.1	46.1	46.8		-0.5	-0.6	1.4			
Efficiency of gross thermal power generation (%)	37.0	37.4	47.3	48.1	50.8		-0.3	-0.6	0.5			
% of gross electricity from CHP	16.9	15.5	21.4	27.8	25.9		-2.9	-0.8	-3.5			
Carbon free gross electricity generation (%)	37.1	37.6	33.0	28.8	28.1		3.3	4.9	3.6			
- nuclear	29.9	26.6	16.7	5.5	0.0		1.5	0.5	0.0			
- renewable energy forms	7.2	11.0	16.3	23.3	28.1		1.8	4.4	3.6			
Transport sector												
Passenger transport activity (Gpkm)												
	889.5	1081.9	1142.4	1305.6	1366.6	1478.6	-16.4	-22.2	-25.3	-1.2	-1.6	-1.7
Public road transport	73.1	69.0	68.2	70.7	76.3	85.5	1.2	1.6	1.9	1.7	2.1	2.3
Private cars and motorcycles	702.1	858.2	911.1	1030.3	1061.7	1109.6	-17.4	-21.7	-25.5	-1.7	-2.0	-2.2
Rail	76.1	90.0	90.2	101.9	111.4	141.1	2.8	2.5	3.5	2.8	2.3	2.5
Aviation	34.3	62.0	70.5	100.3	114.6	139.6	-2.9	-4.5	-5.2	-2.8	-3.8	-3.6
Inland navigation	3.8	2.7	2.5	2.5	2.6	2.8	0.0	0.0	0.0	-0.9	-1.0	-1.3
Freight transport activity (Gtkm)												
	352.9	424.7	463.9	527.3	550.7	595.9	-8.9	-12.1	-14.8	-1.7	-2.2	-2.4
Trucks	196.4	280.7	310.1	342.9	357.5	390.0	-13.3	-17.2	-20.5	-3.7	-4.6	-5.0
Rail	101.7	77.5	89.7	113.4	117.6	122.1	4.3	4.8	5.5	4.0	4.3	4.7
Inland navigation	54.8	66.5	64.1	71.0	75.7	83.8	0.2	0.2	0.2	0.2	0.3	0.2
Energy demand in transport (ktoe)												
	58494	65997	61958	63108	62114	58769	-2661	-3976	-5182	-4.0	-6.0	-8.1
Public road transport	656	612	529	473	485	488	-3	-11	-26	-0.7	-2.2	-5.0
Private cars and motorcycles	38247	39981	36421	35397	34012	32931	-1219	-1635	-1267	-3.3	-4.6	-3.7
Trucks	11518	15834	14528	14043	14037	14641	-1020	-1641	-2452	-6.8	-10.5	-14.3
Rail	2111	1946	1858	2064	2010	1617	33	92	170	1.6	4.8	11.7
Aviation	5307	7345	8304	10790	11211	8708	-450	-777	-1597	-4.0	-6.5	-15.5
Inland navigation	656	279	318	342	358	385	-2	-5	-10	-0.6	-1.2	-2.4

Source: PRIMES

Greece: Cost Efficiency Scenario with high prices											SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	9152	9740	10010	10315	11093	11412	12494	13516	13779	0.9	1.0	1.2	1.0		
Solids	7077	7911	8222	8538	8513	7930	8172	8700	8699	1.5	0.3	-0.4	0.6		
Oil	832	459	280	100	94	97	95	0	0	-10.3	-10.3	0.1			
Natural gas	138	44	42	18	36	0	0	0	0	-11.2	-1.7				
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	1105	1326	1466	1659	2451	3384	4228	4815	5080	2.9	5.3	5.6	1.9		
Hydro	152	303	318	431	423	426	435	438	441	7.6	2.9	0.3	0.2		
Biomass & Waste	893	935	1010	1015	1522	1903	2378	2738	2739	1.2	4.2	4.6	1.4		
Wind	0	3	39	109	254	486	705	862	1079	74.8	20.7	10.7	4.3		
Solar and others	56	82	99	102	232	512	623	676	704	5.8	8.9	10.4	1.2		
Geothermal	3	3	2	1	19	57	87	101	117	-4.7	28.0	16.5	3.0		
Net Imports	15415	18207	21982	23336	24763	24419	23708	22715	22241	3.6	1.2	-0.4	-0.6		
Solids	988	925	768	371	257	1103	1113	1123	1230	-2.5	-10.4	15.8	1.0		
Oil	14366	17214	19527	20307	19622	20395	19385	18788	18323	3.1	0.0	-0.1	-0.6		
- Crude oil and Feedstocks	14757	16955	20439	19352	19969	20715	20191	19924	19679	3.3	-0.2	0.1	-0.3		
- Oil products	-391	259	-912	955	-347	-320	-806	-1137	-1356						
Natural gas	0	0	1689	2332	4547	2343	1894	1343	1245		10.4	-8.4	-4.1		
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Gross Inland Consumption	22278	24174	28140	31240	32750	32552	32810	32739	32456	2.4	1.5	0.0	-0.1		
Solids	8091	8783	9040	8952	8770	9033	9284	9823	9929	1.1	-0.3	0.6	0.7		
Oil	12883	13952	15929	17951	16609	17214	16088	15296	14759	2.1	0.4	-0.3	-0.9		
Natural gas	138	44	1705	2354	4582	2343	1894	1343	1245	28.6	10.4	-8.5	-4.1		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1		
Renewable energy forms	1105	1326	1466	1659	2522	3721	5328	6082	6348	2.9	5.6	7.8	1.8		
as % in Gross Inland Consumption															
Solids	36.3	36.3	32.1	28.7	26.8	27.8	28.3	30.0	30.6						
Oil	57.8	57.7	56.6	57.5	50.7	52.9	49.0	46.7	45.5						
Natural gas	0.6	0.2	6.1	7.5	14.0	7.2	5.8	4.1	3.8						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	5.0	5.5	5.2	5.3	7.7	11.4	16.2	18.6	19.6						
Gross Electricity Generation in GWh_e	34767	41291	53415	59416	63210	62451	66799	76103	84232	4.4	1.7	0.6	2.3		
Self consumption and grid losses	5818	6451	8431	10125	10101	10031	10724	13104	14657	3.8	1.8	0.6	3.2		
Fuel Inputs to Thermal Power Generation	8617	9937	11614	12403	11998	10927	11076	11235	11465	3.0	0.3	-0.8	0.3		
Solids	6890	7810	8234	8693	8395	8659	8907	9454	9576	1.8	0.2	0.6	0.7		
Oil (including refinery gas)	1708	2075	2036	2053	319	1163	965	738	804	1.8	-16.9	11.7	-1.8		
Gas (including derived gases)	18	14	1280	1605	3204	900	548	95	52	53.1	9.6	-16.2	-21.0		
Biomass & Waste	0	38	64	52	62	150	572	850	920		-0.4	25.0	4.9		
Geothermal heat	0	0	0	0	17	54	84	97	113			17.2	3.0		
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	16698	17913	22435	21508	20729	21689	21404	21137	20965	3.0	-0.8	0.3	-0.2		
Refineries	16621	17860	22404	21415	20412	21169	20653	20286	20034	3.0	-0.9	0.1	-0.3		
Biofuels and hydrogen production	0	0	0	0	252	463	704	821	911			10.8	2.6		
District heating	0	0	0	0	0	0	0	0	0						
Derived gases, cokeries etc.	77	52	30	93	66	56	47	29	19	-8.8	8.0	-3.3	-8.5		
Energy Branch Consumption	1196	1174	1637	1758	1632	1623	1656	1757	1779	3.2	0.0	0.1	0.7		
Non-Energy Uses	651	441	689	711	702	693	693	697	686	0.6	0.2	-0.1	-0.1		
Final Energy Demand	14509	15801	18513	20742	22497	23055	23135	23298	23130	2.5	2.0	0.3	0.0		
by sector															
Industry	3942	4107	4437	4132	4054	4074	4078	4048	4048	1.2	-0.9	0.1	-0.1		
- energy intensive industries	2534	2489	2693	2526	2523	2554	2572	2570	2560	0.6	-0.7	0.2	0.0		
- other industrial sectors	1408	1618	1744	1607	1531	1519	1507	1477	1488	2.2	-1.3	-0.2	-0.1		
Residential	3048	3323	4470	5467	6248	6572	6662	6722	6449	3.9	3.4	0.6	-0.3		
Tertiary	1711	1940	2410	3075	3233	3127	3092	3124	3122	3.5	3.0	-0.4	0.1		
Transport	5808	6431	7196	8068	8962	9262	9302	9404	9511	2.2	2.2	0.4	0.2		
by fuel															
Solids	1053	1074	888	446	354	357	363	360	347	-1.7	-8.8	0.2	-0.4		
Oil	10041	10799	12584	14219	14762	14724	14238	13772	13237	2.3	1.6	-0.4	-0.7		
Gas	15	14	257	585	1021	994	1000	964	895	33.0	14.8	-0.2	-1.1		
Electricity	2448	2931	3710	4377	4654	4567	4858	5433	5980	4.2	2.3	0.4	2.1		
Heat (from CHP and District Heating)	0	0	28	49	36	45	59	69	74		2.4	5.1	2.4		
Renewable energy forms	952	982	1046	1066	1670	2347	2617	2699	2594	0.9	4.8	4.6	-0.1		
Other	0	0	0	0	1	1	2	2	2			10.7	2.9		
RES in Gross Final Energy Consumption ^(A)			1439	1626	2443	3432	4331	4884	5129		5.4	5.9	1.7		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9		125.3	131.9	127.4	121.6	117.1	114.9	112.9	2.0	0.2	-0.8	-0.4		
CO₂ Emissions (energy related)	71.2	78.3	89.2	96.2	94.8	92.5	89.1	87.6	86.2	2.3	0.6	-0.6	-0.3		
Power generation/District heating	34.1	39.0	43.7	46.3	43.4	41.6	41.1	41.6	42.2	2.5	-0.1	-0.5	0.3		
Energy Branch	2.6	2.3	3.4	3.6	3.1	2.7	1.3	0.8	0.7	2.9	-1.1	-8.5	-5.6		
Industry	9.4	10.0	10.1	8.6	7.6	7.0	6.7	6.4	6.1	0.7	-2.8	-1.2	-0.9		
Residential	4.6	4.7	7.4	9.6	10.6	10.8	10.4	9.5	8.0	4.9	3.6	-0.2	-2.5		
Tertiary	3.3	3.2	3.4	4.2	4.3	4.2	3.8	3.5	3.3	0.1	2.6	-1.2	-1.6		
Transport	17.2	19.0	21.2	23.8	25.8	26.2	25.7	25.8	25.8	2.1	2.0	0.0	0.0		
CO ₂ Emissions (non energy related)	7.2	7.7	8.2	8.6	8.8	9.1	9.4	9.4	9.3	1.2	0.8	0.6	0.0		
Non-CO₂ GHGs Emissions	24.5		27.9	27.1	23.7	20.0	18.7	17.9	17.4	1.3	-1.6	-2.4	-0.7		
TOTAL GHGs Emissions Index (1990=100)	100.0		121.8	128.2	123.8	118.1	113.8	111.6	109.7						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Greece: Cost Efficiency Scenario with high prices													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1	
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8	
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	152.1	130.0	115.5	103.7	95.1	0.0	-2.3	-2.7	-1.9	
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.24	3.17	3.08	2.90	2.84	2.72	2.68	2.66	-0.1	-0.9	-0.6	-0.2	
Import Dependency %	62.1	65.7	69.3	68.5	69.1	68.2	65.5	62.7	61.7					
Total Energy-related Costs ^(B) (in 000 M€05)			15.3	18.5	24.8	29.9	35.6	39.5	42.5		4.9	3.7	1.8	
as % of GDP			10.5	10.2	11.5	11.9	12.5	12.5	12.5					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	90.0	100.8	100.0	81.0	70.4	63.1	57.3	53.3	50.5	1.1	-3.4	-2.0	-1.3	
Residential (Energy on Private Income, index 2000=100)	85.0	84.6	100.0	100.5	98.6	90.3	81.5	74.5	66.5	1.6	-0.1	-1.9	-2.0	
Tertiary (Energy on Value added, index 2000=100)	88.4	93.9	100.0	103.9	92.1	76.8	67.0	60.8	56.1	1.2	-0.8	-3.1	-1.8	
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	32.8	31.2	29.7	28.6	28.2	-2.0	-0.8	-1.0	-0.5	
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	99.5	93.3	86.8	83.8	81.9	-1.1	-1.4	-1.4	-0.6	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.94	0.81	0.77	0.68	0.66	0.61	0.54	0.50	-1.9	-1.7	-1.1	-2.0	
Final energy demand (t of CO ₂ /toe)	2.38	2.34	2.28	2.23	2.15	2.09	2.02	1.94	1.87	-0.4	-0.6	-0.6	-0.8	
Industry	2.39	2.43	2.28	2.09	1.88	1.71	1.65	1.58	1.52	-0.5	-1.9	-1.3	-0.8	
Residential	1.51	1.43	1.66	1.76	1.70	1.64	1.56	1.41	1.25	0.9	0.2	-0.9	-2.2	
Tertiary	1.96	1.65	1.40	1.36	1.34	1.33	1.24	1.11	1.05	-3.3	-0.4	-0.8	-1.6	
Transport	2.96	2.96	2.95	2.95	2.88	2.83	2.77	2.74	2.71	0.0	-0.2	-0.4	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.5	7.5	10.5	14.4	18.0	20.0	21.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.7	4.8	7.1	8.0	8.8					
Gross Electricity generation by source (in GWh)														
			53415	59416	63210	62451	66799	76103	84232		1.7	0.6	2.3	
Nuclear energy			0	0	0	0	0	0	0					
Solids			33790	35982	35168	38030	39796	48627	53374		0.4	1.2	3.0	
Oil (including refinery gas)			8979	8858	1600	6277	5286	4678	4831		-15.8	12.7	-0.9	
Gas (including derived gases)			5960	8114	18002	5588	3280	487	292		11.7	-15.7	-21.5	
Biomass-waste			543	179	459	1479	4155	5674	6184		-1.7	24.6	4.1	
Hydro (pumping excluded)			3692	5016	4923	4958	5053	5097	5134		2.9	0.3	0.2	
Wind			451	1266	2957	5650	8199	10028	12546		20.7	10.7	4.3	
Solar			0	1	73	397	606	1040	1343				23.6	
Geothermal and other renewables			0	0	28	71	423	473	528				31.2	
			11361	13277	15910	19035	21034	24817	26533		3.4	2.8	2.3	
Net Generation Capacity in MW_e														
Nuclear energy			0	0	0	0	0	0	0					
Renewable energy			3233	3744	4521	5835	7420	8509	9726		3.4	5.1	2.7	
Hydro (pumping excluded)			3043	3165	3235	3386	3484	3537	3577		0.6	0.7	0.3	
Wind			189	573	1226	2126	3288	3985	4920		20.6	10.4	4.1	
Solar			1	5	60	324	494	814	1051		46.8	23.6	7.8	
Other renewables (tidal etc.)			0	0	0	0	154	172	179				1.5	
Thermal power			8128	9533	11389	13200	13614	16309	16807		3.4	1.8	2.1	
of which cogeneration units			340	381	495	857	777	1054	1084		3.8	4.6	3.4	
Solids fired			4505	4798	4796	4377	4545	6856	7753		0.6	-0.5	5.5	
Gas fired			1134	1876	3344	5639	5610	5342	5328		11.4	5.3	-0.5	
Oil fired			2487	2827	3145	2938	2824	3241	2700		2.4	-1.1	-0.5	
Biomass-waste fired			2	31	96	231	598	834	920		50.8	20.1	4.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	8	16	36	36	106				16.3	
Avg. Load factor of net power capacity (%)			49.7	47.4	42.5	35.0	33.9	32.4	33.5					
Efficiency of gross thermal power generation (%)			36.5	36.8	39.6	40.5	40.9	45.6	48.7					
% of gross electricity from CHP			1.2	1.5	2.4	4.8	7.8	7.8	7.4					
Carbon free gross electricity generation (%)			8.8	10.9	13.4	20.1	27.6	29.3	30.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			8.8	10.9	13.4	20.1	27.6	29.3	30.6					
Transport sector														
Passenger transport activity (Gpkm)														
	75.3	91.5	116.2	141.2	159.0	172.1	181.3	188.0	192.0	4.4	3.2	1.3	0.6	
Public road transport	17.7	20.2	21.7	21.4	21.7	22.0	22.6	23.0	23.2	2.0	0.0	0.4	0.2	
Private cars and motorcycles	32.2	41.3	58.6	80.0	93.2	102.2	107.6	111.4	113.1	6.2	4.7	1.4	0.5	
Rail	2.8	2.3	3.1	3.4	3.8	4.3	4.9	5.3	5.7	0.9	2.2	2.5	1.6	
Aviation	15.5	19.9	24.1	27.7	31.5	34.8	37.2	39.1	40.8	4.5	2.7	1.7	0.9	
Inland navigation	7.0	7.9	8.7	8.7	8.8	8.8	9.0	9.1	9.2	2.1	0.2	0.2	0.2	
Freight transport activity (Gtkm)														
	19.8	22.0	26.6	32.7	37.6	41.8	45.2	48.0	50.0	3.0	3.5	1.8	1.0	
Trucks	12.5	14.6	17.5	22.0	25.4	28.2	30.4	32.5	34.2	3.4	3.8	1.8	1.2	
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.1	1.2	1.3	-3.5	6.5	3.3	1.4	
Inland navigation	6.6	7.1	8.7	10.1	11.5	12.7	13.7	14.2	14.4	2.8	2.8	1.8	0.5	
Energy demand in transport (ktoe)														
	5808	6431	7196	8068	8962	9262	9302	9404	9511	2.2	2.2	0.4	0.2	
Public road transport	154	175	175	153	150	142	141	134	125	1.3	-1.5	-0.6	-1.2	
Private cars and motorcycles	1404	1704	2243	2913	3291	3353	3364	3392	3442	4.8	3.9	0.2	0.2	
Trucks	2345	2726	2902	3120	3520	3653	3656	3744	3821	2.2	1.9	0.4	0.4	
Rail	75	57	60	58	64	69	75	78	74	-2.2	0.6	1.7	-0.2	
Aviation	1264	1226	1325	1181	1271	1369	1376	1366	1365	0.5	-0.4	0.8	-0.1	
Inland navigation	566	544	491	643	665	676	689	690	684	-1.4	3.1	0.4	-0.1	

Source: PRIMES

Greece: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	9152	10010	10315	11412	12494	13779	379	-202	195	3.4	-1.6	1.4
Solids	7077	8222	8538	7930	8172	8699	-79	-713	-53	-1.0	-8.0	-0.6
Oil	832	280	100	97	95	0	-3	-4	0	-2.5	-4.0	
Natural gas	138	42	18	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1105	1466	1659	3384	4228	5080	461	515	248	15.8	13.9	5.1
Hydro	152	318	431	426	435	441	1	3	2	0.2	0.8	0.6
Biomass & Waste	893	1010	1015	1903	2378	2739	108	127	-191	6.0	5.6	-6.5
Wind	0	39	109	486	705	1079	28	30	119	6.2	4.5	12.4
Solar and others	56	99	102	512	623	704	284	330	317	124.2	112.5	81.8
Geothermal	3	2	1	57	87	117	41	25	2	257.6	40.8	1.8
Net Imports	15415	21982	23336	24419	23708	22241	-2820	-2857	-2810	-10.4	-10.8	-11.2
Solids	988	768	371	1103	1113	1230	-6	-58	-570	-0.6	-4.9	-31.7
Oil	14366	19527	20307	20395	19385	18323	-1211	-1817	-2228	-5.6	-8.6	-10.8
- Crude oil and Feedstocks	14757	20439	19352	20715	20191	19679	-606	-925	-1165	-2.8	-4.4	-5.6
- Oil products	-391	-912	955	-320	-806	-1356	-605	-892	-1063	-212.8	-1040.7	363.4
Natural gas	0	1689	2332	2343	1894	1245	-1940	-2082	-1279	-45.3	-52.4	-50.7
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	22278	28140	31240	32552	32810	32456	-2440	-3059	-2617	-7.0	-8.5	-7.5
Solids	8091	9040	8952	9033	9284	9929	-85	-771	-624	-0.9	-7.7	-5.9
Oil	12883	15929	17951	17214	16088	14759	-1214	-1822	-2230	-6.6	-10.2	-13.1
Natural gas	138	1705	2354	2343	1894	1245	-1940	-2082	-1279	-45.3	-52.4	-50.7
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	61	-1	325	240	216	175	0	0	0	0.0	0.0	0.0
Renewable energy forms	1105	1466	1659	3721	5328	6348	799	1615	1516	27.3	43.5	31.4
as % in Gross Inland Consumption												
Solids	36.3	32.1	28.7	27.8	28.3	30.6	1.7	0.3	0.5			
Oil	57.8	56.6	57.5	52.9	49.0	45.5	0.2	-0.9	-3.0			
Natural gas	0.6	6.1	7.5	7.2	5.8	3.8	-5.0	-5.3	-3.4			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	5.0	5.2	5.3	11.4	16.2	19.6	3.1	5.9	5.8			
Gross Electricity Generation in GWh_e	34767	53415	59416	62451	66799	84232	-11627	-11230	-3447	-15.7	-14.4	-3.9
Self consumption and grid losses	5818	8431	10125	10031	10724	14657	-1597	-1792	-767	-13.7	-14.3	-5.0
Fuel Inputs to Thermal Power Generation	8617	11614	12403	10927	11076	11465	-1971	-2031	-336	-15.3	-15.5	-2.9
Solids	6890	8234	8693	8659	8907	9576	-66	-743	-555	-0.8	-7.7	-5.5
Oil (including refinery gas)	1708	2036	2053	1163	965	804	-286	-203	154	-19.7	-17.4	23.7
Gas (including derived gases)	18	1280	1605	900	548	52	-1753	-1577	-548	-66.1	-74.2	-91.4
Biomass & Waste	0	64	52	150	572	920	94	468	613	169.9	449.5	200.2
Geothermal heat	0	0	0	54	84	113	40	24	0	280.6	40.1	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	16698	22435	21508	21689	21404	20965	-662	-1033	-1334	-3.0	-4.6	-6.0
Refineries	16621	22404	21415	21169	20653	20034	-611	-931	-1166	-2.8	-4.3	-5.5
Biofuels and hydrogen production	0	0	0	463	704	911	-38	-87	-134	-7.6	-11.0	-12.8
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	77	30	93	56	47	19	-13	-14	-34	-18.6	-23.2	-63.9
Energy Branch Consumption	1196	1637	1758	1623	1656	1779	-81	-84	-108	-4.8	-4.8	-5.7
Non-Energy Uses	651	689	711	693	693	686	-2	-2	-1	-0.3	-0.3	-0.2
Final Energy Demand	14509	18513	20742	23035	23135	23130	-1284	-1822	-2524	-5.3	-7.3	-9.8
by sector												
Industry	3942	4437	4132	4074	4078	4048	-106	-147	-189	-2.5	-3.5	-4.5
- energy intensive industries	2534	2693	2526	2554	2572	2560	-49	-72	-70	-1.9	-2.7	-2.7
- other industrial sectors	1408	1744	1607	1519	1507	1488	-57	-75	-119	-3.6	-4.7	-7.4
Residential	3048	4470	5467	6572	6662	6449	-217	-334	-622	-3.2	-4.8	-8.8
Tertiary	1711	2410	3075	3127	3092	3122	-548	-677	-879	-14.9	-18.0	-22.0
Transport	5808	7196	8068	9262	9302	9511	-413	-665	-834	-4.3	-6.7	-8.1
by fuel												
Solids	1053	888	446	357	363	347	-15	-24	-58	-4.1	-6.1	-14.3
Oil	10041	12584	14219	14724	14238	13237	-706	-1189	-1948	-4.6	-7.7	-12.8
Gas	15	257	585	994	1000	895	-228	-225	-384	-18.6	-18.4	-30.0
Electricity	2448	3710	4377	4567	4858	5980	-858	-803	-217	-15.8	-14.2	-3.5
Heat (from CHP and District Heating)	0	28	49	45	59	74	2	11	22	5.3	22.4	43.5
Renewable energy forms	952	1046	1066	2347	2617	2594	521	409	61	28.5	18.5	2.4
Other	0	0	0	1	2	2	0	0	0	4.6	-5.2	-5.4
RES in Gross Final Energy Consumption ^(A)		1439	1626	3432	4331	5129	641	870	802	23.0	25.2	18.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	102.9	125.3	131.9	121.6	117.1	112.9	-12.3	-18.4	-17.3	-9.2	-13.6	-13.3
CO₂ Emissions (energy related)	71.2	89.2	96.2	92.5	89.1	86.2	-8.6	-13.5	-12.0	-8.5	-13.1	-12.2
Power generation/District heating	34.1	43.7	46.3	41.6	41.1	42.2	-5.3	-7.4	-3.0	-11.3	-15.3	-6.6
Energy Branch	2.6	3.4	3.6	2.7	1.3	0.7	-0.6	-1.8	-2.0	-17.2	-59.3	-73.9
Industry	9.4	10.1	8.6	7.0	6.7	6.1	-0.6	-0.4	-0.7	-7.4	-6.0	-9.7
Residential	4.6	7.4	9.6	10.8	10.4	8.0	-0.9	-1.4	-3.1	-7.4	-11.9	-27.6
Tertiary	3.3	3.4	4.2	4.2	3.8	3.3	-0.2	-0.5	-0.9	-3.7	-12.3	-22.5
Transport	17.2	21.2	23.8	26.2	25.7	25.8	-1.1	-1.8	-2.3	-4.2	-6.6	-8.3
CO₂ Emissions (non energy related)	7.2	8.2	8.6	9.1	9.4	9.3	-0.1	-0.2	-0.3	-1.5	-2.1	-2.9
Non-CO₂ GHGs Emissions	24.5	27.9	27.1	20.0	18.7	17.4	-3.5	-4.8	-5.0	-15.0	-20.4	-22.2
TOTAL GHGs Emissions Index (1990=100)	100.0	121.8	128.2	118.1	113.8	109.7	-11.9	-17.9	-16.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Greece: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.121	10.904	11.083	11.390	11.427	11.316	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	115.8	146.0	181.1	250.5	284.2	341.2	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	192.3	192.7	172.5	130.0	115.5	95.1	-9.7	-10.8	-7.7	-7.0	-8.5	-7.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.20	3.17	3.08	2.84	2.72	2.66	-0.05	-0.14	-0.14	-1.6	-5.0	-5.2
Import Dependency %	62.1	69.3	68.5	68.2	65.5	61.7	-3.0	-2.2	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		15.3	18.5	29.9	35.6	42.5	0.6	1.2	1.8	2.2	3.5	4.5
as % of GDP		10.5	10.2	11.9	12.5	12.5	0.3	0.4	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				0.7	1.3	1.9						
as % of GDP				0.28	0.45	0.56						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	90.0	100.0	81.0	63.1	57.3	50.5	-1.6	-2.1	-2.4	-2.5	-3.5	-4.5
Residential (Energy on Private Income, index 2000=100)	85.0	100.0	100.5	90.3	81.5	66.5	-3.0	-4.1	-6.4	-3.2	-4.8	-8.8
Tertiary (Energy on Value added, index 2000=100)	88.4	100.0	103.9	76.8	67.0	56.1	-13.5	-14.7	-15.8	-14.9	-18.0	-22.0
Passenger transport (toe/Mpkm)	43.6	35.6	33.6	31.2	29.7	28.2	-0.5	-0.9	-0.9	-1.7	-2.9	-2.9
Freight transport (toe/Mtkm)	127.8	114.6	101.5	93.3	86.8	81.9	-4.3	-7.1	-9.2	-4.4	-7.5	-10.1
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.98	0.81	0.77	0.66	0.61	0.50	0.03	-0.01	-0.02	5.0	-1.3	-3.2
Final energy demand (t of CO ₂ /toe)	2.38	2.28	2.23	2.09	2.02	1.87	0.00	-0.02	-0.09	-0.1	-1.0	-4.6
Industry	2.39	2.28	2.09	1.71	1.65	1.52	-0.09	-0.04	-0.09	-5.0	-2.6	-5.5
Residential	1.51	1.66	1.76	1.64	1.56	1.25	-0.08	-0.13	-0.32	-4.4	-7.5	-20.7
Tertiary	1.96	1.40	1.36	1.33	1.24	1.05	0.16	0.08	-0.01	13.2	6.9	-0.6
Transport	2.96	2.95	2.95	2.83	2.77	2.71	0.00	0.00	-0.01	0.1	0.0	-0.2
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.5	7.5	14.4	18.0	21.0	3.3	4.7	5.0			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.8	7.1	8.8	-0.2	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
	53415	59416	62451	66799	84232	84232	-11627	-11230	-3447	-15.7	-14.4	-3.9
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	33790	35982	38030	39796	53374	53374	-477	-3865	-6154	-1.2	-8.9	-10.3
Oil (including refinery gas)	8979	8858	6277	5286	4831	4831	-1297	-974	541	-17.1	-15.6	12.6
Gas (including derived gases)	5960	8114	5588	3280	292	292	-11326	-10311	-3754	-67.0	-75.9	-92.8
Biomass-waste	543	179	1479	4155	6184	6184	1089	3205	4187	278.9	337.2	209.7
Hydro (pumping excluded)	3692	5016	4958	5053	5134	5134	9	40	29	0.2	0.8	0.6
Wind	451	1266	5650	8199	12546	12546	328	349	1382	6.2	4.5	12.4
Solar	0	1	397	606	1343	1343	0	0	268	0.0	0.0	24.9
Geothermal and other renewables	0	0	71	423	528	528	48	325	55	206.2	331.9	11.7
Net Generation Capacity in MW_e												
	11361	13277	19035	21034	26533	26533	199	383	-620	1.1	1.9	-2.3
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	3233	3744	5835	7420	9726	9726	110	398	575	1.9	5.7	6.3
Hydro (pumping excluded)	3043	3165	3386	3484	3577	3577	0	23	28	0.0	0.7	0.8
Wind	189	573	2126	3288	4920	4920	110	221	344	5.5	7.2	7.5
Solar	1	5	324	494	1051	1051	0	0	175	0.0	0.0	19.9
Other renewables (tidal etc.)	0	0	0	154	179	179	0	154	29			19.1
<u>Thermal power</u>	8128	9533	13200	13614	16807	16807	89	-16	-1195	0.7	-0.1	-6.6
of which cogeneration units	340	381	857	777	1084	1084	353	180	-23	70.0	30.2	-2.1
Solids fired	4505	4798	4377	4545	7753	7753	-13	-447	-1651	-0.3	-9.0	-17.6
Gas fired	1134	1876	5639	5610	5328	5328	0	0	0	0.0	0.0	0.0
Oil fired	2487	2827	2938	2824	2700	2700	-58	-25	-262	-2.0	-0.9	-8.8
Biomass-waste fired	2	31	231	598	920	920	152	448	714	191.1	298.2	348.2
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	16	36	106	106	8	8	3	102.9	29.4	3.2
Avg. Load factor of net power capacity (%)	49.7	47.4	35.0	33.9	33.5	33.5	-7.2	-6.5	-0.5			
Efficiency of gross thermal power generation (%)	36.5	36.8	40.5	40.9	48.7	48.7	-1.8	-1.5	-2.4			
% of gross electricity from CHP	1.2	1.5	4.8	7.8	7.4	7.4	0.0	2.9	2.3			
Carbon free gross electricity generation (%)	8.8	10.9	20.1	27.6	30.6	30.6	5.1	9.0	8.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	8.8	10.9	20.1	27.6	30.6	30.6	5.1	9.0	8.0			
Transport sector												
Passenger transport activity (Gpkm)												
	75.3	116.2	141.2	172.1	181.3	192.0	-2.0	-2.7	-3.1	-1.1	-1.5	-1.6
Public road transport	17.7	21.7	21.4	22.0	22.6	23.2	0.4	0.6	0.6	2.0	2.5	2.8
Private cars and motorcycles	32.2	58.6	80.0	102.2	107.6	113.1	-1.4	-1.9	-2.2	-1.4	-1.7	-1.9
Rail	2.8	3.1	3.4	4.3	4.9	5.7	0.0	0.0	0.1	0.2	1.0	2.3
Aviation	15.5	24.1	27.7	34.8	37.2	40.8	-0.9	-1.3	-1.6	-2.5	-3.5	-3.8
Inland navigation	7.0	8.7	8.7	8.8	9.0	9.2	-0.1	-0.1	-0.1	-0.9	-1.0	-1.1
Freight transport activity (Gtkm)												
	19.8	26.6	32.7	41.8	45.2	50.0	-0.8	-1.1	-1.3	-1.8	-2.3	-2.6
Trucks	12.5	17.5	22.0	28.2	30.4	34.2	-0.9	-1.3	-1.5	-3.2	-3.9	-4.3
Rail	0.6	0.4	0.6	0.9	1.1	1.3	0.0	0.1	0.1	4.0	4.9	5.5
Inland navigation	6.6	8.7	10.1	12.7	13.7	14.4	0.1	0.1	0.1	0.8	1.0	1.0
Energy demand in transport (ktoe)												
	5808	7196	8068	9262	9302	9511	-413	-665	-834	-4.3	-6.7	-8.1
Public road transport	154	175	153	142	141	125	-1	-3	-6	-0.4	-2.0	-4.5
Private cars and motorcycles	1404	2243	2913	3353	3364	3442	-106	-157	-141	-3.1	-4.5	-3.9
Trucks	2345	2902	3120	3653	3656	3821	-258	-419	-578	-6.6	-10.3	-13.1
Rail	75	60	58	69	75	74	1	-1	1	1.4	-1.5	1.8
Aviation	1264	1325	1181	1369	1376	1365	-42	-70	-88	-2.9	-4.9	-6.1
Inland navigation	566	491	643	676	689	684	-8	-14	-23	-1.2	-2.1	-3.2

Source: PRIMES

Hungary: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	14146	13456	11207	10514	10394	10768	11533	13980	16742	-2.3	-0.8	1.0	3.8
Solids	3948	3095	2893	1748	1720	1725	1734	1738	1741	-3.1	-5.1	0.1	0.0
Oil	2320	2329	1665	1655	1200	1000	995	900	800	-3.3	-3.2	-1.9	-2.2
Natural gas	3812	3788	2475	2331	2200	2000	1638	1316	1065	-4.2	-1.2	-2.9	-4.2
Nuclear	3544	3618	3658	3569	3787	3863	3940	6051	8791	0.3	0.3	0.4	8.4
Renewable energy sources	523	626	516	1212	1487	2180	3226	3975	4346	-0.1	11.2	8.1	3.0
Hydro	15	14	15	17	17	17	17	17	17	0.0	0.8	0.2	0.2
Biomass & Waste	422	526	415	1105	1309	1872	2590	3238	3467	-0.2	12.2	7.1	3.0
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8
Solar and others	0	0	0	2	19	119	405	502	644			35.7	4.7
Geothermal	86	86	86	87	137	165	196	186	170	0.0	4.7	3.7	-1.5
Net Imports	14436	12629	14011	17558	17792	17773	17655	17168	16342	-0.3	2.4	-0.1	-0.8
Solids	1686	1395	1081	1340	1149	1081	1057	953	946	-4.3	0.6	-0.8	-1.1
Oil	6621	5496	5352	5875	6325	6747	6693	6884	7108	-2.1	1.7	0.6	0.6
- Crude oil and Feedstocks	6475	5937	5866	6167	6407	6814	6797	6985	7205	-1.0	0.9	0.6	0.6
- Oil products	146	-441	-514	-291	-82	-67	-104	-101	-97				
Natural gas	5170	5532	7283	9807	9780	9594	7858	6314	5108	3.5	3.0	-2.2	-4.2
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Gross Inland Consumption	28641	25864	25000	27920	28187	28540	29188	31148	33084	-1.4	1.2	0.3	1.3
Solids	5969	4549	3967	3090	2869	2806	2791	2691	2687	-4.0	-3.2	-0.3	-0.4
Oil	8734	7689	6907	7420	7525	7747	7689	7784	7908	-2.3	0.9	0.2	0.3
Natural gas	8913	9175	9657	12094	11980	11594	9496	7630	6173	0.8	2.2	-2.3	-4.2
Nuclear	3544	3618	3658	3569	3787	3863	3940	6051	8791	0.3	0.3	0.4	8.4
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Renewable energy forms	523	626	516	1212	1487	2180	4971	6770	7339	-0.1	11.2	12.8	4.0
as % in Gross Inland Consumption													
Solids	20.8	17.6	15.9	11.1	10.2	9.8	9.6	8.6	8.1				
Oil	30.5	29.7	27.6	26.6	26.7	27.1	26.3	25.0	23.9				
Natural gas	31.1	35.5	38.6	43.3	42.5	40.6	32.5	24.5	18.7				
Nuclear	12.4	14.0	14.6	12.8	13.4	13.5	13.5	19.4	26.6				
Renewable energy forms	1.8	2.4	2.1	4.3	5.3	7.6	17.0	21.7	22.2				
Gross Electricity Generation in GWh_e	28431	34011	35185	35749	37477	42459	47797	58832	69149	2.2	0.6	2.5	3.8
Self consumption and grid losses	5478	6171	6295	5979	5576	5862	7188	8881	10209	1.4	-1.2	2.6	3.6
Fuel Inputs to Thermal Power Generation	4970	6113	5985	5659	5111	5338	5802	5984	5584	1.9	-1.6	1.3	-0.4
Solids	2871	2977	2731	1924	1965	1970	1983	1930	1983	-0.5	-3.2	0.1	0.0
Oil (including refinery gas)	440	1447	1052	122	0	0	0	0	11	9.1			
Gas (including derived gases)	1636	1634	2140	3078	2862	2849	1820	626	257	2.7	2.9	-4.4	-17.8
Biomass & Waste	24	55	62	534	284	519	1999	3428	3333	10.2	16.4	21.5	5.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11679	10680	9226	9831	10140	10550	10615	10723	10817	-2.3	0.9	0.5	0.2
Refineries	8831	8500	7588	8390	8790	9136	9094	9148	9236	-1.5	1.5	0.3	0.2
Biofuels and hydrogen production	0	0	0	0	207	313	508	570	620			9.4	2.0
District heating	1145	789	471	629	442	457	499	540	547	-8.5	-0.6	1.2	0.9
Derived gases, cokeries etc.	1704	1392	1168	813	701	644	515	464	415	-3.7	-5.0	-3.0	-2.1
Energy Branch Consumption	1402	1310	1162	1581	1602	1677	1831	2010	2174	-1.9	3.3	1.3	1.7
Non-Energy Uses	1569	1609	1586	2282	2502	2638	2628	2641	2653	0.1	4.7	0.5	0.1
Final Energy Demand	19258	15814	15998	16098	16348	19074	19580	20022	20228	-1.8	1.7	0.3	0.3
by sector													
Industry	6523	3808	3489	3427	3450	3556	3639	3754	3880	-6.1	-0.1	0.5	0.6
- energy intensive industries	4160	2691	2563	2328	2249	2277	2272	2330	2374	-4.7	-1.3	0.1	0.4
- other industrial sectors	2364	1116	926	1099	1201	1279	1368	1425	1507	-8.9	2.6	1.3	1.0
Residential	6437	5911	5465	6411	6681	6463	6676	6694	6625	-1.6	2.0	0.0	-0.1
Tertiary	3273	3442	3792	4085	4203	4139	4193	4298	4240	1.5	1.0	0.0	0.1
Transport	3024	2653	3252	4175	4614	4916	5072	5276	5481	0.7	3.6	1.0	0.8
by fuel													
Solids	2502	965	793	692	584	537	444	434	405	-10.9	-3.0	-2.7	-0.9
Oil	6009	4147	4173	4792	5011	5260	5214	5320	5423	-3.6	1.8	0.4	0.4
Gas	5941	6370	6503	7852	7797	7201	6715	6189	5515	0.9	1.8	-1.5	-1.9
Electricity	2811	2500	2658	2823	3009	3222	3524	4174	4818	-0.6	1.2	1.6	3.2
Heat (from CHP and District Heating)	1570	1287	1440	1297	1453	1324	1439	1519	1459	-0.9	0.1	-0.1	0.1
Renewable energy forms	425	545	430	642	1094	1529	2242	2384	2604	0.1	9.8	7.4	1.5
Other	0	0	0	0	0	1	2	2	3			16.8	3.1
RES in Gross Final Energy Consumption ^(A)			482	869	1330	1943	4061	5377	5918		10.7	11.8	3.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2		76.8	79.0	79.3	75.8	68.0	62.0	58.3	-2.1	0.3	-1.5	-1.5
CO₂ Emissions (energy related)	65.5	56.8	53.6	55.0	54.1	53.3	46.1	40.8	37.4	-2.0	0.1	-1.6	-2.1
Power generation/District heating	20.5	23.0	21.0	17.3	15.9	16.0	11.7	7.7	6.0	0.2	-2.7	-3.0	-6.4
Energy Branch	2.5	2.2	1.5	1.9	2.3	2.4	1.2	0.9	0.5	-4.9	4.5	-6.4	-7.9
Industry	14.7	8.7	6.4	6.3	5.7	5.5	4.6	4.2	3.9	-7.9	-1.2	-2.1	-1.6
Residential	13.7	9.9	9.0	10.5	10.5	9.6	9.1	8.4	7.4	-4.1	1.6	-1.4	-2.1
Tertiary	5.6	5.5	6.2	6.7	6.6	6.3	5.9	5.6	5.1	1.1	0.6	-1.2	-1.4
Transport	8.6	7.6	9.4	12.2	13.0	13.6	13.6	14.0	14.4	0.9	3.3	0.5	0.6
CO₂ Emissions (non energy related)	4.7	3.1	3.3	3.1	3.1	3.3	3.5	3.7	3.8	-3.6	-0.5	1.2	0.7
Non-CO₂ GHGs Emissions	24.9		19.9	20.9	22.1	19.2	18.4	17.5	17.1	-2.2	1.0	-1.8	-0.7
TOTAL GHGs Emissions Index (1990=100)	100.0		80.7	83.0	83.3	79.7	71.5	65.2	61.2				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Hungary: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	269.1	227.2	198.0	183.4	172.7	-2.5	-2.5	-3.0	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.20	2.14	1.97	1.92	1.87	1.58	1.31	1.13	-0.7	-1.1	-1.9	-3.3
Import Dependency %	50.4	48.8	56.0	62.9	63.1	62.3	60.5	55.1	49.4				
Total Energy-related Costs ^(B) (in 000 M€05)			13.0	14.3	19.0	24.0	28.7	31.8	33.9		3.8	4.2	1.7
as % of GDP			18.2	16.1	18.1	19.1	19.5	18.7	17.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	273.5	170.7	100.0	80.6	70.1	62.1	55.9	51.1	48.1	-9.6	-3.5	-2.2	-1.5
Residential (Energy on Private Income, index 2000=100)	121.1	125.3	100.0	86.0	76.3	61.8	54.6	47.7	42.0	-1.9	-2.7	-3.3	-2.6
Tertiary (Energy on Value added, index 2000=100)	85.5	106.1	100.0	85.5	75.1	62.1	53.6	47.7	41.6	1.6	-2.8	-3.3	-2.5
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	34.6	33.9	32.3	31.1	30.6	2.1	2.2	-0.7	-0.5
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	38.8	37.2	34.9	33.5	32.3	0.5	0.7	-1.1	-0.8
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.45	0.39	0.33	0.28	0.26	0.17	0.10	0.07	-0.8	-3.4	-4.6	-9.0
Final energy demand (t of CO ₂ /toe)	2.21	2.00	1.94	1.97	1.89	1.83	1.70	1.61	1.52	-1.3	-0.3	-1.1	-1.1
Industry	2.25	2.28	1.85	1.84	1.66	1.54	1.27	1.13	1.02	-2.0	-1.1	-2.6	-2.2
Residential	2.13	1.68	1.64	1.64	1.57	1.48	1.36	1.25	1.11	-2.6	-0.4	-1.4	-2.0
Tertiary	1.70	1.59	1.64	1.64	1.57	1.52	1.41	1.31	1.21	-0.3	-0.4	-1.1	-1.5
Transport	2.84	2.85	2.90	2.92	2.81	2.77	2.68	2.65	2.62	0.2	-0.3	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.9	4.7	6.8	9.9	20.1	25.9	28.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.0	5.7	9.0	9.8	10.3				
Gross Electricity generation by source (in GWh)													
			35185	35749	37477	42459	47797	58832	69149		0.6	2.5	3.8
Nuclear energy			14177	13832	14678	14971	15271	24808	37283		0.3	0.4	9.3
Solids			8350	5838	5640	7662	10372	11188	11782		-3.8	6.3	1.3
Oil (including refinery gas)			4243	497	97	0	0	0	67		-31.5		
Gas (including derived gases)			8040	13021	15102	16747	12307	5389	1800		6.5	-2.0	-17.5
Biomass-waste			197	2348	1702	2782	9428	16836	17380		24.1	18.7	6.3
Hydro (pumping excluded)			178	203	192	195	196	197	199		0.8	0.2	0.2
Wind			0	10	64	92	201	372	561			12.1	10.8
Solar			0	0	2	11	22	41	76			27.2	13.1
Geothermal and other renewables			0	0	0	0	0	0	0				
Net Generation Capacity in MW_e			7789	8587	9773	9729	10399	11174	12942		2.3	0.6	2.2
<u>Nuclear energy</u>			1708	1730	1756	1781	1794	2881	4322		0.3	0.2	9.2
<u>Renewable energy</u>			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
<u>Thermal power</u>			6036	6793	7907	7787	8293	7737	7736		2.7	0.5	-0.7
of which cogeneration units			1915	2391	2264	2567	3321	2803	2519		1.7	3.9	-2.7
Solids fired			1683	1592	1521	1142	1258	1323	1277		-1.0	-1.9	0.2
Gas fired			3516	4572	5668	5828	4802	3242	3071		4.9	-1.6	-4.4
Oil fired			762	313	322	246	198	151	103		-8.3	-4.8	-6.3
Biomass-waste fired			76	316	397	571	2036	3022	3285		18.0	17.8	4.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			47.3	44.1	41.5	47.4	48.9	55.6	56.5				
Efficiency of gross thermal power generation (%)			29.9	33.0	37.9	43.8	47.6	48.0	47.8				
% of gross electricity from CHP			24.5	28.3	31.7	27.9	30.9	26.8	22.7				
Carbon free gross electricity generation (%)			41.4	45.9	44.4	42.5	52.6	71.8	80.3				
- nuclear			40.3	38.7	39.2	35.3	31.9	42.2	53.9				
- renewable energy forms			1.1	7.2	5.2	7.3	20.6	29.7	26.3				
Transport sector													
Passenger transport activity (Gpkm)													
	82.0	75.2	80.0	80.3	86.5	93.7	101.6	109.8	117.7	-0.2	0.8	1.6	1.5
Public road transport	19.3	16.6	18.7	18.2	17.8	16.8	16.2	15.7	15.2	-0.3	-0.5	-0.9	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	53.3	60.6	68.1	75.6	82.3	-0.1	1.3	2.5	1.9
Rail	13.9	10.9	12.3	12.2	12.2	12.2	12.4	12.5	12.8	-1.2	-0.1	0.1	0.4
Aviation	1.6	1.9	2.4	2.7	3.2	4.0	4.9	6.1	7.4	4.3	2.9	4.4	4.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight transport activity (Gtkm)													
	34.0	22.2	27.9	35.8	41.6	46.9	51.3	55.4	58.2	-1.9	4.1	2.1	1.3
Trucks	15.2	13.8	19.1	25.2	30.2	34.6	38.2	41.7	43.9	2.4	4.7	2.4	1.4
Rail	16.8	8.4	8.8	8.6	9.1	9.5	10.1	10.5	10.9	-6.3	0.3	1.1	0.8
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	3.0	3.3	3.5			2.3	1.4
Energy demand in transport (ktoe)													
	3024	2653	3252	4175	4614	4916	5072	5276	5481	0.7	3.6	1.0	0.8
Public road transport	160	124	149	167	157	138	120	103	93	-0.7	0.5	-2.6	-2.6
Private cars and motorcycles	1482	1462	1824	2321	2531	2691	2788	2914	3085	2.1	3.3	1.0	1.0
Trucks	938	695	886	1297	1510	1633	1681	1753	1803	-0.6	5.5	1.1	0.7
Rail	271	190	175	159	150	144	137	126	100	-4.3	-1.5	-0.9	-3.1
Aviation	164	182	219	230	264	309	345	378	400	2.9	1.9	2.7	1.5
Inland navigation	9	0	0	1	1	1	1	2	2			2.0	1.1

Source: PRIMES

Hungary: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	14146	11207	10514	10768	11533	16742	547	991	1323	5.4	9.4	8.6
Solids	3948	2893	1748	1725	1734	1741	0	0	0	0.0	0.0	0.0
Oil	2320	1665	1655	1000	995	800	0	-5	0	0.0	-0.5	0.0
Natural gas	3812	2475	2331	2000	1638	1065	0	-262	-529	0.0	-13.8	-33.2
Nuclear	3544	3658	3569	3863	3940	8791	0	0	-1	0.0	0.0	0.0
Renewable energy sources	523	516	1212	2180	3226	4346	547	1257	1854	33.5	63.9	74.4
Hydro	15	15	17	17	17	17	0	0	0	2.1	1.9	0.0
Biomass & Waste	422	415	1105	1872	2590	3467	379	823	1276	25.4	46.5	58.2
Wind	0	0	1	8	17	48	0	0	0	0.0	0.0	0.0
Solar and others	0	0	2	119	405	644	96	317	478	419.3	360.4	287.0
Geothermal	86	86	87	165	196	170	72	117	100	77.5	147.5	143.7
Net Imports	14436	14011	17558	17773	17655	16342	-1670	-2345	-2670	-8.6	-11.7	-14.0
Solids	1686	1081	1340	1081	1057	946	-93	-229	-330	-7.9	-17.8	-25.8
Oil	6621	5352	5875	6747	6693	7108	-418	-579	-700	-5.8	-8.0	-9.0
- Crude oil and Feedstocks	6475	5866	6167	6814	6797	7205	-400	-521	-635	-5.5	-7.1	-8.1
- Oil products	146	-514	-291	-67	-104	-97	-18	-59	-65	37.2	131.1	202.0
Natural gas	5170	7283	9807	9594	7858	5108	-1159	-3282	-4634	-10.8	-29.5	-47.6
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	28641	25000	27920	28540	29188	33084	-1123	-1354	-1347	-3.8	-4.4	-3.9
Solids	5969	3967	3090	2806	2791	2687	-93	-229	-330	-3.2	-7.6	-10.9
Oil	8734	6907	7420	7747	7689	7908	-418	-584	-700	-5.1	-7.1	-8.1
Natural gas	8913	9657	12094	11594	9496	6173	-1159	-3544	-5163	-9.1	-27.2	-45.5
Nuclear	3544	3658	3569	3863	3940	8791	0	0	-1	0.0	0.0	0.0
Electricity	958	296	535	351	302	187	0	0	0	0.0	0.0	0.0
Renewable energy forms	523	516	1212	2180	4971	7339	547	3002	4847	33.5	152.5	194.5
as % in Gross Inland Consumption												
Solids	20.8	15.9	11.1	9.8	9.6	8.1	0.1	-0.3	-0.6			
Oil	30.5	27.6	26.6	27.1	26.3	23.9	-0.4	-0.7	-1.1			
Natural gas	31.1	38.6	43.3	40.6	32.5	18.7	-2.4	-10.2	-14.3			
Nuclear	12.4	14.6	12.8	13.5	13.5	26.6	0.5	0.6	1.0			
Renewable energy forms	1.8	2.1	4.3	7.6	17.0	22.2	2.1	10.6	14.9			
Gross Electricity Generation in GWh_e	28431	35185	35749	42459	47797	69149	-3989	-3122	5662	-8.6	-6.1	8.9
Self consumption and grid losses	5478	6295	5979	5862	7188	10209	-500	568	2231	-7.9	8.6	28.0
Fuel Inputs to Thermal Power Generation	4970	5985	5659	5338	5802	5584	-313	-293	1120	-5.5	-4.8	25.1
Solids	2871	2731	1924	1970	1983	1983	-10	-53	-159	-0.5	-2.6	-7.4
Oil (including refinery gas)	440	1052	122	0	0	11	0	-10	11	-100.0	-100.0	108612.7
Gas (including derived gases)	1636	2140	3078	2849	1820	257	-507	-1935	-1695	-15.1	-51.5	-86.8
Biomass & Waste	24	62	534	519	1999	3333	204	1704	2963	64.9	578.1	800.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11679	9226	9831	10550	10615	10817	-449	-632	-782	-4.1	-5.6	-6.7
Refineries	8831	7588	8390	9136	9094	9236	-400	-526	-635	-4.2	-5.5	-6.4
Biofuels and hydrogen production	0	0	0	313	508	620	-26	-65	-101	-7.5	-11.3	-14.0
District heating	1145	471	629	457	499	547	-53	-29	-16	-10.4	-5.6	-2.8
Derived gases, cokeries etc.	1704	1168	813	644	515	415	29	-12	-30	4.8	-2.3	-6.7
Energy Branch Consumption	1402	1162	1581	1677	1831	2174	-29	92	133	-1.7	5.3	6.5
Non-Energy Uses	1569	1586	2282	2638	2628	2653	-1	-1	0	0.0	0.0	0.0
Final Energy Demand	19258	15998	18098	19074	19580	20228	-1090	-1269	-1866	-5.4	-6.1	-8.4
by sector												
Industry	6523	3489	3427	3556	3639	3880	-47	-71	-136	-1.3	-1.9	-3.4
- energy intensive industries	4160	2563	2328	2277	2272	2374	-13	-34	-65	-0.6	-1.5	-2.7
- other industrial sectors	2364	926	1099	1279	1368	1507	-34	-38	-71	-2.6	-2.7	-4.5
Residential	6437	5465	6411	6463	6676	6625	-383	-300	-509	-5.6	-4.3	-7.1
Tertiary	3273	3792	4085	4139	4193	4240	-428	-514	-698	-9.4	-10.9	-14.1
Transport	3024	3252	4175	4916	5072	5481	-232	-384	-523	-4.5	-7.0	-8.7
by fuel												
Solids	2502	793	692	537	444	405	-20	-47	-61	-3.6	-9.6	-13.0
Oil	6009	4173	4792	5260	5214	5423	-224	-389	-581	-4.1	-6.9	-9.7
Gas	5941	6503	7852	7201	6715	5515	-839	-1351	-2475	-10.4	-16.8	-31.0
Electricity	2811	2658	2823	3222	3524	4818	-297	-310	305	-8.4	-8.1	6.8
Heat (from CHP and District Heating)	1570	1440	1297	1324	1439	1459	-71	20	163	-5.1	1.4	12.6
Renewable energy forms	425	430	642	1529	2242	2604	361	808	782	30.9	56.3	42.9
Other	0	0	0	1	2	3	0	1	0	3.8	51.2	-7.6
RES in Gross Final Energy Consumption ^(A)		482	869	1943	4061	5918	548	2318	3617	39.3	133.0	157.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	95.2	76.8	79.0	75.8	68.0	58.3	-7.7	-17.7	-23.6	-9.2	-20.7	-28.8
CO₂ Emissions (energy related)	65.5	53.6	55.0	53.3	46.1	37.4	-4.2	-12.9	-18.8	-7.4	-21.9	-33.4
Power generation/District heating	20.5	21.0	17.3	16.0	11.7	6.0	-1.4	-7.1	-9.0	-8.2	-37.7	-59.8
Energy Branch	2.5	1.5	1.9	2.4	1.2	0.5	-0.1	-1.3	-2.0	-4.3	-52.2	-79.4
Industry	14.7	6.4	6.3	5.5	4.6	3.9	-0.4	-1.2	-2.0	-7.5	-20.0	-33.8
Residential	13.7	9.0	10.5	9.6	9.1	7.4	-0.8	-1.0	-2.2	-8.1	-10.3	-23.0
Tertiary	5.6	6.2	6.7	6.3	5.9	5.1	-0.8	-1.3	-2.1	-10.8	-17.7	-28.6
Transport	8.6	9.4	12.2	13.6	13.6	14.4	-0.6	-1.1	-1.5	-4.5	-7.2	-9.5
CO₂ Emissions (non energy related)	4.7	3.3	3.1	3.3	3.5	3.8	0.0	0.0	-0.1	-0.3	-1.3	-1.5
Non-CO₂ GHGs Emissions	24.9	19.9	20.9	19.2	18.4	17.1	-3.4	-4.8	-4.8	-15.1	-20.6	-21.8
TOTAL GHGs Emissions Index (1990=100)	100.0	80.7	83.0	79.7	71.5	61.2	-8.0	-18.6	-24.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Hungary: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	10.375	10.222	10.098	9.834	9.693	9.484	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	64.1	71.8	88.8	125.6	147.4	191.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	446.6	348.1	314.4	227.2	198.0	172.7	-8.9	-9.2	-7.0	-3.8	-4.4	-3.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.29	2.14	1.97	1.87	1.58	1.13	-0.07	-0.35	-0.50	-3.7	-18.3	-30.7
Import Dependency %	50.4	56.0	62.9	62.3	60.5	49.4	-3.3	-5.0	-5.8			
Total Energy-related Costs ^(B) (in 000 M€05)		13.0	14.3	24.0	28.7	33.9	0.9	1.2	1.4	4.0	4.4	4.2
as % of GDP		18.2	16.1	19.1	19.5	17.7	0.7	0.8	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				1.0	1.3	1.5						
as % of GDP				0.77	0.88	0.77						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	273.5	100.0	80.6	62.1	55.9	48.1	-0.8	-1.1	-1.7	-1.3	-1.9	-3.4
Residential (Energy on Private Income, index 2000=100)	121.1	100.0	86.0	61.8	54.6	42.0	-3.7	-2.5	-3.2	-5.6	-4.3	-7.1
Tertiary (Energy on Value added, index 2000=100)	85.5	100.0	85.5	62.1	53.6	41.6	-6.4	-6.6	-6.8	-9.4	-10.9	-14.1
Passenger transport (toe/Mpkm)	22.6	28.0	34.5	33.9	32.3	30.6	-0.9	-1.3	-1.2	-2.5	-3.8	-3.9
Freight transport (toe/Mtkm)	34.4	36.4	39.3	37.2	34.9	32.3	-1.9	-3.2	-4.6	-4.8	-8.4	-12.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.39	0.33	0.26	0.17	0.07	0.00	-0.09	-0.11	-0.9	-34.9	-63.0
Final energy demand (t of CO ₂ /toe)	2.21	1.94	1.97	1.83	1.70	1.52	-0.03	-0.11	-0.22	-1.9	-6.3	-12.8
Industry	2.25	1.85	1.84	1.54	1.27	1.02	-0.10	-0.29	-0.47	-6.3	-18.4	-31.5
Residential	2.13	1.64	1.64	1.48	1.36	1.11	-0.04	-0.09	-0.23	-2.6	-6.2	-17.1
Tertiary	1.70	1.64	1.64	1.52	1.41	1.21	-0.02	-0.12	-0.25	-1.6	-7.6	-16.9
Transport	2.84	2.90	2.92	2.77	2.68	2.62	0.00	0.00	-0.02	0.0	-0.2	-0.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.9	4.7	9.9	20.1	28.0	3.2	12.0	17.9			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.7	9.0	10.3	-0.2	-0.4	-0.6			
Gross Electricity generation by source (in GWh_e)												
	35185	35749	42459	47797	69149	69149	-3989	-3122	5662	-8.6	-6.1	8.9
Nuclear energy	14177	13832	14971	15271	37283	37283	0	0	-2	0.0	0.0	0.0
Solids	8350	5838	7662	10372	11782	11782	-614	1422	2338	-7.4	15.9	24.8
Oil (including refinery gas)	4243	497	0	0	67	67	-98	-574	67	-100.0	-100.0	143996.4
Gas (including derived gases)	8040	13021	16747	12307	1800	1800	-4332	-11676	-12153	-20.5	-48.7	-87.1
Biomass-waste	197	2348	2782	9428	17380	17380	1050	7703	15411	60.7	446.7	782.7
Hydro (pumping excluded)	178	203	195	196	199	199	4	4	0	2.1	1.9	0.0
Wind	0	10	92	201	561	561	0	0	0	0.0	0.0	0.0
Solar	0	0	11	22	76	76	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	7789	8587	9729	10399	12942	12942	-951	295	1382	-8.9	2.9	12.0
<u>Nuclear energy</u>	1708	1730	1781	1794	4322	4322	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	45	64	161	312	884	884	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	44	46	61	71	143	143	0	0	0	0.0	0.0	0.0
Wind	1	18	86	211	639	639	0	0	0	0.0	0.0	0.0
Solar	0	0	14	30	102	102	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	6036	6793	7787	8293	7736	7736	-951	295	1382	-10.9	3.7	21.8
of which cogeneration units	1915	2391	2567	3321	2519	2519	-573	705	288	-18.2	27.0	12.9
Solids fired	1683	1592	1142	1258	1277	1277	-512	153	204	-31.0	13.9	19.0
Gas fired	3516	4572	5828	4802	3071	3071	-669	-1433	-1546	-10.3	-23.0	-33.5
Oil fired	762	313	246	198	103	103	-11	-36	-56	-4.4	-15.3	-35.2
Biomass-waste fired	76	316	571	2036	3285	3285	242	1611	2781	73.4	379.4	551.0
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	47.3	44.1	47.4	48.9	56.5	56.5	0.1	-6.0	-3.1			
Efficiency of gross thermal power generation (%)	29.9	33.0	43.8	47.6	47.8	47.8	-3.7	-2.1	-1.1			
% of gross electricity from CHP	24.5	28.3	27.9	30.9	22.7	22.7	-3.0	-1.0	1.5			
Carbon free gross electricity generation (%)	41.4	45.9	42.5	52.6	80.3	80.3	5.9	18.4	17.1			
- nuclear	40.3	38.7	35.3	31.9	53.9	53.9	3.0	2.0	-4.8			
- renewable energy forms	1.1	7.2	7.3	20.6	26.3	26.3	2.9	16.4	21.9			
Transport sector												
Passenger transport activity (Gpkm)												
	82.0	80.0	80.3	93.7	101.6	117.7	-0.9	-1.3	-1.8	-0.9	-1.3	-1.5
Public road transport	19.3	18.7	18.2	16.8	16.2	15.2	0.2	0.3	0.3	1.4	1.7	1.8
Private cars and motorcycles	47.3	46.6	47.2	60.6	68.1	82.3	-1.1	-1.6	-2.2	-1.9	-2.3	-2.6
Rail	13.9	12.3	12.2	12.2	12.4	12.8	0.2	0.3	0.5	1.3	2.1	3.6
Aviation	1.6	2.4	2.7	4.0	4.9	7.4	-0.1	-0.2	-0.4	-3.0	-4.2	-4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	34.0	27.9	35.8	46.9	51.3	58.2	-0.8	-1.2	-1.5	-1.7	-2.2	-2.5
Trucks	15.2	19.1	25.2	34.6	38.2	43.9	-1.2	-1.7	-2.1	-3.4	-4.2	-4.6
Rail	16.8	8.8	8.6	9.5	10.1	10.9	0.4	0.5	0.6	4.0	5.0	5.8
Inland navigation	2.0	0.0	2.1	2.7	3.0	3.5	0.0	0.0	0.0	0.9	1.1	1.0
Energy demand in transport (ktoe)												
	3024	3252	4175	4916	5072	5481	-232	-384	-523	-4.5	-7.0	-8.7
Public road transport	160	149	167	138	120	93	-2	-7	-8	-1.3	-5.6	-8.0
Private cars and motorcycles	1482	1824	2321	2691	2788	3085	-96	-141	-135	-3.4	-4.8	-4.2
Trucks	938	886	1297	1633	1681	1803	-123	-211	-318	-7.0	-11.2	-15.0
Rail	271	175	159	144	137	100	1	0	-2	1.0	-0.1	-2.4
Aviation	164	219	230	309	345	400	-13	-24	-60	-3.9	-6.5	-13.0
Inland navigation	9	0	1	1	1	2	0	0	0	0.1	-0.4	-1.5

Source: PRIMES

Ireland: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	3353	4020	2175	1650	1976	2465	2943	3442	3683	-4.2	-1.0	4.1	2.3
Solids	1312	1606	959	789	756	739	650	637	631	-3.1	-2.3	-1.5	-0.3
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	496	467	441	447	444	-6.5	-6.4	-1.2	0.1
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	724	1260	1853	2358	2608	4.4	10.9	9.9	3.5
Hydro	60	61	73	54	79	80	82	83	83	2.0	0.8	0.4	0.2
Biomass & Waste	108	102	164	250	375	469	587	724	813	4.3	8.6	4.6	3.3
Wind	0	1	21	96	252	604	875	1227	1340		28.2	13.3	4.4
Solar and others	0	0	0	0	18	106	309	323	371	14.8	57.2	33.2	1.8
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-7.3	4.1	1.9
Net Imports	7074	7604	12234	13620	14884	14389	13363	12931	12704	5.6	2.0	-1.1	-0.5
Solids	2064	1823	1789	1969	2064	1132	689	780	780	-1.4	1.4	-5.8	-3.7
Oil	5010	5698	7959	8466	9433	8994	8663	8482	8086	4.7	1.7	-0.8	-0.7
- Crude oil and Feedstocks	2018	2260	3002	3297	3291	3188	3105	3050	2956	4.1	0.9	-0.6	-0.5
- Oil products	2992	3438	4957	5168	6142	5806	5558	5432	5131	5.2	2.2	-1.0	-0.8
Natural gas	0	85	2478	3010	3238	3051	2877	2920	2899		2.7	-1.2	0.1
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	10225	10844	14319	15121	16740	16727	16174	16237	16250	3.4	1.6	-0.3	0.0
Solids	3416	2775	2711	2685	2820	2746	1781	1326	1411	-2.3	0.4	-4.5	-2.3
Oil	4768	5571	7906	8390	9314	8867	8531	8346	7949	5.2	1.7	-0.9	-0.7
Natural gas	1873	2334	3436	3470	3734	3518	3318	3368	3343	6.3	0.8	-1.2	0.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	792	1510	2449	3095	3435	4.4	11.9	11.9	3.4
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	16.8	16.4	11.0	8.2	8.7				
Oil	46.6	51.4	55.2	55.5	55.6	53.0	52.7	51.4	48.9				
Natural gas	18.3	21.5	24.0	22.9	22.3	21.0	20.5	20.7	20.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.7	9.0	15.1	19.1	21.1				
Gross Electricity Generation in GWh_e	14226	17601	23669	24992	28038	30650	31235	36931	40652	5.2	1.7	1.1	2.7
Self consumption and grid losses	2263	2665	3458	3870	3572	3784	3421	3806	4223	4.3	0.3	-0.4	2.1
Fuel Inputs to Thermal Power Generation	3019	3711	4792	4747	4422	4108	3345	3323	3652	4.7	-0.8	-2.8	0.9
Solids	1839	2028	1925	1903	2179	2183	1304	926	1059	0.5	1.3	-5.0	-2.1
Oil (including refinery gas)	339	622	1019	774	155	0	0	0	0	11.6	-17.2		
Gas (including derived gases)	841	1060	1825	2040	2012	1831	1711	1945	2104	8.1	1.0	-1.6	2.1
Biomass & Waste	0	0	24	30	76	95	331	453	489		12.4	15.9	4.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	1939	2429	3481	3472	3510	3535	3636	3623	3562	6.0	0.1	0.4	-0.2
Refineries	1742	2263	3310	3336	3291	3188	3105	3050	2956	6.6	-0.1	-0.6	-0.5
Biofuels and hydrogen production	0	0	0	1	138	286	490	548	591			13.5	1.9
District heating	0	0	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	197	167	171	135	82	60	41	25	16	-1.4	-7.1	-6.7	-9.1
Energy Branch Consumption	168	185	246	380	337	330	293	278	282	3.9	3.2	-1.4	-0.4
Non-Energy Uses	617	545	546	299	411	457	492	523	550	-1.2	-2.8	1.8	1.1
Final Energy Demand	7355	7903	10678	12346	13217	13340	13267	13426	13275	3.8	2.2	0.0	0.0
by sector													
Industry	1744	1851	2344	2484	2714	2773	2812	2909	3037	3.0	1.5	0.4	0.8
- energy intensive industries	869	879	1170	1231	1383	1448	1492	1542	1606	3.0	1.7	0.8	0.7
- other industrial sectors	875	972	1173	1253	1331	1324	1320	1367	1430	3.0	1.3	-0.1	0.8
Residential	2404	2208	2509	2923	3015	2970	2847	2773	2704	0.4	1.9	-0.6	-0.5
Tertiary	1222	1502	1821	1958	1874	1812	1783	1765	1725	4.1	0.3	-0.5	-0.3
Transport	1985	2343	4005	4981	5614	5785	5826	5979	5810	7.3	3.4	0.4	0.0
by fuel													
Solids	1784	933	699	704	625	549	466	389	341	-9.0	-1.1	-2.9	-3.1
Oil	3874	4796	6894	7990	8422	8237	7938	7748	7338	5.9	2.0	-0.6	-0.8
Gas	568	796	1201	1337	1641	1497	1385	1211	1050	7.8	3.2	-1.7	-2.7
Electricity	1020	1277	1744	2094	2170	2383	2474	2940	3233	5.5	2.2	1.3	2.7
Heat (from CHP and District Heating)	0	0	0	0	1	1	2	2	2			8.7	-0.9
Renewable energy forms	108	102	141	221	357	672	1001	1134	1308	2.7	9.8	10.8	2.7
Other	0	0	0	0	1	1	2	2	3			14.9	2.8
RES in Gross Final Energy Consumption ^(A)			245	382	754	1440	2304	2923	3248		11.9	11.8	3.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1		69.4	75.9	75.0	69.9	63.6	61.4	60.6	2.1	0.8	-1.6	-0.5
CO₂ Emissions (energy related)	30.9	33.0	42.1	45.7	46.4	44.2	38.9	36.6	35.7	3.1	1.0	-1.7	-0.8
Power generation/District heating	10.4	12.6	15.2	14.8	13.9	13.0	9.3	8.3	9.2	3.9	-0.9	-4.0	0.0
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.5	0.5	0.4	0.4	4.0	5.7	-2.1	-0.4
Industry	4.0	3.9	4.8	5.2	5.5	5.5	5.3	5.0	4.8	1.8	1.4	-0.5	-0.9
Residential	7.5	6.0	6.1	6.6	6.6	5.9	5.4	4.6	3.9	-2.1	0.8	-2.0	-3.1
Tertiary	2.9	3.4	3.8	3.6	3.4	2.8	2.4	1.9	1.6	2.8	-1.1	-3.4	-3.8
Transport	5.9	6.9	11.9	14.8	16.4	16.5	16.1	16.4	15.7	7.3	3.2	-0.2	-0.3
CO₂ Emissions (non energy related)	2.5	2.5	3.0	4.4	5.1	5.6	6.0	6.5	6.9	2.1	5.5	1.6	1.4
Non-CO₂ GHGs Emissions	22.8		24.3	25.8	23.5	20.2	18.6	18.3	18.0	0.6	-0.3	-2.3	-0.4
TOTAL GHGs Emissions Index (1990=100)	100.0		123.6	135.2	133.7	124.5	113.2	109.4	108.0				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Ireland: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	82.3	68.7	56.5	49.4	44.5	-3.6	-3.2	-3.7	-2.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	3.04	2.94	3.02	2.77	2.64	2.40	2.26	2.20	-0.3	-0.6	-1.4	-0.9
Import Dependency %	69.1	69.4	84.5	89.5	88.3	85.4	82.0	79.0	77.5				
Total Energy-related Costs ^(B) (in 000 M€05)			9.9	11.9	15.6	18.1	21.0	22.7	24.0		4.6	3.0	1.4
as % of GDP			7.9	7.4	7.7	7.4	7.3	6.9	6.6				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	150.8	147.3	100.0	81.3	69.3	58.9	51.0	46.4	44.0	-4.0	-3.6	-3.0	-1.5
Residential (Energy on Private Income, index 2000=100)	161.8	125.8	100.0	96.4	82.3	69.4	57.8	49.8	44.1	-4.7	-1.9	-3.5	-2.7
Tertiary (Energy on Value added, index 2000=100)	127.2	118.2	100.0	85.8	65.3	53.1	44.6	38.3	33.5	-2.4	-4.2	-3.8	-2.8
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.5	54.4	48.9	46.0	40.9	-0.2	-0.8	-1.9	-1.8
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	100.9	91.4	85.0	81.4	78.9	2.8	-1.5	-1.7	-0.7
Carbon Intensity Indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.71	0.64	0.59	0.50	0.42	0.30	0.22	0.23	-1.3	-2.6	-5.0	-2.6
Final energy demand (t of CO ₂ /toe)	2.75	2.55	2.49	2.45	2.41	2.30	2.20	2.07	1.96	-1.0	-0.3	-0.9	-1.1
Industry	2.31	2.09	2.05	2.08	2.04	1.97	1.88	1.72	1.59	-1.2	0.0	-0.8	-1.7
Residential	3.11	2.71	2.42	2.27	2.18	1.99	1.90	1.65	1.46	-2.5	-1.0	-1.4	-2.6
Tertiary	2.34	2.28	2.07	1.83	1.79	1.52	1.33	1.09	0.94	-1.2	-1.4	-2.9	-3.5
Transport	2.96	2.96	2.97	2.98	2.92	2.85	2.76	2.74	2.70	0.1	-0.2	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			2.2	3.0	5.6	10.5	17.0	21.2	23.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.9	8.5	9.3	10.0				
Gross Electricity generation by source (in GWh)													
			23669	24992	28038	30650	31235	36931	40652		1.7	1.1	2.7
Nuclear energy			0	0	0	0	0	0	0				
Solids			8737	8537	10511	10497	6238	4488	5567		1.9	-5.1	-1.1
Oil (including refinery gas)			4516	3390	670	0	0	0	0		-17.4		
Gas (including derived gases)			9231	11197	12668	11752	11740	13840	14534		3.2	-0.8	2.2
Biomass-waste			96	125	339	430	1421	2438	3002		13.4	15.4	7.8
Hydro (pumping excluded)			846	631	916	933	949	964	969		0.8	0.4	0.2
Wind			244	1112	2930	7027	10172	14268	15585		28.2	13.3	4.4
Solar			0	0	5	11	18	27	38			13.7	7.7
Geothermal and other renewables			0	0	0	0	697	906	956				3.2
Net Generation Capacity in MW_e			4627	6052	8289	8369	9879	12417	13764		6.0	1.8	3.4
<u>Nuclear energy</u>			0	0	0	0	0	0	0				
<u>Renewable energy</u>			343	714	1690	2823	4213	5561	6092		17.3	9.6	3.8
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	2555	3562	4778	5254		28.5	9.5	4.0
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	362	470	496				3.2
<u>Thermal power</u>			4284	5338	6598	5545	5666	6856	7672		4.4	-1.5	3.1
of which cogeneration units			108	561	403	563	622	1177	1334		14.1	4.4	7.9
Solids fired			1282	1367	1361	1335	1314	1373	1624		0.6	-0.4	2.1
Gas fired			1974	2937	4116	3989	3984	4918	5379		7.6	-0.3	3.0
Oil fired			1010	995	1006	92	64	9	9		0.0	-24.1	-17.9
Biomass-waste fired			18	39	115	128	305	556	660		20.3	10.2	8.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			55.2	44.0	36.6	39.9	34.9	33.1	32.9				
Efficiency of gross thermal power generation (%)			40.5	42.1	47.0	47.5	49.9	53.7	54.4				
% of gross electricity from CHP			1.1	0.9	6.3	9.1	13.4	9.6	8.0				
Carbon free gross electricity generation (%)			5.0	7.5	14.9	27.4	42.4	50.4	50.6				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	14.9	27.4	42.4	50.4	50.6				
Transport sector													
Passenger transport activity (Gpkm)	22.0	28.3	37.6	45.4	54.2	61.6	68.9	75.5	80.1	5.5	3.7	2.4	1.5
Public road transport	3.9	5.2	6.1	6.7	7.3	7.6	8.2	8.5	8.9	4.7	1.8	1.1	0.9
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.5	35.9	40.0	43.4	45.0	5.3	4.1	2.4	1.2
Rail	1.2	1.3	1.4	1.8	2.4	2.8	3.4	4.0	4.8	1.3	5.5	3.6	3.6
Aviation	3.2	5.1	7.9	9.6	11.7	13.9	15.9	17.9	19.7	9.5	4.0	3.1	2.2
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.6	1.6	1.7	0.1	2.0	1.6	0.8
Freight transport activity (Gtkm)	5.9	6.4	13.3	18.8	23.6	26.6	28.9	30.8	32.1	8.5	5.9	2.0	1.1
Trucks	5.1	5.5	12.3	17.9	22.6	25.4	27.5	29.3	30.4	9.2	6.3	2.0	1.0
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.5	0.5	-1.8	-3.3	1.9	1.2
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.1	1.2	9.3	2.1	3.1	2.4
Energy demand in transport (ktoe)													
	1985	2343	4005	4981	5614	5785	5826	5979	5810	7.3	3.4	0.4	0.0
Public road transport	58	76	99	101	98	91	87	85	89	5.5	-0.2	-1.2	0.2
Private cars and motorcycles	993	1146	1695	1915	2087	2102	2081	2129	2108	5.5	2.1	0.0	0.1
Trucks	495	653	1532	2066	2356	2399	2417	2472	2508	12.0	4.4	0.3	0.4
Rail	48	50	42	44	51	50	39	39	28	-1.4	2.0	-2.6	-3.2
Aviation	365	390	613	836	1003	1121	1178	1229	1051	5.3	5.0	1.6	-1.1
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.8	0.9

Source: PRIMES

Ireland: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	3353	2175	1650	2465	2943	3683	16	272	705	0.7	10.2	23.7
Solids	1312	959	789	739	650	631	-7	-81	-79	-1.0	-11.1	-11.1
Oil	0	0	0	0	0	0	0	0	0	-199.0	-166.1	-30.7
Natural gas	1873	958	461	467	441	444	-70	-80	-56	-13.0	-15.3	-11.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Renewable energy sources	168	258	401	1260	1853	2608	94	433	839	8.0	30.5	47.5
Hydro	60	73	54	80	82	83	3	2	0	3.9	2.0	0.0
Biomass & Waste	108	164	250	469	587	813	0	0	49	0.0	0.0	6.4
Wind	0	21	96	604	875	1340	24	212	531	4.1	31.9	65.7
Solar and others	0	0	0	106	309	371	67	220	259	172.4	246.1	232.2
Geothermal	0	0	0	0	0	0	0	0	0	27.3	64.0	104.5
Net Imports	7074	12234	13620	14389	13363	12704	-1245	-2338	-3021	-8.0	-14.9	-19.2
Solids	2064	1789	1969	2007	1132	780	-236	-1270	-1223	-10.5	-52.9	-61.1
Oil	5010	7959	8466	8994	8663	8086	-668	-804	-1444	-6.9	-8.5	-15.2
- Crude oil and Feedstocks	2018	3002	3297	3188	3105	2956	-232	-255	-386	-6.8	-7.6	-11.5
- Oil products	2992	4957	5168	5806	5558	5131	-435	-549	-1058	-7.0	-9.0	-17.1
Natural gas	0	2478	3010	3051	2877	2899	-457	-519	-736	-13.0	-15.3	-20.3
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	10225	14319	15121	16727	16174	16250	-1229	-2066	-2316	-6.8	-11.3	-12.5
Solids	3416	2711	2685	2746	1781	1411	-243	-1351	-1301	-8.1	-43.1	-48.0
Oil	4768	7906	8390	8867	8531	7949	-668	-804	-1444	-7.0	-8.6	-15.4
Natural gas	1873	3436	3470	3518	3318	3343	-527	-599	-792	-13.0	-15.3	-19.2
Nuclear	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	0	8	176	86	95	112	0	0	0	0.0	0.0	0.0
Renewable energy forms	168	258	401	1510	2449	3435	209	688	1222	16.1	39.1	55.2
as % in Gross Inland Consumption												
Solids	33.4	18.9	17.8	16.4	11.0	8.7	-0.2	-6.2	-5.9			
Oil	46.6	55.2	55.5	53.0	52.7	48.9	-0.1	1.6	-1.7			
Natural gas	18.3	24.0	22.9	21.0	20.5	20.6	-1.5	-1.0	-1.7			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.6	1.8	2.6	9.0	15.1	21.1	1.8	5.5	9.2			
Gross Electricity Generation in GWh_e	14226	23669	24992	30650	31235	40652	-3764	-4893	2180	-10.9	-13.5	5.7
Self consumption and grid losses	2263	3458	3870	3784	3421	4223	-379	-919	-147	-9.1	-21.2	-3.4
Fuel Inputs to Thermal Power Generation	3019	4792	4747	4108	3345	3652	-607	-1365	-829	-12.9	-29.0	-18.5
Solids	1839	1925	1903	2183	1304	1059	-188	-1283	-1216	-7.9	-49.6	-53.4
Oil (including refinery gas)	339	1019	774	0	0	0	-61	-28	0	-100.0	-100.0	-93.2
Gas (including derived gases)	841	1825	2040	1831	1711	2104	-360	-261	116	-16.4	-13.2	5.9
Biomass & Waste	0	24	30	95	331	489	2	206	270	2.5	166.3	123.4
Geothermal heat	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Input to other conversion processes	1939	3481	3472	3535	3636	3562	-261	-318	-481	-6.9	-8.0	-11.9
Refineries	1742	3310	3336	3188	3105	2956	-232	-255	-386	-6.8	-7.6	-11.5
Biofuels and hydrogen production	0	0	1	286	490	591	-20	-54	-86	-6.4	-9.9	-12.7
District heating	0	0	0	0	0	0	0	0	0	0	0	0
Derived gases, cokeries etc.	197	171	135	60	41	16	-9	-9	-9	-13.4	-18.8	-36.5
Energy Branch Consumption	168	246	380	330	293	282	-16	-56	-50	-4.7	-16.1	-15.1
Non-Energy Uses	617	546	299	457	492	550	0	0	0	0.0	0.0	0.0
Final Energy Demand	7355	10678	12346	13340	13267	13275	-908	-1241	-1812	-6.4	-8.6	-12.0
by sector												
Industry	1744	2344	2484	2773	2812	3037	-87	-141	-129	-3.0	-4.8	-4.1
- energy intensive industries	869	1170	1231	1448	1492	1606	-23	-37	-21	-1.5	-2.4	-1.3
- other industrial sectors	875	1173	1253	1324	1320	1430	-64	-104	-108	-4.6	-7.3	-7.0
Residential	2404	2509	2923	2970	2847	2704	-211	-308	-448	-6.6	-9.8	-14.2
Tertiary	1222	1821	1958	1812	1783	1725	-387	-425	-558	-17.6	-19.2	-24.4
Transport	1985	4005	4981	5785	5826	5810	-223	-367	-678	-3.7	-5.9	-10.4
by fuel												
Solids	1784	699	704	549	466	341	-55	-67	-85	-9.1	-12.6	-19.9
Oil	3874	6894	7990	8237	7938	7338	-473	-680	-1370	-5.4	-7.9	-15.7
Gas	568	1201	1337	1497	1385	1050	-274	-404	-939	-15.5	-22.6	-47.2
Electricity	1020	1744	2094	2383	2474	3233	-290	-341	202	-10.9	-12.1	6.7
Heat (from CHP and District Heating)	0	0	0	1	2	2	0	1	0	13.1	37.2	20.6
Renewable energy forms	108	141	221	672	1001	1308	184	250	379	37.6	33.2	40.8
Other	0	0	0	1	2	3	0	0	0	6.9	-0.8	-6.0
RES in Gross Final Energy Consumption ^(A)		245	382	1440	2304	3248	215	668	1204	17.6	40.9	58.9
TOTAL GHGs Emissions (Mt of CO₂ eq.)	56.1	69.4	75.9	69.9	63.6	60.6	-6.8	-12.6	-15.0	-8.9	-16.5	-19.8
CO₂ Emissions (energy related)	30.9	42.1	45.7	44.2	38.9	35.7	-4.2	-9.1	-11.3	-8.6	-19.0	-24.0
Power generation/District heating	10.4	15.2	14.8	13.0	9.3	9.2	-1.8	-5.8	-4.5	-12.0	-38.4	-33.0
Energy Branch	0.2	0.3	0.6	0.5	0.5	0.4	-0.1	-0.1	-0.1	-16.0	-12.8	-16.8
Industry	4.0	4.8	5.2	5.5	5.3	4.8	-0.3	-0.5	-1.0	-5.4	-8.3	-17.3
Residential	7.5	6.1	6.6	5.9	5.4	3.9	-0.7	-0.8	-1.9	-10.4	-13.3	-32.6
Tertiary	2.9	3.8	3.6	2.8	2.4	1.6	-0.7	-0.9	-1.7	-19.4	-28.2	-51.7
Transport	5.9	11.9	14.8	16.5	16.1	15.7	-0.6	-1.0	-2.0	-3.7	-6.0	-11.4
CO₂ Emissions (non energy related)	2.5	3.0	4.4	5.6	6.0	6.9	-0.1	-0.1	-0.1	-1.0	-1.1	-0.9
Non-CO₂ GHGs Emissions	22.8	24.3	25.8	20.2	18.6	18.0	-2.6	-3.4	-3.6	-11.4	-15.5	-16.8
TOTAL GHGs Emissions Index (1990=100)	100.0	123.6	135.2	124.5	113.2	108.0	-12.1	-22.4	-26.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Ireland: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.507	3.778	4.109	4.555	4.756	5.066	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	62.0	125.1	161.2	243.6	286.2	365.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	164.8	114.5	93.8	68.7	56.5	44.5	-5.0	-7.2	-6.3	-6.8	-11.3	-12.5
Carbon intensity (t of CO ₂ /toe of GIC)	3.02	2.94	3.02	2.64	2.40	2.20	-0.05	-0.23	-0.33	-1.9	-8.6	-13.2
Import Dependency %	69.1	84.5	89.5	85.4	82.0	77.5	-1.1	-3.5	-6.6			
Total Energy-related Costs ^(B) (in 000 M€05)		9.9	11.9	18.1	21.0	24.0	0.6	0.9	0.8	3.2	4.5	3.6
as % of GDP		7.9	7.4	7.4	7.3	6.6	0.2	0.3	0.2			
Total Compliance Costs ^(D) (in 000 M€05)				0.6	1.0	0.9						
as % of GDP				0.25	0.34	0.25						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	150.8	100.0	81.3	58.9	51.0	44.0	-1.8	-2.6	-1.9	-3.0	-4.8	-4.1
Residential (Energy on Private Income, index 2000=100)	161.8	100.0	96.4	69.4	57.8	44.1	-4.9	-6.3	-7.3	-6.6	-9.8	-14.2
Tertiary (Energy on Value added, index 2000=100)	127.2	100.0	85.8	53.1	44.6	33.5	-11.3	-10.6	-10.8	-17.6	-19.2	-24.4
Passenger transport (toe/Mpkm)	66.2	64.8	63.6	54.4	48.9	40.9	-1.1	-1.7	-3.6	-2.1	-3.3	-8.1
Freight transport (toe/Mtkm)	89.6	117.7	111.2	91.4	85.0	78.9	-2.7	-5.0	-8.4	-2.9	-5.6	-9.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.73	0.64	0.59	0.42	0.30	0.23	-0.01	-0.12	-0.13	-1.3	-28.8	-36.6
Final energy demand (t of CO ₂ /toe)	2.75	2.49	2.45	2.30	2.20	1.96	-0.01	-0.04	-0.21	-0.6	-1.7	-9.5
Industry	2.31	2.05	2.08	1.97	1.88	1.59	-0.05	-0.07	-0.26	-2.4	-3.7	-13.8
Residential	3.11	2.42	2.27	1.99	1.90	1.46	-0.08	-0.08	-0.40	-4.0	-3.9	-21.5
Tertiary	2.34	2.07	1.83	1.52	1.33	0.94	-0.03	-0.17	-0.53	-2.2	-11.1	-36.2
Transport	2.96	2.97	2.98	2.85	2.76	2.70	0.00	0.00	-0.03	0.0	-0.1	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		2.2	3.0	10.5	17.0	23.8	2.2	6.0	10.6			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.9	8.5	10.0	-0.1	-0.3	-0.5			
Gross Electricity generation by source (in GWh_e)												
	23669	24992	30650	31235	40652	4652	-3764	-4893	2180	-10.9	-13.5	5.7
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	8737	8537	10497	6238	5667	5667	-1100	-6664	-6949	-9.5	-51.7	-55.5
Oil (including refinery gas)	4516	3390	0	0	0	0	-239	-126	0	-100.0	-100.0	-94.9
Gas (including derived gases)	9231	11197	11752	11740	14534	14534	-2744	-1778	341	-18.9	-13.2	2.4
Biomass-waste	96	125	430	1421	3002	9	856	2037	0	2.1	151.6	211.2
Hydro (pumping excluded)	846	631	933	949	969	35	19	0	0	3.9	2.0	0.0
Wind	244	1112	7027	10172	15585	275	2460	6179	0	4.1	31.9	65.7
Solar	0	0	11	18	38	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	697	956	0	340	572	0		95.1	148.5
Net Generation Capacity in MW_e												
	4627	6052	8369	9879	13764	687	-687	-35	2508	-7.6	-0.4	22.3
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	343	714	2823	4213	6092	119	970	2140	0	4.4	29.9	54.2
Hydro (pumping excluded)	223	232	239	242	242	0	0	0	0	0.0	0.0	0.0
Wind	118	480	2555	3562	5254	119	793	1844	0	4.9	28.7	54.1
Solar	2	2	29	48	100	0	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	362	496	0	176	297	0		95.1	148.5
<u>Thermal power</u>	4284	5338	5545	5666	7672	-806	-1004	368	0	-12.7	-15.1	5.0
of which cogeneration units	108	561	563	622	1334	149	-258	292	0	35.9	-29.3	28.1
Solids fired	1282	1367	1335	1314	1624	-117	-317	-740	0	-8.1	-19.5	-31.3
Gas fired	1974	2937	3989	3984	5379	-674	-819	645	0	-14.5	-17.0	13.6
Oil fired	1010	995	92	64	9	-24	-26	-24	0	-20.3	-28.9	-73.0
Biomass-waste fired	18	39	128	305	660	9	158	487	0	7.6	107.4	281.5
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	55.2	44.0	39.9	34.9	32.9	32.9	-1.5	-4.9	-4.7			
Efficiency of gross thermal power generation (%)	40.5	42.1	47.5	49.9	54.4	54.4	-1.3	0.4	1.3			
% of gross electricity from CHP	1.1	0.9	9.1	13.4	8.0	8.0	1.6	3.8	-2.7			
Carbon free gross electricity generation (%)	5.0	7.5	27.4	42.4	50.6	50.6	3.9	15.9	20.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	5.0	7.5	27.4	42.4	50.6	50.6	3.9	15.9	20.0			
Transport sector												
Passenger transport activity (Gpkm)												
	22.0	37.6	45.4	61.6	68.9	80.1	-0.6	-0.9	-1.2	-1.0	-1.4	-1.5
Public road transport	3.9	6.1	6.7	7.6	8.2	8.9	0.2	0.2	0.2	2.0	2.5	2.8
Private cars and motorcycles	12.6	21.1	26.0	35.9	40.0	45.0	-0.5	-0.7	-0.8	-1.3	-1.6	-1.8
Rail	1.2	1.4	1.8	2.8	3.4	4.8	0.1	0.1	0.2	2.0	2.9	4.1
Aviation	3.2	7.9	9.6	13.9	15.9	19.7	-0.4	-0.6	-0.8	-2.5	-3.5	-3.8
Inland navigation	1.1	1.1	1.2	1.4	1.6	1.7	0.0	0.0	0.0	-0.5	-0.6	-0.8
Freight transport activity (Gtkm)												
	5.9	13.3	18.8	26.6	28.9	32.1	-0.5	-0.6	-0.7	-1.8	-2.2	-2.2
Trucks	5.1	12.3	17.9	25.4	27.5	30.4	-0.5	-0.7	-0.8	-2.0	-2.5	-2.6
Rail	0.6	0.5	0.3	0.4	0.4	0.5	0.0	0.0	0.0	5.8	7.2	7.9
Inland navigation	0.2	0.6	0.6	0.8	0.9	1.2	0.0	0.0	0.0	2.4	3.0	3.1
Energy demand in transport (ktoe)												
	1985	4005	4981	5785	5826	5810	-223	-367	-678	-3.7	-5.9	-10.4
Public road transport	58	99	101	91	87	89	-1	-4	-6	-0.6	-4.6	-6.3
Private cars and motorcycles	993	1695	1915	2102	2081	2108	-66	-91	-70	-3.0	-4.2	-3.2
Trucks	495	1532	2066	2399	2417	2508	-118	-204	-335	-4.7	-7.8	-11.8
Rail	48	42	44	50	39	28	1	0	0	1.3	0.0	-1.1
Aviation	365	613	836	1121	1178	1051	-39	-68	-267	-3.4	-5.4	-20.3
Inland navigation	26	25	18	22	24	26	0	0	-1	-0.2	-0.8	-1.9

Source: PRIMES

Italy: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
										Annual % Change				
Primary Production	25537	29408	27099	28044	30990	32867	35807	38471	41462	0.6	1.4	1.5	1.5	
Solids	218	44	4	60	0	0	0	0	0	-33.8				
Oil	4745	5378	4782	6475	5803	5813	5693	5589	5500	0.1	2.0	-0.2	-0.3	
Natural gas	14030	16347	13622	9886	10904	10000	8000	8000	8000	-0.3	-2.2	-3.0	0.0	
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	6544	7640	8691	11622	14283	17054	22114	24882	27962	2.9	5.1	4.5	2.4	
Hydro	2719	3249	3812	3101	3243	3194	3170	3154	3154	3.4	-1.6	-0.2	-0.1	
Biomass & Waste	849	1215	1716	3505	5257	6571	8214	9751	11230	7.3	11.8	4.6	3.2	
Wind	0	1	48	202	464	864	1522	2082	2407	73.3	25.4	12.6	4.7	
Solar and others	5	8	12	23	114	1111	3800	4358	5409	9.2	24.9	42.0	3.6	
Geothermal	2971	3167	3103	4791	5204	5314	5408	5537	5761	0.4	5.3	0.4	0.6	
Net Imports	132060	134651	152953	160475	162932	163816	163388	163291	163740	1.5	0.6	0.0	0.0	
Solids	13792	12987	13188	16366	17027	17590	17634	17834	18202	-0.4	2.6	0.4	0.3	
Oil	89885	89684	88458	79421	73855	74197	71696	69640	68436	-0.2	-1.8	-0.3	-0.5	
- Crude oil and Feedstocks	84284	82558	90244	94404	89597	89980	88553	87375	86691	0.7	-0.1	-0.1	-0.2	
- Oil products	5602	7126	-1786	-14983	-15743	-15783	-16857	-17735	-18255					
Natural gas	25311	28530	47008	59840	67020	66000	65360	66331	66359	6.4	3.6	-0.3	0.2	
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Gross Inland Consumption	153098	161262	172537	186766	190383	193096	195643	198229	201702	1.2	1.0	0.3	0.3	
Solids	14621	12272	12659	16477	17027	17590	17634	17834	18202	-1.4	3.0	0.4	0.3	
Oil	89860	93248	88947	83169	76119	76423	73837	71695	70436	-0.1	-1.5	-0.3	-0.5	
Natural gas	39001	44652	57940	70651	77924	76000	73360	74331	74759	4.0	3.0	-0.6	0.2	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3	
Renewable energy forms	6636	7871	9177	12243	15521	19134	26955	30629	34581	3.3	5.4	5.7	2.5	
as % in Gross Inland Consumption														
Solids	9.6	7.6	7.3	8.8	8.9	9.1	9.0	9.0	9.0					
Oil	58.7	57.8	51.6	44.5	40.0	39.6	37.7	36.2	34.9					
Natural gas	25.5	27.7	33.6	37.8	40.9	39.4	37.5	37.5	37.1					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	4.3	4.9	5.3	6.6	8.2	9.9	13.8	15.5	17.1					
Gross Electricity Generation in GWh_e	213400	237312	270016	296786	315444	337029	359490	395071	421272	2.4	1.6	1.3	1.6	
Self consumption and grid losses	30076	32312	36552	38396	33345	36654	38895	41844	44520	2.0	-0.9	1.6	1.4	
Fuel Inputs to Thermal Power Generation	40325	43578	47764	52894	48937	49847	50938	52301	54548	1.7	0.2	0.4	0.7	
Solids	7017	5287	5836	10001	10139	10514	10913	11276	11852	-1.8	5.7	0.7	0.8	
Oil (including refinery gas)	21528	25009	18955	9642	1413	1389	1328	26	185	-1.3	-22.9	-0.6	-17.9	
Gas (including derived gases)	8971	10234	19665	26402	30299	29456	27671	27819	27413	8.2	4.4	-0.9	-0.1	
Biomass & Waste	39	94	419	2270	2079	3400	5865	7883	9558	26.8	17.4	10.9	5.0	
Geothermal heat	2770	2954	2890	4578	5007	5089	5161	5297	5540	0.4	5.7	0.3	0.7	
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99234	98663	102560	107150	104259	105688	105498	104445	103722	0.3	0.2	0.1	-0.2	
Refineries	91545	92283	96749	102214	97130	97470	95824	94423	93567	0.6	0.0	-0.1	-0.2	
Biofuels and hydrogen production	0	0	0	162	1945	2945	4786	5435	5907			9.4	2.1	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	7688	6380	5811	4773	5184	5273	4888	4587	4249	-2.8	-1.1	-0.6	-1.4	
Energy Branch Consumption	7045	7362	7289	8620	7758	7817	7757	7677	7645	0.3	0.6	0.0	-0.1	
Non-Energy Uses	9896	13633	10838	11007	11309	11743	11881	11863	11743	0.9	0.4	0.5	-0.1	
Final Energy Demand	107160	113709	123254	134080	141757	144211	146240	149509	151853	1.4	1.4	0.3	0.4	
by sector														
Industry	36221	36430	39489	40729	43109	43506	43672	44814	46148	0.9	0.9	0.1	0.6	
- energy intensive industries	25218	24737	24840	25798	27239	27545	27214	27523	27932	-0.2	0.9	0.0	0.3	
- other industrial sectors	11002	11692	14648	14931	15871	15961	16458	17291	18216	2.9	0.8	0.4	1.0	
Residential	26284	26673	28331	31849	34061	34377	35526	36092	36238	0.8	1.9	0.4	0.2	
Tertiary	11252	12970	14171	17898	18662	18974	19074	19513	19542	2.3	2.8	0.2	0.2	
Transport	33404	37636	41263	43604	45925	47354	47968	49090	49926	2.1	1.1	0.4	0.4	
by fuel														
Solids	4209	4012	3681	4220	4721	4890	4569	4451	4342	-1.3	2.5	-0.3	-0.5	
Oil	53623	53099	56147	58196	59533	59456	56999	56466	55292	0.5	0.6	-0.4	-0.3	
Gas	29813	34652	37984	43747	45705	44699	43819	44462	45205	2.5	1.9	-0.4	0.3	
Electricity	18408	20442	23435	25828	27420	29140	30791	33485	35499	2.4	1.6	1.2	1.4	
Heat (from CHP and District Heating)	0	0	0	0	12	13	14	13	13			1.5	-0.6	
Renewable energy forms	1107	1505	2007	2089	4362	6006	10038	10620	11487	6.1	8.1	8.7	1.4	
Other	0	0	0	0	3	6	8	13	14			10.4	5.6	
RES in Gross Final Energy Consumption ^(A)			6472	7301	9959	13826	20930	24095	27476		4.4	7.7	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2		543.2	575.8	570.0	558.3	539.7	535.3	533.9	0.7	0.5	-0.5	-0.1	
CO₂ Emissions (energy related)	386.9	401.3	421.3	451.0	443.0	440.3	425.7	422.0	421.0	0.9	0.5	-0.4	-0.1	
Power generation/District heating	118.9	126.1	130.7	133.8	117.3	116.7	113.9	111.4	113.0	1.0	-1.1	-0.3	-0.1	
Energy Branch	16.6	17.0	16.6	20.2	17.9	17.7	17.2	16.9	16.6	0.1	0.7	-0.4	-0.4	
Industry	79.6	75.4	77.5	81.6	86.0	86.4	82.6	81.8	80.5	-0.3	1.0	-0.4	-0.3	
Residential	55.6	52.8	54.7	61.3	64.7	62.7	60.0	59.4	58.3	-0.2	1.7	-0.7	-0.3	
Tertiary	19.1	21.2	22.0	27.2	27.7	25.6	23.5	22.7	21.9	1.4	2.4	-1.6	-0.7	
Transport	97.1	108.9	119.7	126.8	129.5	131.3	128.4	129.8	130.6	2.1	0.8	-0.1	0.2	
CO₂ Emissions (non energy related)	35.5	33.1	30.2	36.1	37.3	37.3	37.0	37.5	38.0	-1.6	2.1	-0.1	0.3	
Non-CO₂ GHGs Emissions	84.9		91.7	88.7	89.6	80.8	75.8	75.8	74.9	0.8	-0.2	-1.5	-0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		107.1	113.5	112.4	110.1	106.4	105.5	105.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: Cost Efficiency Scenario with high prices							
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2	
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5	
Gross Int. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	123.5	113.3	104.9	97.9	93.0	-0.4	-0.2	-1.6	-1.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.49	2.44	2.41	2.33	2.28	2.18	2.13	2.09	-0.3	-0.5	-0.7	-0.4	
Import Dependency %	84.8	82.3	87.3	84.4	84.0	83.3	82.0	80.9	79.8					
Total Energy-related Costs ^(B) (in 000 M€05)			136.2	146.1	181.2	218.2	257.7	281.7	305.9		2.9	3.6	1.7	
as % of GDP			9.9	10.3	11.8	12.8	13.8	13.9	14.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	103.5	96.7	100.0	108.9	107.0	97.3	88.7	82.8	78.9	-0.3	0.7	-1.9	-1.2	
Residential (Energy on Private Income, index 2000=100)	109.4	106.5	100.0	109.6	108.4	99.6	94.6	89.0	83.7	-0.9	0.8	-1.3	-1.2	
Tertiary (Energy on Value added, index 2000=100)	95.6	102.5	100.0	120.1	115.2	105.7	97.0	91.4	85.4	0.4	1.4	-1.7	-1.3	
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	30.8	31.1	31.2	31.2	31.3	-0.5	-0.1	0.1	0.0	
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	54.7	53.6	51.8	51.5	50.9	-1.1	1.5	-0.5	-0.2	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.53	0.48	0.45	0.37	0.35	0.32	0.28	0.27	-1.4	-2.6	-1.6	-1.6	
Final energy demand (t of CO ₂ /toe)	2.35	2.27	2.22	2.22	2.17	2.12	2.01	1.96	1.92	-0.5	-0.2	-0.8	-0.5	
Industry	2.20	2.07	1.96	2.00	1.99	1.99	1.89	1.83	1.74	-1.1	0.2	-0.5	-0.8	
Residential	2.11	1.98	1.93	1.93	1.90	1.82	1.69	1.65	1.61	-0.9	-0.2	-1.2	-0.5	
Tertiary	1.70	1.63	1.55	1.52	1.49	1.35	1.23	1.16	1.12	-0.9	-0.4	-1.9	-0.9	
Transport	2.91	2.89	2.90	2.91	2.82	2.77	2.68	2.64	2.62	0.0	-0.3	-0.5	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			5.1	5.3	6.9	9.4	14.0	15.7	17.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	4.1	6.0	9.8	10.7	11.5					
Gross Electricity generation by source (in GWh)														
			270016	296786	315444	337029	359490	395071	421272		1.6	1.3	1.6	
Nuclear energy			0	0	0	0	0	0	0					
Solids			25679	45155	48870	55060	58533	63799	66588		6.6	1.8	1.3	
Oil (including refinery gas)			82354	43300	6511	6461	6163	215	1190		-22.4	-0.5	-15.2	
Gas (including derived gases)			109707	154992	199701	204171	201786	219571	222352		6.2	0.1	1.0	
Biomass-waste			2685	7485	9014	15403	26362	35216	42530		12.9	11.3	4.9	
Hydro (pumping excluded)			44328	36061	37714	37137	36864	36678	36676		-1.6	-0.2	-0.1	
Wind			563	2344	5398	10051	17694	24212	27992		25.4	12.6	4.7	
Solar			18	31	84	386	3417	6548	15136		16.6	44.9	16.0	
Geothermal and other renewables			4682	7417	8152	8360	8670	8831	8806		5.7	0.6	0.2	
Net Generation Capacity in MW_e			69851	76966	100535	94553	100242	122143	128518		3.7	0.0	2.5	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			14588	15810	17381	20029	26125	33481	42556		1.8	4.2	5.0	
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0	
Wind			427	1639	3152	5503	9484	14720	18021		22.1	11.6	6.6	
Solar			26	38	93	349	2353	4471	10191		13.6	38.2	15.8	
Other renewables (tidal etc.)			0	0	0	38	149	151	204				3.2	
<u>Thermal power</u>			55264	61156	83154	74524	74117	88662	85962		4.2	-1.1	1.5	
of which cogeneration units			9682	10847	11362	13799	16184	16365	16923		1.6	3.6	0.4	
Solids fired			9621	9715	11851	9931	9629	8892	8871		2.1	-2.1	-0.8	
Gas fired			27466	33995	53613	51694	51151	67225	65906		6.9	-0.5	2.6	
Oil fired			16795	15253	15327	8266	6410	4059	1176		-0.9	-8.3	-15.6	
Biomass-waste fired			597	1223	1392	3663	5946	7476	8918		8.8	15.6	4.1	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			785	971	971	971	980	1010	1092		2.1	0.1	1.1	
Avg. Load factor of net power capacity (%)			41.7	41.7	34.6	39.2	39.4	35.7	36.2					
Efficiency of gross thermal power generation (%)			40.5	42.0	47.8	49.9	50.9	53.8	53.8					
% of gross electricity from CHP			11.6	8.1	17.7	23.0	26.0	23.7	23.4					
Carbon free gross electricity generation (%)			19.4	18.0	19.1	21.2	25.9	28.2	31.1					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			19.4	18.0	19.1	21.2	25.9	28.2	31.1					
Transport sector														
Passenger transport activity (Gpkm)	722.2	831.0	969.5	980.5	996.6	1016.8	1039.3	1066.3	1088.6	3.0	0.3	0.4	0.5	
Public road transport	84.0	87.1	93.6	101.3	107.1	110.4	114.1	116.0	116.7	1.1	1.4	0.6	0.2	
Private cars and motorcycles	561.6	660.7	779.1	777.9	780.6	788.3	796.6	810.8	822.4	3.3	0.0	0.2	0.3	
Rail	48.9	49.1	52.7	52.3	51.8	51.5	54.4	58.9	63.2	0.8	-0.2	0.5	1.5	
Aviation	21.3	27.9	38.2	43.1	51.3	60.8	68.1	74.5	79.9	6.0	3.0	2.9	1.6	
Inland navigation	6.4	6.1	5.9	5.8	5.8	5.9	6.0	6.2	6.3	-0.8	-0.1	0.3	0.5	
Freight transport activity (Gtkm)	186.1	231.6	237.6	260.0	278.9	293.5	300.5	307.8	311.7	2.5	1.6	0.7	0.4	
Trucks	130.9	174.4	184.7	211.8	229.4	241.7	245.3	249.6	250.8	3.5	2.2	0.7	0.2	
Rail	19.4	21.7	22.8	20.1	21.3	23.0	25.1	27.2	29.0	1.7	-0.7	1.6	1.5	
Inland navigation	35.8	35.4	30.2	28.1	28.2	28.7	30.1	31.0	31.8	-1.7	-0.7	0.6	0.6	
Energy demand in transport (ktoe)	33404	37636	41263	43604	45925	47354	47968	49090	49926	2.1	1.1	0.4	0.4	
Public road transport	684	599	656	701	753	771	774	755	728	-0.4	1.4	0.3	-0.6	
Private cars and motorcycles	20584	23615	25521	24557	25015	25359	25808	27333	28108	2.2	-0.2	0.3	0.9	
Trucks	9137	9737	10559	13327	14509	14971	14771	15022	15055	1.5	3.2	0.2	0.2	
Rail	738	819	834	907	918	901	898	924	934	1.2	1.0	-0.2	0.4	
Aviation	1872	2418	3491	3863	4484	5104	5464	4799	4844	6.4	2.5	2.0	-1.2	
Inland navigation	389	448	202	248	247	247	253	256	257	-6.3	2.0	0.2	0.2	

Source: PRIMES

Italy: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	25537	27099	28044	32867	35807	41462	515	2679	4607	1.6	8.1	12.5
Solids	218	4	60	0	0	0	0	0	0			
Oil	4745	4782	6475	5813	5693	5500	-442	-307	0	-7.1	-5.1	0.0
Natural gas	14030	13622	9886	10000	8000	8000	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	6544	8691	11622	17054	22114	27962	957	2986	4607	5.9	15.6	19.7
Hydro	2719	3812	3101	3194	3170	3154	48	70	86	1.5	2.3	2.8
Biomass & Waste	849	1716	3505	6571	8214	11230	0	0	805	0.0	0.0	7.7
Wind	0	48	202	864	1522	2407	6	2	403	0.7	0.1	20.1
Solar and others	5	12	23	1111	3800	5409	526	2514	3230	89.8	195.4	148.2
Geothermal	2971	3103	4791	5314	5408	5761	377	400	83	7.6	8.0	1.5
Net Imports	132060	152953	160475	163816	163388	163740	-12904	-16661	-19225	-7.3	-9.3	-10.5
Solids	13792	13188	16366	17590	17634	18202	-1106	-2255	-4184	-5.9	-11.3	-18.7
Oil	89885	88458	79421	74197	71696	68436	-7782	-9315	-5839	-9.5	-11.5	-7.9
- Crude oil and Feedstocks	84284	90244	94404	89980	88553	86691	-6352	-7358	-5460	-6.6	-7.7	-5.9
- Oil products	5602	-1786	-14983	-15783	-16857	-18255	-1429	-1957	-380	10.0	13.1	2.1
Natural gas	25311	47008	59840	66000	65360	66759	-4769	-7426	-12639	-6.7	-10.2	-15.9
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	153098	172537	186766	193096	195643	201702	-12389	-13983	-14620	-6.0	-6.7	-6.8
Solids	14621	12659	16477	17590	17634	18202	-1106	-2255	-4184	-5.9	-11.3	-18.7
Oil	89860	88947	83169	76423	73837	70436	-8223	-9623	-5841	-9.7	-11.5	-7.7
Natural gas	39001	57940	70651	76000	73360	74759	-4769	-7426	-12639	-5.9	-9.2	-14.5
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	2980	3813	4227	3949	3857	3725	0	0	0	0.0	0.0	0.0
Renewable energy forms	6636	9177	12243	19134	26955	34581	1709	5321	8044	9.8	24.6	30.3
as % in Gross Inland Consumption												
Solids	9.6	7.3	8.8	9.1	9.0	9.0	0.0	-0.5	-1.3			
Oil	58.7	51.6	44.5	39.6	37.7	34.9	-1.6	-2.1	-0.3			
Natural gas	25.5	33.6	37.8	39.4	37.5	37.1	0.1	-1.0	-3.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	4.3	5.3	6.6	9.9	13.8	17.1	1.4	3.5	4.9			
Gross Electricity Generation in GWh_e	213400	270016	296786	337029	359490	421272	-41592	-50045	-44356	-11.0	-12.2	-9.5
Self consumption and grid losses	30076	36552	38396	36654	38895	44520	-4191	-5242	-5297	-10.3	-11.9	-10.6
Fuel Inputs to Thermal Power Generation	40325	47764	52894	49847	50938	54548	-7723	-7688	-7153	-13.4	-13.1	-11.6
Solids	7017	5836	10001	10514	10913	11852	-1435	-2038	-3783	-12.0	-15.7	-24.2
Oil (including refinery gas)	21528	18955	9642	1389	1328	185	-5124	-4639	-362	-78.7	-77.7	-66.2
Gas (including derived gases)	8971	19665	26402	29456	27671	27413	-2175	-3679	-7109	-6.9	-11.7	-20.6
Biomass & Waste	39	419	2270	3400	5865	9558	685	2347	4100	25.2	66.7	75.1
Geothermal heat	2770	2890	4578	5089	5161	5540	326	321	0	6.8	6.6	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99234	102560	107150	105688	105498	103722	-6509	-8164	-6308	-5.8	-7.2	-5.7
Refineries	91545	96749	102214	97470	95824	93567	-6799	-7674	-5464	-6.5	-7.4	-5.5
Biofuels and hydrogen production	0	0	162	2945	4786	5907	-224	-564	-785	-7.1	-10.5	-11.7
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	7688	5811	4773	5273	4888	4249	515	74	-59	10.8	1.5	-1.4
Energy Branch Consumption	7045	7289	8620	7817	7757	7645	-423	-553	-564	-5.1	-6.6	-6.9
Non-Energy Uses	9896	10838	11007	11743	11881	11743	-25	-44	-28	-0.2	-0.4	-0.2
Final Energy Demand	107160	123254	134080	144211	146240	151853	-7543	-9565	-11022	-5.0	-6.1	-6.8
by sector												
Industry	36221	39489	40729	43506	43672	46148	-605	-1277	-1592	-1.4	-2.8	-3.3
- energy intensive industries	25218	24840	25798	27545	27214	27932	57	-603	-682	0.2	-2.2	-2.4
- other industrial sectors	11002	14648	14931	15961	16458	18216	-662	-674	-909	-4.0	-3.9	-4.8
Residential	26284	28331	31849	34377	35526	36238	-2203	-1651	-1655	-6.0	-4.4	-4.4
Tertiary	11252	14171	17898	18974	19074	19542	-2616	-3275	-3991	-12.1	-14.7	-17.0
Transport	33404	41263	43604	47354	47968	49926	-2120	-3362	-3784	-4.3	-6.5	-7.0
by fuel												
Solids	4209	3681	4220	4890	4569	4342	316	-180	-325	6.9	-3.8	-7.0
Oil	53623	56147	58196	59456	56999	55292	-2807	-4250	-5115	-4.5	-6.9	-8.5
Gas	29813	37984	43747	44699	43819	45205	-2518	-3964	-5385	-5.3	-8.3	-10.6
Electricity	18408	23435	25828	29140	30791	35499	-3205	-3827	-3327	-9.9	-11.1	-8.6
Heat (from CHP and District Heating)	0	0	0	13	14	13	-6	-8	-9	-29.4	-34.7	-39.2
Renewable energy forms	1107	2007	2089	6006	10038	11487	676	2663	3139	12.7	36.1	37.6
Other	0	0	0	6	8	14	0	0	-1	7.0	-1.6	-4.3
RES in Gross Final Energy Consumption ^(A)		6472	7301	13826	20930	27476	1520	4981	7654	12.4	31.2	38.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	507.2	543.2	575.8	558.3	539.7	533.9	-48.4	-66.6	-74.4	-8.0	-11.0	-12.2
CO₂ Emissions (energy related)	386.9	421.3	451.0	440.3	425.7	421.0	-41.0	-56.0	-63.6	-8.5	-11.6	-13.1
Power generation/District heating	118.9	130.7	133.8	116.7	113.9	113.0	-27.2	-31.5	-32.7	-18.9	-21.7	-22.4
Energy Branch	16.6	16.6	20.2	17.7	17.2	16.6	-0.9	-1.6	-1.4	-5.1	-8.4	-7.7
Industry	79.6	77.5	81.6	86.4	82.6	80.5	1.9	-1.4	-5.4	2.3	-1.6	-6.3
Residential	55.6	54.7	61.3	62.7	60.0	58.3	-5.6	-7.5	-8.7	-8.2	-11.1	-13.0
Tertiary	19.1	22.0	27.2	25.6	23.5	21.9	-3.4	-5.0	-4.9	-11.7	-17.5	-18.4
Transport	97.1	119.7	126.8	131.3	128.4	130.6	-5.9	-9.0	-10.5	-4.3	-6.6	-7.4
CO₂ Emissions (non energy related)	35.5	30.2	36.1	37.3	37.0	38.0	-0.4	-0.9	-0.9	-1.0	-2.4	-2.3
Non-CO₂ GHGs Emissions	84.9	91.7	88.7	80.8	77.0	74.9	-7.0	-9.7	-9.9	-8.0	-11.2	-11.7
TOTAL GHGs Emissions Index (1990=100)	100.0	107.1	113.5	110.1	106.4	105.3	-9.5	-13.1	-14.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Italy: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	56.694	56.929	58.462	58.630	58.300	57.071	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1172.7	1372.9	1417.2	1704.6	1864.3	2168.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	130.5	125.7	131.8	113.3	104.9	93.0	-7.3	-7.5	-6.7	-6.0	-6.7	-6.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.53	2.44	2.41	2.28	2.18	2.09	-0.06	-0.12	-0.15	-2.7	-5.3	-6.8
Import Dependency %	84.8	87.3	84.4	83.3	82.0	79.8	-1.2	-2.4	-3.4			
Total Energy-related Costs ^(B) (in 000 M€05)		136.2	146.1	218.2	257.7	305.9	5.0	7.7	13.3	2.4	3.1	4.6
as % of GDP		9.9	10.3	12.8	13.8	14.1	0.3	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				5.1	7.9	13.6						
as % of GDP				0.30	0.42	0.63						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	103.5	100.0	108.9	97.3	88.7	78.9	-1.4	-2.6	-2.7	-1.4	-2.8	-3.3
Residential (Energy on Private Income, index 2000=100)	109.4	100.0	109.6	99.6	94.6	83.7	-6.4	-4.4	-3.8	-6.0	-4.4	-4.4
Tertiary (Energy on Value added, index 2000=100)	95.6	100.0	120.1	105.7	97.0	85.4	-14.6	-16.7	-17.4	-12.1	-14.7	-17.0
Passenger transport (toe/Mpkm)	32.6	31.0	30.2	31.1	31.2	31.3	-0.7	-1.1	-0.9	-2.2	-3.4	-2.8
Freight transport (toe/Mtkm)	53.0	47.3	54.0	53.6	51.8	50.9	-2.6	-4.5	-6.0	-4.6	-8.1	-10.5
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.45	0.35	0.32	0.27	-0.03	-0.04	-0.04	-8.9	-10.8	-14.2
Final energy demand (t of CO ₂ /toe)	2.35	2.22	2.22	2.12	2.01	1.92	0.02	-0.02	-0.05	1.0	-1.1	-2.6
Industry	2.20	1.96	2.00	1.99	1.89	1.74	0.07	0.02	-0.06	3.7	1.3	-3.1
Residential	2.11	1.93	1.93	1.82	1.69	1.61	-0.04	-0.13	-0.16	-2.3	-7.0	-9.0
Tertiary	1.70	1.55	1.52	1.35	1.23	1.12	0.01	-0.04	-0.02	0.5	-3.4	-1.8
Transport	2.91	2.90	2.91	2.77	2.68	2.62	0.00	0.00	-0.01	0.0	0.0	-0.4
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		5.1	5.3	9.4	14.0	17.6	1.5	4.0	5.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.4	6.0	9.8	11.5	-0.2	-0.4	-0.5			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	25679	45155	55060	58533	66588	66588	-6433	-11897	-24459	-10.5	-16.9	-26.9
Oil (including refinery gas)	82354	43300	6461	6163	1190	1190	-25631	-23945	-1765	-79.9	-79.5	-59.7
Gas (including derived gases)	109707	154992	204171	201786	222352	222352	-13526	-25985	-47215	-6.2	-11.4	-17.5
Biomass-waste	2685	7485	15403	26362	42530	2761	2761	10285	18206	21.8	64.0	74.8
Hydro (pumping excluded)	44328	36061	37137	36864	36676	36676	554	816	998	1.5	2.3	2.8
Wind	563	2344	10051	17694	27992	27992	71	24	4684	0.7	0.1	20.1
Solar	18	31	386	3417	15136	15136	8	0	5035	2.2	0.0	49.8
Geothermal and other renewables	4682	7417	8360	8670	8806	8806	604	657	162	7.8	8.2	1.9
Net Generation Capacity in MW_e	69851	76966	94553	100242	128518	128518	-2811	-9392	-7470	-2.9	-8.6	-5.5
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	14588	15810	20029	26125	42556	42556	27	-976	6553	0.1	-3.6	18.2
Hydro (pumping excluded)	14135	14133	14138	14139	14139	14139	0	0	0	0.0	0.0	0.0
Wind	427	1639	5503	9484	18021	18021	-17	-1056	3254	-0.3	-10.0	22.0
Solar	26	38	349	2353	10191	10191	5	0	3215	1.5	0.0	46.1
Other renewables (tidal etc.)	0	0	38	149	204	204	38	80	84		116.3	69.7
<u>Thermal power</u>	55264	61156	74524	74117	85962	85962	-2838	-8416	-14023	-3.7	-10.2	-14.0
of which cogeneration units	9682	10847	13799	16184	16923	16923	-1024	-2273	-4004	-6.9	-12.3	-19.1
Solids fired	9621	9715	9931	9629	8871	8871	0	0	-3839	0.0	0.0	-30.2
Gas fired	27466	33995	51694	51151	65906	65906	-3435	-10544	-13151	-6.2	-17.1	-16.6
Oil fired	16795	15253	8266	6410	1176	1176	-180	2	-26	-2.1	0.0	-2.2
Biomass-waste fired	597	1223	3663	5946	8918	8918	777	2116	3006	26.9	55.3	50.9
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	785	971	971	980	1092	1092	0	10	-13	0.0	1.0	-1.2
Avg. Load factor of net power capacity (%)	41.7	41.7	39.2	39.4	36.2	36.2	-3.6	-1.7	-1.6			
Efficiency of gross thermal power generation (%)	40.5	42.0	49.9	50.9	53.8	53.8	0.4	-0.8	-1.5			
% of gross electricity from CHP	11.6	8.1	23.0	26.0	23.4	23.4	1.9	0.5	-2.3			
Carbon free gross electricity generation (%)	19.4	18.0	21.2	25.9	31.1	31.1	3.4	6.0	9.2			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	19.4	18.0	21.2	25.9	31.1	31.1	3.4	6.0	9.2			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	84.0	93.6	101.3	110.4	114.1	116.7	2.1	2.7	3.0	1.9	2.4	2.7
Private cars and motorcycles	561.6	779.1	777.9	788.3	796.6	822.4	-11.9	-15.0	-17.2	-1.5	-1.8	-2.1
Rail	48.9	52.7	52.3	51.5	54.4	63.2	0.4	0.6	1.2	0.9	1.0	2.0
Aviation	21.3	38.2	43.1	60.8	68.1	79.9	-1.6	-2.6	-3.0	-2.6	-3.6	-3.6
Inland navigation	6.4	5.9	5.8	5.9	6.0	6.3	0.0	-0.1	-0.1	-0.8	-0.9	-1.1
Freight transport activity (Gtkm)												
Trucks	130.9	184.7	211.8	241.7	245.3	250.8	-6.8	-8.7	-9.8	-2.7	-3.4	-3.7
Rail	19.4	22.8	20.1	23.0	25.1	29.0	0.9	1.2	1.7	4.1	5.0	6.1
Inland navigation	35.8	30.2	28.1	28.7	30.1	31.8	0.4	0.5	0.6	1.5	1.8	1.9
Energy demand in transport (ktoe)												
Public road transport	684	656	701	771	774	728	-7	-31	-39	-0.9	-3.9	-5.1
Private cars and motorcycles	20584	25521	24557	25359	25808	28108	-837	-1209	-1089	-3.2	-4.5	-3.7
Trucks	9137	10559	13327	14971	14771	15055	-1085	-1790	-2385	-6.8	-10.8	-13.7
Rail	738	834	907	901	898	934	-3	16	88	-0.4	1.8	10.4
Aviation	1872	3491	3863	5104	5464	4844	-188	-346	-352	-3.5	-6.0	-6.8
Inland navigation	389	202	248	247	253	257	-1	-2	-6	-0.3	-0.9	-2.2

Source: PRIMES

Latvia: Cost Efficiency Scenario with high prices					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	1245	1639	1576	2304	2812	3331	4192	4732	5036	2.4	6.0	4.1	1.9	
Solids	182	234	49	6	4	4	2	0	0	-12.3	-22.6	-5.4		
Oil	1	0	0	7	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	1062	1405	1527	2291	2808	3327	4190	4732	5036	3.7	6.3	4.1	1.9	
Hydro	387	253	242	286	261	253	262	262	261	-4.6	0.8	0.0	0.0	
Biomass & Waste	675	1153	1284	2001	2515	2992	3804	4297	4572	6.6	7.0	4.2	1.9	
Wind	0	0	0	4	30	76	112	157	181		56.5	14.0	4.9	
Solar and others	0	0	0	0	1	7	12	16	21			29.8	6.4	
Geothermal	0	0	0	0	0	0	0	0	0			15.2	0.6	
Net Imports	7440	3358	2253	2783	2851	2941	2585	2442	2456	-11.3	2.4	-1.0	-0.5	
Solids	627	170	62	76	78	69	71	75	80	-20.7	2.4	-1.0	1.2	
Oil	3944	2086	1096	1662	1851	2072	2162	2236	2287	-12.0	5.4	1.6	0.6	
- Crude oil and Feedstocks	1	2	93	4	1	1	2	2	2	55.9	-34.9	2.2	0.3	
- Oil products	3942	2084	1003	1658	1850	2071	2160	2234	2285	-12.8	6.3	1.6	0.6	
Natural gas	2561	999	1113	1434	1470	1476	1217	1054	1090	-8.0	2.8	-1.9	-1.1	
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Gross Inland Consumption	8059	4854	4007	4720	5338	5882	6334	6684	6970	-6.7	2.9	1.7	1.0	
Solids	867	456	252	83	82	73	73	75	80	-11.6	-10.6	-1.1	0.8	
Oil	3458	1885	1155	1376	1527	1682	1719	1746	1765	-10.4	2.8	1.2	0.3	
Natural gas	2380	1010	1092	1358	1470	1476	1217	1054	1090	-7.5	3.0	-1.9	-1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3	
Renewable energy forms	1045	1309	1354	1718	2087	2470	3100	3501	3726	2.6	4.4	4.0	1.9	
as % in Gross Inland Consumption														
Solids	10.8	9.4	6.3	1.8	1.5	1.2	1.2	1.1	1.1					
Oil	42.9	38.8	28.8	29.2	28.6	28.6	27.1	26.1	25.3					
Natural gas	29.5	20.8	27.3	28.8	27.5	25.1	19.2	15.8	15.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	13.0	27.0	33.8	36.4	39.1	42.0	48.9	52.4	53.5					
Gross Electricity Generation in GWh_e	6647	3978	4135	4904	6353	7558	8595	9611	11170	-4.6	4.4	3.1	2.7	
Self consumption and grid losses	1248	732	720	783	479	551	631	806	987	-5.4	-4.0	2.8	4.6	
Fuel Inputs to Thermal Power Generation	926	722	607	591	561	707	818	926	1164	-4.1	-0.8	3.8	3.6	
Solids	59	194	142	0	0	0	0	0	0	9.2				
Oil (including refinery gas)	177	242	77	13	0	0	0	0	0	-8.0				
Gas (including derived gases)	690	286	388	541	512	637	572	330	329	-5.6	2.8	1.1	-5.4	
Biomass & Waste	0	0	0	37	49	70	246	596	835			17.4	13.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	2601	941	645	591	657	668	777	750	750	-13.0	0.2	1.7	-0.3	
Refineries	1	1	1	1	1	1	2	2	2	0.0	1.5	2.2	0.3	
Biofuels and hydrogen production	0	0	0	3	51	85	152	177	197			11.5	2.7	
District heating	2573	930	643	587	604	581	624	571	551	-12.9	-0.6	0.3	-1.2	
Derived gases, cokeries etc.	27	9	1	0	0	0	0	0	0	-28.3				
Energy Branch Consumption	130	149	151	102	101	108	107	113	122	1.5	-3.9	0.6	1.3	
Non-Energy Uses	77	46	77	91	102	110	117	125	127	0.1	2.8	1.4	0.8	
Final Energy Demand	6445	3880	3332	4046	4788	5239	5637	6016	6227	-6.4	3.7	1.6	1.0	
by sector														
Industry	1972	701	614	827	1127	1314	1479	1692	1825	-11.0	6.3	2.8	2.1	
- energy intensive industries	707	305	219	282	451	520	543	574	590	-11.1	7.5	1.9	0.8	
- other industrial sectors	1265	396	396	545	676	794	936	1118	1235	-11.0	5.5	3.3	2.8	
Residential	1632	1663	1368	1476	1546	1571	1658	1713	1729	-1.7	1.2	0.7	0.4	
Tertiary	1747	804	606	744	858	923	960	1000	996	-10.0	3.5	1.1	0.4	
Transport	1094	712	744	999	1255	1431	1539	1612	1677	-3.8	5.4	2.1	0.9	
by fuel														
Solids	330	126	58	73	78	66	71	75	79	-16.0	3.0	-0.9	1.2	
Oil	2047	1119	1003	1220	1418	1565	1595	1615	1632	-6.9	3.5	1.2	0.2	
Gas	672	366	329	508	578	631	627	708	745	-6.9	5.8	0.8	1.7	
Electricity	768	470	443	537	674	781	907	1063	1183	-5.3	4.3	3.0	2.7	
Heat (from CHP and District Heating)	2013	905	590	598	548	532	606	672	726	-11.5	-0.7	1.0	1.8	
Renewable energy forms	616	894	909	1111	1492	1664	1830	1883	1861	4.0	5.1	2.1	0.2	
Other	0	0	0	0	0	0	0	1	1			14.3	5.6	
RES in Gross Final Energy Consumption ^(A)			1305	1787	2010	2347	2887	3264	3438	4.4	3.7	1.8		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1		10.2	11.0	12.8	13.1	12.8	11.9	11.8	-9.3	2.3	0.0	-0.8	
CO₂ Emissions (energy related)	19.2	9.4	6.9	7.3	8.0	8.4	7.9	7.6	7.7	-9.7	1.4	-0.1	-0.2	
Power generation/District heating	10.0	4.5	2.8	2.1	2.0	1.9	1.3	0.8	0.8	-12.0	-3.1	-4.1	-5.4	
Energy Branch	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	5.0	-11.0	-1.9	-1.6	
Industry	2.5	1.3	0.9	1.0	1.2	1.3	1.3	1.4	1.5	-9.7	2.8	1.0	1.2	
Residential	1.2	0.5	0.3	0.5	0.5	0.5	0.6	0.7	0.7	-13.7	6.7	0.2	2.6	
Tertiary	2.1	0.8	0.5	0.6	0.6	0.5	0.5	0.5	0.4	-12.8	0.4	-1.6	-1.3	
Transport	3.2	2.1	2.2	2.9	3.6	4.0	4.1	4.2	4.3	-3.7	5.1	1.5	0.3	
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.2	0.7	0.9	1.1	1.3	1.4	-8.5	11.3	4.9	2.3	
Non-CO₂ GHGs Emissions	7.3		3.1	3.4	4.1	3.7	3.8	3.0	2.6	-8.3	3.0	-0.9	-3.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		37.8	40.5	47.4	48.3	47.4	44.1	43.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Latvia: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4	
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1	
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	282.8	231.5	199.1	174.7	160.8	-3.4	-4.8	-3.4	-2.1	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.94	1.73	1.55	1.50	1.43	1.25	1.14	1.11	-3.1	-1.4	-1.8	-1.2	
Import Dependency %	87.3	67.1	56.1	55.9	50.3	46.9	38.1	34.0	32.8					
Total Energy-related Costs ^(B) (in 000 M€05)			1.8	2.4	3.6	4.7	5.8	6.7	7.6		7.2	5.1	2.6	
as % of GDP			20.5	18.8	18.9	18.5	18.4	17.6	17.4					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	146.0	144.2	100.0	93.7	83.9	70.9	62.9	59.4	56.5	-3.7	-1.7	-2.8	-1.1	
Residential (Energy on Private Income, index 2000=100)	84.9	157.6	100.0	71.0	51.1	38.9	33.0	28.5	25.5	1.7	-6.5	-4.3	-2.6	
Tertiary (Energy on Value added, index 2000=100)	311.7	176.8	100.0	82.8	65.1	51.9	43.0	37.2	32.5	-10.7	-4.2	-4.1	-2.8	
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.1	30.8	28.7	27.1	27.4	1.4	-0.5	-1.4	-0.5	
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.1	17.1	16.7	16.1	15.6	-2.5	-0.1	-0.2	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.27	0.21	0.16	0.14	0.12	0.08	0.04	0.04	-3.0	-3.9	-6.0	-7.2	
Final energy demand (t of CO ₂ /toe)	1.40	1.21	1.17	1.26	1.23	1.22	1.15	1.12	1.11	-1.8	0.5	-0.6	-0.4	
Industry	1.28	1.88	1.48	1.26	1.07	1.01	0.90	0.85	0.82	1.5	-3.2	-1.7	-0.9	
Residential	0.75	0.31	0.21	0.33	0.35	0.34	0.34	0.39	0.42	-12.1	5.4	-0.5	2.2	
Tertiary	1.21	1.02	0.89	0.85	0.65	0.56	0.50	0.45	0.42	-3.0	-3.1	-2.7	-1.6	
Transport	2.90	2.89	2.92	2.94	2.85	2.80	2.69	2.61	2.55	0.1	-0.3	-0.6	-0.5	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			36.9	42.2	40.7	43.7	50.0	53.1	54.1					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.7	5.4	9.0	10.2	11.1					
Gross Electricity generation by source (in GWh)														
			4135	4904	6353	7558	8595	9611	11170		4.4	3.1	2.7	
Nuclear energy			0	0	0	0	0	0	0					
Solids			91	0	0	0	0	0	0					
Oil (including refinery gas)			117	0	0	0	0	0	0					
Gas (including derived gases)			1104	1490	2742	3411	3049	1788	1837		9.5	1.1	-4.9	
Biomass-waste			0	43	218	316	1185	2944	4177			18.5	13.4	
Hydro (pumping excluded)			2818	3324	3039	2940	3042	3043	3033		0.8	0.0	0.0	
Wind			4	47	353	879	1305	1820	2106		56.5	14.0	4.9	
Solar			0	0	0	2	3	5	7			21.7	7.4	
Geothermal and other renewables			0	0	0	10	10	10	10				0.0	
Net Generation Capacity in MW_e			2062	2144	2781	3064	3308	3557	3869		3.0	1.8	1.6	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			1519	1578	1730	1976	2182	2459	2631		1.3	2.3	1.9	
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0	
Wind			2	24	170	405	602	873	1038		56.0	13.5	5.6	
Solar			0	0	1	4	7	11	14			21.4	7.2	
Other renewables (tidal etc.)			0	0	0	5	5	5	5				0.0	
<u>Thermal power</u>			543	565	1051	1087	1126	1097	1238		6.8	0.7	1.0	
of which cogeneration units			542	564	444	609	922	894	949		-2.0	7.6	0.3	
Solids fired			29	2	2	2	2	0	0		-23.3	1.1		
Gas fired			414	502	949	957	868	581	578		8.7	-0.9	-4.0	
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0	
Biomass-waste fired			2	16	39	67	195	501	644		32.7	17.4	12.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			20.4	23.5	25.6	27.7	29.2	30.2	32.1					
Efficiency of gross thermal power generation (%)			18.6	22.3	45.4	45.3	44.5	44.0	44.4					
% of gross electricity from CHP			24.0	11.8	43.6	42.9	41.3	45.5	43.4					
Carbon free gross electricity generation (%)			68.3	69.6	56.8	54.9	64.5	81.4	83.6					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			68.3	69.6	56.8	54.9	64.5	81.4	83.6					
Transport sector														
Passenger transport activity (Gpkm)	17.7	9.0	12.3	15.8	19.5	22.4	24.6	26.6	27.8	-3.6	4.7	2.3	1.3	
Public road transport	5.9	1.8	2.3	2.8	3.1	3.2	3.3	3.4	3.4	-8.7	2.7	0.8	0.3	
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.6	17.0	18.8	20.4	21.5	4.2	5.4	2.5	1.4	
Rail	5.8	1.8	1.1	1.3	1.5	1.7	2.0	2.2	2.3	-15.5	3.2	3.0	1.7	
Aviation	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.6	2.3	6.1	4.3	2.0	
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4				
Freight transport activity (Gtkm)	24.8	12.0	18.1	26.3	35.5	43.3	49.9	55.5	58.9	-3.1	7.0	3.5	1.7	
Trucks	5.9	1.8	4.8	8.4	11.8	15.5	18.8	22.1	24.6	-2.0	9.5	4.7	2.7	
Rail	18.5	9.8	13.3	17.9	23.7	27.8	31.1	33.4	34.3	-3.3	5.9	2.8	1.0	
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1094	712	744	999	1255	1431	1539	1612	1677	-3.8	5.4	2.1	0.9	
Public road transport	111	41	23	25	26	25	25	23	21	-14.6	1.3	-0.4	-1.5	
Private cars and motorcycles	317	284	373	451	539	588	604	619	661	1.7	3.7	1.1	0.9	
Trucks	370	240	241	371	496	612	703	796	860	-4.2	7.5	3.6	2.0	
Rail	188	90	75	93	118	134	135	100	60	-8.7	4.6	1.3	-7.8	
Aviation	73	26	27	59	76	72	73	74	76	-9.6	11.1	-0.5	0.4	
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7				

Source: PRIMES

Latvia: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	1245	1576	2304	3331	4192	5036	317	776	1160	10.5	22.7	29.9
Solids	182	49	6	4	2	0	0	-1	-3	0.0	-38.8	-100.0
Oil	1	0	7	0	0	0	0	0	0	98.0	-190.5	-510.3
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	1062	1527	2291	3327	4190	5036	317	778	1164	10.5	22.8	30.1
Hydro	387	242	286	253	262	261	9	0	1	3.5	0.1	0.4
Biomass & Waste	675	1284	2001	2992	3804	4572	304	769	1147	11.3	25.4	33.5
Wind	0	0	4	76	112	181	0	0	2	0.0	0.0	1.1
Solar and others	0	0	0	7	12	21	5	8	14	254.9	211.4	180.2
Geothermal	0	0	0	0	0	0	0	0	0	65.1	275.2	277.2
Net Imports	7440	2253	2783	2941	2585	2456	-647	-1104	-1609	-18.0	-29.9	-39.6
Solids	627	62	76	69	71	80	-8	-17	-18	-10.6	-19.4	-18.2
Oil	3944	1096	1662	2072	2162	2287	-138	-155	-293	-6.2	-6.7	-11.3
- Crude oil and Feedstocks	1	93	4	1	2	2	0	0	0	-5.9	-6.4	-11.0
- Oil products	3942	1003	1658	2071	2160	2285	-138	-155	-292	-6.2	-6.7	-11.3
Natural gas	2561	1113	1434	1476	1217	1090	-413	-711	-970	-21.9	-36.9	-47.1
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	8059	4007	4720	5882	6334	6970	-329	-328	-449	-5.3	-4.9	-6.1
Solids	867	252	83	73	73	80	-8	-19	-21	-10.1	-20.1	-20.9
Oil	3458	1155	1376	1682	1719	1765	-138	-155	-293	-7.6	-8.3	-14.2
Natural gas	2380	1092	1358	1476	1217	1090	-413	-711	-970	-21.9	-36.9	-47.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	308	154	185	181	225	309	0	0	0	0.0	0.0	0.0
Renewable energy forms	1045	1354	1718	2470	3100	3726	230	557	835	10.3	21.9	28.9
as % in Gross Inland Consumption												
Solids	10.8	6.3	1.8	1.2	1.2	1.1	-0.1	-0.2	-0.2			
Oil	42.9	28.8	29.2	28.6	27.1	25.3	-0.7	-1.0	-2.4			
Natural gas	29.5	27.3	28.8	25.1	19.2	15.6	-5.3	-9.7	-12.1			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	13.0	33.8	36.4	42.0	48.9	53.5	5.9	10.8	14.5			
Gross Electricity Generation in GWh_e	6647	4135	4904	7558	8595	11170	-476	-277	701	-5.9	-3.1	6.7
Self consumption and grid losses	1248	720	783	551	631	987	-52	-46	149	-8.6	-6.9	17.7
Fuel Inputs to Thermal Power Generation	926	607	591	707	818	1164	-109	-32	189	-13.4	-3.8	19.4
Solids	59	142	0	0	0	0	0	0	0			
Oil (including refinery gas)	177	77	13	0	0	0	-6	0	0	-100.0		
Gas (including derived gases)	690	388	541	637	572	329	-117	-226	-530	-15.5	-28.4	-61.7
Biomass & Waste	0	0	37	70	246	835	14	194	720	24.3	379.8	623.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	2601	645	591	668	777	750	-66	-23	-106	-9.0	-2.9	-12.4
Refineries	1	1	1	1	2	2	0	0	0	-5.9	-6.4	-11.0
Biofuels and hydrogen production	0	0	3	85	152	197	-8	-23	-41	-8.9	-13.3	-17.3
District heating	2573	643	587	581	624	551	-58	0	-65	-9.1	0.0	-10.5
Derived gases, cokeries etc.	27	1	0	0	0	0	0	0	0			
Energy Branch Consumption	130	151	102	108	107	122	-15	-21	-17	-12.4	-16.3	-12.1
Non-Energy Uses	77	77	91	110	117	127	0	0	0	0.0	0.0	0.0
Final Energy Demand	6445	3332	4046	5239	5637	6227	-267	-304	-437	-4.9	-5.1	-6.6
by sector												
Industry	1972	614	827	1314	1479	1825	-31	-61	-82	-2.3	-3.9	-4.3
- energy intensive industries	707	219	282	520	543	590	-9	-8	-6	-1.7	-1.4	-1.1
- other industrial sectors	1265	396	545	794	936	1235	-22	-53	-76	-2.7	-5.3	-5.8
Residential	1632	1368	1476	1571	1658	1729	-72	-23	-33	-4.4	-1.4	-1.8
Tertiary	1747	606	744	923	960	996	-67	-75	-104	-6.8	-7.2	-9.4
Transport	1094	744	999	1431	1539	1677	-98	-145	-218	-6.4	-8.6	-11.5
by fuel												
Solids	330	58	73	66	71	79	-10	-12	-13	-12.5	-14.3	-14.5
Oil	2047	1003	1220	1565	1595	1632	-108	-154	-253	-6.4	-8.8	-13.4
Gas	672	329	508	631	627	745	-70	-112	-242	-9.9	-15.1	-24.5
Electricity	768	443	537	781	907	1183	-36	-20	48	-4.4	-2.1	4.2
Heat (from CHP and District Heating)	2013	590	598	532	606	726	-99	-37	31	-15.7	-5.7	4.4
Renewable energy forms	616	909	1111	1664	1830	1861	55	30	-7	3.4	1.7	-0.4
Other	0	0	0	0	0	1	0	0	0	4.1	-6.2	-6.0
RES in Gross Final Energy Consumption ^(A)		1305	1787	2347	2887	3438	201	481	715	9.4	20.0	26.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	27.1	10.2	11.0	13.1	12.8	11.8	-2.2	-3.4	-4.2	-14.4	-21.0	-26.5
CO₂ Emissions (energy related)	19.2	6.9	7.3	8.4	7.9	7.7	-1.4	-2.2	-3.2	-14.4	-21.8	-29.5
Power generation/District heating	10.0	2.8	2.1	1.9	1.3	0.8	-0.8	-1.4	-1.7	-29.2	-51.1	-68.8
Energy Branch	0.1	0.2	0.1	0.1	0.1	0.1	-0.1	0.0	-0.2	-56.2	-28.9	-75.6
Industry	2.5	0.9	1.0	1.3	1.3	1.5	-0.1	-0.2	-0.5	-6.3	-11.2	-25.5
Residential	1.2	0.3	0.5	0.5	0.6	0.7	-0.1	-0.1	-0.1	-13.6	-16.9	-16.5
Tertiary	2.1	0.5	0.6	0.5	0.5	0.4	-0.1	-0.1	-0.1	-12.5	-16.9	-23.2
Transport	3.2	2.2	2.9	4.0	4.1	4.3	-0.3	-0.4	-0.6	-6.4	-8.7	-12.4
CO₂ Emissions (non energy related)	0.6	0.2	0.2	0.9	1.1	1.4	0.0	0.0	0.0	-0.8	-1.5	-1.8
Non-CO₂ GHGs Emissions	7.3	3.1	3.4	3.7	3.8	2.6	-0.8	-1.2	-1.0	-17.3	-23.8	-26.9
TOTAL GHGs Emissions Index (1990=100)	100.0	37.8	40.5	48.3	47.4	43.6	-8.2	-12.6	-15.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Latvia: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	2.668	2.382	2.306	2.174	2.115	2.022	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	12.4	8.7	12.8	25.4	31.8	43.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	650.6	461.0	367.7	231.5	199.1	160.8	-13.0	-10.3	-10.4	-5.3	-4.9	-6.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	1.73	1.55	1.43	1.25	1.11	-0.15	-0.27	-0.37	-9.6	-17.7	-25.0
Import Dependency %	87.3	56.1	55.9	46.9	38.1	32.8	-7.5	-13.8	-18.4			
Total Energy-related Costs ^(B) (in 000 M€05)		1.8	2.4	4.7	5.8	7.6	0.1	0.2	0.3	2.5	2.9	3.6
as % of GDP		20.5	18.8	18.5	18.4	17.4	0.5	0.5	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.2	0.3						
as % of GDP				0.50	0.59	0.66						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	146.0	100.0	93.7	70.9	62.9	56.5	-1.7	-2.6	-2.5	-2.3	-3.9	-4.3
Residential (Energy on Private Income, index 2000=100)	84.9	100.0	71.0	38.9	33.0	25.5	-1.8	-0.5	-0.5	-4.4	-1.4	-1.8
Tertiary (Energy on Value added, index 2000=100)	311.7	100.0	82.8	51.9	43.0	32.5	-3.8	-3.4	-3.4	-6.8	-7.2	-9.4
Passenger transport (toe/Mpkm)	30.4	34.9	34.1	30.8	28.7	27.4	-1.4	-1.2	-0.9	-4.4	-4.0	-3.3
Freight transport (toe/Mtkm)	22.3	17.3	17.5	17.1	16.7	15.6	-1.1	-1.7	-2.6	-5.9	-9.4	-14.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.29	0.21	0.16	0.12	0.08	0.04	-0.04	-0.08	-0.09	-22.5	-49.8	-70.8
Final energy demand (t of CO ₂ /toe)	1.40	1.17	1.26	1.22	1.15	1.11	-0.04	-0.07	-0.14	-2.8	-5.8	-10.9
Industry	1.28	1.48	1.26	1.01	0.90	0.82	-0.04	-0.07	-0.23	-4.1	-7.5	-22.1
Residential	0.75	0.21	0.33	0.34	0.34	0.42	-0.04	-0.06	-0.07	-9.7	-15.8	-14.9
Tertiary	1.21	0.89	0.85	0.56	0.50	0.42	-0.04	-0.06	-0.08	-6.2	-10.4	-15.2
Transport	2.90	2.92	2.94	2.80	2.69	2.55	0.00	0.00	-0.03	0.0	-0.1	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	36.9	42.2	43.7	50.0	54.1	54.1	5.7	10.5	13.9			
Biofuels share in transport gasoline and diesel (%)	0.0	0.3	5.4	9.0	11.1	11.1	-0.2	-0.5	-0.6			
Gross Electricity generation by source (in GWh_e)												
	4135	4904	7558	8595	11170	11170	-476	-277	701	-5.9	-3.1	6.7
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	91	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	117	0	0	0	0	0	-22	0	0	-100.0		
Gas (including derived gases)	1104	1490	3411	3049	1837	1837	-615	-1235	-2956	-15.3	-28.8	-61.7
Biomass-waste	0	43	316	1185	4177	50	50	945	3614	18.9	393.7	641.6
Hydro (pumping excluded)	2818	3324	2940	3042	3033	100	100	3	11	3.5	0.1	0.4
Wind	4	47	879	1305	2106	0	0	0	22	0.0	0.0	1.1
Solar	0	0	2	3	7	0	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	10	10	10	10	10	10	10			
Net Generation Capacity in MW_e												
	2062	2144	3064	3308	3869	3869	-7	69	332	-0.2	2.1	9.4
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	1519	1578	1976	2182	2631	2631	-32	-50	-51	-1.6	-2.2	-1.9
Hydro (pumping excluded)	1517	1554	1563	1567	1574	0	0	0	0	0.0	0.0	0.0
Wind	2	24	405	602	1038	-38	-55	-56	-8.6	-8.4	-5.1	
Solar	0	0	4	7	14	0	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	5	5	5	5	5	5	5			
<u>Thermal power</u>	543	565	1087	1126	1238	25	118	383	2.4	11.7	44.7	
of which cogeneration units	542	564	609	922	949	43	352	200	7.7	61.8	26.7	
Solids fired	29	2	2	2	0	0	0	0	0	0.0	0.0	
Gas fired	414	502	957	868	578	0	-35	-184	0.0	-3.8	-24.1	
Oil fired	98	45	61	62	15	0	0	0	0.0	0.0	0.0	
Biomass-waste fired	2	16	67	195	644	25	153	566	60.6	364.6	723.7	
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	20.4	23.5	27.7	29.2	32.1	32.1	-1.6	-1.5	-1.2			
Efficiency of gross thermal power generation (%)	18.6	22.3	45.3	44.5	44.4	44.4	-0.1	-1.3	-2.8			
% of gross electricity from CHP	24.0	11.8	42.9	41.3	43.4	43.4	0.7	0.4	-0.4			
Carbon free gross electricity generation (%)	68.3	69.6	54.9	64.5	83.6	83.6	5.3	12.8	29.3			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	68.3	69.6	54.9	64.5	83.6	83.6	5.3	12.8	29.3			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	17.7	12.3	15.8	22.4	24.6	27.8	-0.2	-0.3	-0.4	-1.1	-1.3	-1.5
Private cars and motorcycles	5.9	2.3	2.8	3.2	3.3	3.4	0.1	0.1	0.1	1.7	2.1	2.2
Rail	5.8	8.7	11.6	17.0	18.8	21.5	-0.3	-0.4	-0.5	-1.8	-2.2	-2.4
Aviation	5.8	1.1	1.3	1.7	2.0	2.3	0.0	0.0	0.1	1.7	2.1	2.5
Inland navigation	0.1	0.2	0.2	0.4	0.5	0.6	0.0	0.0	0.0	-2.9	-3.0	-3.5
Freight transport activity (Gtkm)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	24.8	18.1	26.3	43.3	49.9	58.9	-0.6	-1.0	-1.6	-1.5	-2.0	-2.6
Rail	5.9	4.8	8.4	15.5	18.8	24.6	-0.9	-1.4	-2.0	-5.5	-6.8	-7.4
Inland navigation	18.5	13.3	17.9	27.8	31.1	34.3	0.3	0.3	0.4	0.9	1.1	1.2
Energy demand in transport (ktoe)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1094	744	999	1431	1539	1677	-98	-145	-218	-6.4	-8.6	-11.5
Private cars and motorcycles	111	23	25	25	25	21	0	-1	-3	-0.5	-2.4	-11.6
Trucks	317	373	451	588	604	661	-20	-29	-28	-3.2	-4.6	-4.0
Rail	370	241	371	612	703	860	-59	-105	-175	-8.7	-13.1	-16.9
Aviation	188	75	93	134	135	60	0	-1	-5	0.2	-0.5	-7.6
Inland navigation	73	27	59	72	73	76	-20	-9	-7	-21.5	-11.3	-8.9
Inland navigation	35	4	0	0	0	0	0	0	0			

Source: PRIMES

Lithuania: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	4768	3724	3210	3721	1281	1699	6080	7008	7849	-3.9	-8.8	16.9	2.6	
Solids	42	43	35	39	9	6	5	5	4	-1.7	-12.8	-5.2	-3.8	
Oil	12	130	347	239	228	243	232	227	235	40.0	-4.1	0.1	0.2	
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	4394	3050	2172	2666	0	0	3969	4433	4903	-6.8			2.1	
Renewable energy sources	321	501	656	777	1044	1449	1874	2344	2707	7.4	4.8	6.0	3.7	
Hydro	36	32	29	39	35	36	36	37	37	-2.0	1.9	0.3	0.2	
Biomass & Waste	285	469	627	735	960	1321	1723	2154	2490	8.2	4.4	6.0	3.8	
Wind	0	0	0	0	47	86	105	137	158			8.2	4.2	
Solar and others	0	0	0	0	1	5	10	16	22			26.8	8.1	
Geothermal	0	0	0	3	0	0	0	0	0			7.7	3.7	
Net Imports	11666	5643	4327	5096	6450	6656	4829	4713	4766	-9.4	4.1	-2.9	-0.1	
Solids	758	157	84	190	259	248	162	164	169	-19.8	12.0	-4.6	0.4	
Oil	7260	3686	2299	2677	2738	2891	2613	2491	2586	-10.9	1.8	-0.5	-0.1	
- Crude oil and Feedstocks	9531	3609	4827	9054	9631	10206	9728	9511	9866	-6.6	7.2	0.1	0.1	
- Oil products	-2271	77	-2528	-6377	-6894	-7316	-7115	-7020	-7280					
Natural gas	4678	2029	2065	2492	3455	3622	2049	1885	1752	-7.9	5.3	-5.1	-1.6	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Gross Inland Consumption	16071	8706	7080	8606	7563	8166	10711	11517	12413	-7.9	0.7	3.5	1.5	
Solids	831	285	121	215	268	255	167	168	172	-17.5	8.3	-4.6	0.3	
Oil	6878	3080	2190	2746	2797	2946	2647	2513	2619	-10.8	2.5	-0.6	-0.1	
Natural gas	4678	2029	2064	2476	3455	3622	2049	1885	1752	-7.9	5.3	-5.1	-1.6	
Nuclear	4394	3050	2172	2666	0	0	3969	4433	4903	-6.8			2.1	
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419					
Renewable energy forms	320	493	649	758	1019	1415	2297	2930	3385	7.3	4.6	8.5	4.0	
as % in Gross Inland Consumption														
Solids	5.2	3.3	1.7	2.5	3.5	3.1	1.6	1.5	1.4					
Oil	42.8	35.4	30.9	31.9	37.0	36.1	24.7	21.8	21.1					
Natural gas	29.1	23.3	29.1	28.8	45.7	44.4	19.1	16.4	14.1					
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	37.1	38.5	39.5					
Renewable energy forms	2.0	5.7	9.2	8.8	13.5	17.3	21.4	25.4	27.3					
Gross Electricity Generation in GWh_e	28400	13518	11118	14410	11336	13570	21208	23397	25968	-9.0	0.2	6.5	2.0	
Self consumption and grid losses	3486	2241	1906	1788	852	1010	1767	2092	2498	-5.9	-7.7	7.6	3.5	
Fuel Inputs to Thermal Power Generation	2610	950	911	1218	2204	2524	847	983	1075	-10.0	9.2	-9.1	2.4	
Solids	0	0	0	0	86	86	1	1	1			-33.6	-4.0	
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.9	-33.7		
Gas (including derived gases)	1543	433	716	1044	2060	2217	403	238	117	-7.4	11.1	-15.1	-11.6	
Biomass & Waste	0	0	0	5	57	221	443	745	957			22.8	8.0	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	11408	4490	5755	9951	10155	10642	10601	10225	10542	-6.6	5.8	0.4	-0.1	
Refineries	9561	3392	5086	9418	9802	10416	9943	9729	10097	-6.1	6.8	0.1	0.2	
Biofuels and hydrogen production	0	0	0	3	14	55	157	174	186			27.2	1.7	
District heating	1823	1079	657	522	335	169	500	320	258	-9.7	-6.5	4.1	-6.4	
Derived gases, cokeries etc.	24	18	12	8	4	2	1	1	1	-7.0	-11.4	-10.3	-3.0	
Energy Branch Consumption	991	601	655	915	763	836	932	980	1038	-4.1	1.5	2.0	1.1	
Non-Energy Uses	852	540	648	775	964	1098	1167	1287	1410	-2.7	4.1	1.9	1.9	
Final Energy Demand	9696	4728	3820	4527	5017	5343	5735	6094	6517	-8.9	2.8	1.3	1.3	
by sector														
Industry	3334	1025	782	996	1127	1275	1436	1636	1855	-13.5	3.7	2.5	2.6	
- energy intensive industries	1678	482	362	436	532	602	686	773	869	-14.2	3.9	2.6	2.4	
- other industrial sectors	1656	543	420	560	595	672	751	862	986	-12.8	3.5	2.4	2.8	
Residential	1854	1733	1402	1437	1477	1508	1672	1793	1925	-2.8	0.5	1.2	1.4	
Tertiary	2518	933	589	697	745	750	822	848	853	-13.5	2.4	1.0	0.4	
Transport	1990	1037	1048	1397	1668	1811	1805	1817	1884	-6.2	4.8	0.8	0.4	
by fuel														
Solids	760	241	96	197	169	158	156	160	166	-18.7	5.8	-0.8	0.6	
Oil	4055	1666	1348	1599	1903	2041	1950	1952	2015	-10.4	3.5	0.2	0.3	
Gas	1483	510	363	503	547	450	368	399	420	-13.1	4.2	-3.9	1.4	
Electricity	1048	670	606	749	853	932	1144	1303	1477	-5.3	3.5	3.0	2.6	
Heat (from CHP and District Heating)	2078	1193	828	905	884	825	841	838	859	-8.8	0.7	-0.5	0.2	
Renewable energy forms	272	448	579	574	661	936	1276	1442	1579	7.9	1.3	6.8	2.1	
Other	0	0	0	0	0	0	0	1	1			12.7	1.7	
RES in Gross Final Energy Consumption ^(A)			671	726	986	1354	1999	2358	2676		3.9	7.3	3.0	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9		17.3	19.2	21.3	20.7	15.8	13.2	12.0	-9.1	2.1	-3.0	-2.7	
CO₂ Emissions (energy related)	32.5	13.6	10.4	12.6	14.8	15.2	10.1	9.1	8.8	-10.8	3.6	-3.7	-1.4	
Power generation/District heating	12.0	5.6	3.9	4.0	5.5	5.6	1.6	1.1	0.7	-10.5	3.3	-11.5	-8.0	
Energy Branch	1.7	0.9	1.2	2.0	1.8	1.9	1.3	0.7	0.5	-3.3	4.2	-3.4	-9.1	
Industry	6.1	1.7	1.1	1.3	1.6	1.4	1.3	1.3	1.4	-15.9	3.7	-2.1	1.4	
Residential	2.3	0.8	0.6	0.7	0.6	0.6	0.6	0.7	0.8	-13.2	0.4	0.8	2.2	
Tertiary	4.5	1.6	0.5	0.6	0.6	0.5	0.4	0.4	0.4	-19.8	1.0	-2.3	-2.1	
Transport	5.8	3.0	3.1	4.1	4.9	5.2	4.9	4.9	5.0	-6.2	4.7	0.1	0.2	
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Non-CO₂ GHGs Emissions	12.4		6.9	6.6	6.5	5.5	5.6	4.1	3.2	-5.7	-0.6	-1.4	-5.5	
TOTAL GHGs Emissions Index (1990=100)	100.0		38.4	42.7	47.4	46.2	35.1	29.3	26.7					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Lithuania: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3	
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8	
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	269.2	226.7	239.8	211.6	192.0	-5.1	-6.0	-1.1	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.56	1.46	1.47	1.96	1.87	0.94	0.79	0.71	-3.2	3.0	-7.0	-2.9	
Import Dependency %	72.2	63.8	60.3	58.3	83.4	79.7	44.3	40.2	37.8					
Total Energy-related Costs ^(B) (in 000 M€05)			2.7	3.1	5.0	6.7	8.1	9.3	10.5		6.3	5.0	2.7	
as % of GDP			19.0	15.2	17.7	18.5	18.0	17.1	16.2					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	267.2	185.2	100.0	79.4	63.4	54.2	48.5	45.5	43.4	-9.4	-4.5	-2.6	-1.1	
Residential (Energy on Private Income, index 2000=100)	99.9	161.1	100.0	68.7	52.7	42.5	38.5	34.2	31.2	0.0	-6.2	-3.1	-2.1	
Tertiary (Energy on Value added, index 2000=100)	442.7	201.8	100.0	87.3	71.3	56.7	50.2	42.3	35.7	-13.8	-3.3	-3.4	-3.3	
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.7	25.9	24.2	23.4	24.6	0.4	-2.6	-1.0	0.2	
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.2	16.3	14.9	14.0	13.5	-7.6	-2.3	-1.4	-1.0	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.17	0.16	0.14	0.22	0.22	0.05	0.03	0.02	-2.7	3.4	-14.2	-9.2	
Final energy demand (t of CO ₂ /toe)	1.94	1.51	1.37	1.47	1.51	1.44	1.26	1.20	1.16	-3.5	1.0	-1.8	-0.8	
Industry	1.83	1.70	1.38	1.35	1.38	1.11	0.87	0.81	0.78	-2.8	0.0	-4.5	-1.2	
Residential	1.26	0.47	0.41	0.46	0.40	0.40	0.38	0.41	0.41	-10.8	-0.1	-0.5	0.7	
Tertiary	1.80	1.66	0.85	0.83	0.74	0.67	0.53	0.48	0.42	-7.2	-1.4	-3.2	-2.5	
Transport	2.93	2.91	2.93	2.92	2.91	2.86	2.71	2.67	2.64	0.0	-0.1	-0.7	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			15.9	15.0	18.8	24.4	33.4	37.2	39.5					
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.9	3.1	8.9	9.9	10.4					
Gross Electricity generation by source (in GWh)														
			11118	14410	11336	13570	21208	23397	25968		0.2	6.5	2.0	
Nuclear energy			8417	10335	0	0	17580	19681	21821				2.2	
Solids			0	0	436	436	6	3	3				-6.7	
Oil (including refinery gas)			603	379	3	0	0	0	0		-40.3	-30.6		
Gas (including derived gases)			1759	3226	9673	10755	1040	376	66		18.6	-20.0	-24.0	
Biomass-waste			0	19	264	951	943	1315	1805			13.6	6.7	
Hydro (pumping excluded)			339	451	409	422	423	427	431		1.9	0.3	0.2	
Wind			0	0	551	1004	1215	1594	1842			8.2	4.2	
Solar			0	0	0	0	0	0	0					
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			4839	3827	3970	4420	6756	6881	6820		-2.0	5.5	0.1	
<u>Nuclear energy</u>			2291	1200	0	0	2030	2273	2520				2.2	
<u>Renewable energy</u>			98	115	646	1009	1147	1431	1625		20.8	5.9	3.5	
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7	
Wind			0	6	529	888	998	1270	1457			6.6	3.9	
Solar			0	0	1	4	7	13	16			21.3	8.6	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2451	2512	3324	3412	3579	3177	2675		3.1	0.7	-2.9	
of which cogeneration units			2442	2498	2525	2439	2124	2037	1872		0.3	-1.7	-1.3	
Solids fired			0	0	50	50	50	50	50			0.0	0.0	
Gas fired			1838	1877	2631	2621	2621	2306	1900		3.7	0.0	-3.2	
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	-58.6	
Biomass-waste fired			0	5	38	152	318	546	725			23.5	8.6	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			23.0	39.4	31.6	33.9	34.1	36.9	41.3					
Efficiency of gross thermal power generation (%)			22.3	25.6	40.5	41.4	20.2	14.8	15.0					
% of gross electricity from CHP			18.5	22.7	72.0	68.0	9.4	7.2	7.2					
Carbon free gross electricity generation (%)			78.8	75.0	10.8	17.5	95.1	98.4	99.7					
- nuclear			75.7	71.7	0.0	0.0	82.9	84.1	84.0					
- renewable energy forms			3.0	3.3	10.8	17.5	12.2	14.3	15.7					
Transport sector														
Passenger transport activity (Gpkm)	21.3	15.6	19.7	33.9	38.6	41.6	43.5	45.1	46.5	-0.8	6.9	1.2	0.7	
Public road transport	7.9	4.2	2.8	3.8	4.4	4.8	5.1	5.3	5.4	-10.0	4.8	1.5	0.5	
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.2	35.7	37.0	38.2	39.2	5.6	7.5	1.1	0.6	
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.8	0.9	-16.3	-2.9	3.5	3.9	
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.9	5.4	4.6	3.6	
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.1	2.1	1.0	
Freight transport activity (Gtkm)	26.8	12.4	16.7	28.4	37.2	45.1	50.6	54.3	54.8	-4.6	8.3	3.1	0.8	
Trucks	7.3	5.2	7.8	15.9	20.8	24.9	27.5	29.3	29.4	0.6	10.4	2.8	0.7	
Rail	19.3	7.2	8.9	12.5	16.3	20.1	23.1	25.0	25.5	-7.4	6.2	3.5	1.0	
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	1990	1037	1048	1397	1668	1811	1805	1817	1884	-6.2	4.8	0.8	0.4	
Public road transport	164	50	25	30	34	36	35	33	32	-17.1	3.1	0.3	-1.0	
Private cars and motorcycles	396	485	630	823	928	962	942	946	1029	4.8	4.0	0.1	0.9	
Trucks	1159	374	288	414	540	617	632	644	634	-13.0	6.5	1.6	0.0	
Rail	132	86	75	79	101	120	125	119	109	-5.5	3.0	2.1	-1.3	
Aviation	135	41	27	46	60	71	66	68	73	-14.9	8.4	1.0	1.1	
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.8	1.9	0.6	

Source: PRIMES

Lithuania: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	4768	3210	3721	1699	6080	7849	340	-47	-153	25.1	-0.8	-1.9
Solids	42	35	39	6	5	4	-1	-1	-1	-13.8	-12.7	-25.0
Oil	12	347	239	243	232	235	-13	-24	-22	-5.2	-9.2	-8.4
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	4394	2172	2666	0	3969	4903	0	-427	-649		-9.7	-11.7
Renewable energy sources	321	656	777	1449	1874	2707	355	405	519	32.4	27.6	23.7
Hydro	36	29	39	36	36	37	1	1	0	2.1	1.9	0.0
Biomass & Waste	285	627	735	1321	1723	2490	288	317	367	27.8	22.5	17.3
Wind	0	0	0	86	105	158	62	80	135	256.5	331.4	575.0
Solar and others	0	0	0	5	10	22	4	7	17	325.2	274.4	310.6
Geothermal	0	0	3	0	0	0	0	0	0	64.9	103.8	164.6
Net Imports	11666	4327	5096	6656	4829	4766	-837	-680	-764	-11.2	-12.3	-13.8
Solids	758	84	190	248	162	169	-125	-79	-22	-33.6	-32.8	-11.6
Oil	7260	2299	2677	2891	2613	2586	-166	-403	-425	-5.4	-13.4	-14.1
- Crude oil and Feedstocks	9531	4827	9054	10206	9728	9866	-558	-980	-894	-5.2	-9.1	-8.3
- Oil products	-2271	-2528	-6377	-7316	-7115	-7280	392	576	469	-5.1	-7.5	-6.1
Natural gas	4678	2065	2492	3622	2049	1752	-539	-658	-1050	-12.9	-24.3	-37.5
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16071	7080	8606	8166	10711	12413	-497	-727	-918	-5.7	-6.4	-6.9
Solids	831	121	215	255	167	172	-126	-80	-23	-33.2	-32.3	-11.9
Oil	6878	2190	2746	2946	2647	2619	-179	-427	-447	-5.7	-13.9	-14.6
Natural gas	4678	2064	2476	3622	2049	1752	-539	-658	-1050	-12.9	-24.3	-37.5
Nuclear	4394	2172	2666	0	3969	4903	0	-427	-649		-9.7	-11.7
Electricity	-1030	-115	-255	-71	-417	-419	0	0	0	0.0	0.0	0.0
Renewable energy forms	320	649	758	1415	2297	3385	347	865	1252	32.5	60.4	58.7
as % in Gross Inland Consumption												
Solids	5.2	1.7	2.5	3.1	1.6	1.4	-1.3	-0.6	-0.1			
Oil	42.8	30.9	31.9	36.1	24.7	21.1	0.0	-2.2	-1.9			
Natural gas	29.1	29.1	28.8	44.4	19.1	14.1	-3.7	-4.5	-6.9			
Nuclear	27.3	30.7	31.0	0.0	37.1	39.5	0.0	-1.4	-2.2			
Renewable energy forms	2.0	9.2	8.8	17.3	21.4	27.3	5.0	8.9	11.3			
Gross Electricity Generation in GWh_e	28400	11118	14410	13570	21208	25968	-1010	-995	-306	-6.9	-4.5	-1.2
Self consumption and grid losses	3486	1906	1788	1010	1767	2498	-104	-159	-76	-9.3	-8.2	-2.9
Fuel Inputs to Thermal Power Generation	2610	911	1218	2524	847	1075	-359	52	332	-12.4	6.5	44.7
Solids	0	0	0	86	1	1	-105	-57	-1	-54.9	-97.6	-57.2
Oil (including refinery gas)	1067	196	169	0	0	0	0	0	0	-6.8	-4.3	
Gas (including derived gases)	1543	716	1044	2217	403	117	-438	-291	-453	-16.5	-42.0	-79.5
Biomass & Waste	0	0	5	221	443	957	183	400	787	490.0	936.4	461.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11408	5755	9951	10642	10601	10542	-603	-1169	-1258	-5.4	-9.9	-10.7
Refineries	9561	5086	9418	10416	9943	10097	-572	-1003	-916	-5.2	-9.2	-8.3
Biofuels and hydrogen production	0	0	3	55	157	186	-5	-21	-30	-7.8	-11.6	-13.7
District heating	1823	657	522	169	500	258	-26	-144	-312	-13.5	-22.4	-54.7
Derived gases, cokeries etc.	24	12	8	2	1	1	-1	-1	-1	-24.9	-39.5	-48.3
Energy Branch Consumption	991	655	915	836	932	1038	-30	-45	-50	-3.5	-4.6	-4.6
Non-Energy Uses	852	648	775	1098	1167	1410	0	0	0	0.0	0.0	0.0
Final Energy Demand	9696	3820	4527	5343	5735	6517	-298	-371	-466	-5.3	-6.1	-6.7
by sector												
Industry	3334	782	996	1275	1436	1855	-53	-37	-21	-4.0	-2.5	-1.1
- energy intensive industries	1678	362	436	602	686	869	-20	2	11	-3.2	0.4	1.2
- other industrial sectors	1656	420	560	672	751	986	-33	-40	-32	-4.7	-5.0	-3.1
Residential	1854	1402	1437	1508	1672	1925	-81	-70	-92	-5.1	-4.0	-4.5
Tertiary	2518	589	697	750	822	853	-77	-113	-181	-9.3	-12.1	-17.5
Transport	1990	1048	1397	1811	1805	1884	-86	-151	-172	-4.6	-7.7	-8.4
by fuel												
Solids	760	96	197	158	156	166	-21	-22	-20	-11.5	-12.3	-10.8
Oil	4055	1348	1599	2041	1950	2015	-93	-160	-194	-4.3	-7.6	-8.8
Gas	1483	363	503	450	368	420	-106	-138	-156	-19.0	-27.3	-27.1
Electricity	1048	606	749	932	1144	1477	-76	-64	-9	-7.5	-5.3	-0.6
Heat (from CHP and District Heating)	2078	828	905	825	841	859	-77	-57	-81	-8.5	-6.3	-8.6
Renewable energy forms	272	579	574	936	1276	1579	73	70	-6	8.4	5.8	-0.4
Other	0	0	0	0	0	1	0	0	0	3.1	-6.2	-9.4
RES in Gross Final Energy Consumption ^(A)		671	726	1354	1999	2676	312	614	856	30.0	44.4	47.0
TOTAL GHGs Emissions (Mt of CO₂ eq.)	44.9	17.3	19.2	20.7	15.8	12.0	-3.3	-4.5	-4.9	-13.6	-22.4	-28.9
CO₂ Emissions (energy related)	32.5	10.4	12.6	15.2	10.1	8.8	-2.3	-3.1	-3.8	-13.0	-23.7	-30.5
Power generation/District heating	12.0	3.9	4.0	5.6	1.6	0.7	-1.6	-1.5	-1.9	-21.7	-48.9	-73.3
Energy Branch	1.7	1.2	2.0	1.9	1.3	0.5	-0.1	-0.7	-0.9	-4.8	-35.3	-64.4
Industry	6.1	1.1	1.3	1.4	1.3	1.4	-0.2	-0.3	-0.2	-12.1	-16.9	-12.4
Residential	2.3	0.6	0.7	0.6	0.6	0.8	-0.1	-0.1	-0.2	-9.8	-12.8	-16.9
Tertiary	4.5	0.5	0.6	0.5	0.4	0.4	-0.1	-0.1	-0.2	-15.9	-22.3	-34.0
Transport	5.8	3.1	4.1	5.2	4.9	5.0	-0.3	-0.4	-0.5	-4.6	-7.8	-8.8
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.5	-3.7	-6.8
Non-CO₂ GHGs Emissions	12.4	6.9	6.6	5.5	5.6	3.2	-1.0	-1.4	-1.0	-15.2	-19.9	-23.9
TOTAL GHGs Emissions Index (1990=100)	100.0	38.4	42.7	46.2	35.1	26.7	-7.2	-10.1	-10.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Lithuania: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	3.694	3.512	3.425	3.258	3.182	3.092	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.2	14.2	20.6	36.0	44.7	64.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	837.2	498.5	417.4	226.7	239.8	192.0	-13.8	-16.3	-14.2	-5.7	-6.4	-6.9
Carbon intensity (t of CO ₂ /toe of GIC)	2.02	1.46	1.47	1.87	0.94	0.71	-0.15	-0.21	-0.24	-7.7	-18.5	-25.4
Import Dependency %	72.2	60.3	58.3	79.7	44.3	37.8	-5.0	-3.1	-3.1			
Total Energy-related Costs ^(B) (in 000 M€05)		2.7	3.1	6.7	8.1	10.5	0.2	0.3	0.4	3.0	3.3	3.9
as % of GDP		19.0	15.2	18.5	18.0	16.2	0.5	0.6	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.3	0.4						
as % of GDP				0.58	0.64	0.64						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	267.2	100.0	79.4	54.2	48.5	43.4	-2.3	-1.3	-0.5	-4.0	-2.5	-1.1
Residential (Energy on Private Income, index 2000=100)	99.9	100.0	68.7	42.5	38.5	31.2	-2.3	-1.6	-1.5	-5.1	-4.0	-4.5
Tertiary (Energy on Value added, index 2000=100)	442.7	100.0	87.3	56.7	50.2	35.7	-5.8	-6.9	-7.6	-9.3	-12.1	-17.5
Passenger transport (toe/Mpkm)	33.3	34.8	26.7	25.9	24.2	24.6	-0.4	-1.0	-0.8	-1.7	-4.0	-3.1
Freight transport (toe/Mtkm)	47.8	21.6	17.3	16.3	14.9	13.5	-1.0	-1.5	-1.9	-5.8	-9.4	-12.4
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.21	0.16	0.14	0.22	0.05	0.02	-0.04	-0.04	-0.05	-15.4	-46.2	-72.4
Final energy demand (t of CO ₂ /toe)	1.94	1.37	1.47	1.44	1.26	1.16	-0.03	-0.07	-0.07	-2.1	-5.2	-5.7
Industry	1.83	1.38	1.35	1.11	0.87	0.78	-0.10	-0.15	-0.10	-8.5	-14.8	-11.4
Residential	1.26	0.41	0.46	0.40	0.38	0.41	-0.02	-0.04	-0.06	-5.0	-9.1	-12.9
Tertiary	1.80	0.85	0.83	0.67	0.53	0.42	-0.05	-0.07	-0.10	-7.3	-11.6	-19.9
Transport	2.93	2.93	2.92	2.86	2.71	2.64	0.00	0.00	-0.01	-0.1	-0.1	-0.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		15.9	15.0	24.4	33.4	39.5	6.6	11.7	14.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.3	3.1	8.9	10.4	-0.1	-0.4	-0.5			
Gross Electricity generation by source (in GWh_e)												
	11118	14410	13570	21208	25968	25968	-1010	-995	-306	-6.9	-4.5	-1.2
Nuclear energy	8417	10335	0	17580	21821	21821	0	-1893	-2901		-9.7	-11.7
Solids	0	0	436	6	3	3	-576	-313	-3	-56.9	-98.1	-46.7
Oil (including refinery gas)	603	379	0	0	0	0	0	0	0	-6.8	-4.3	
Gas (including derived gases)	1759	3226	10755	1040	66	66	-1943	-635	-753	-15.3	-37.9	-91.9
Biomass-waste	0	19	951	943	1805	1805	778	904	1782	449.2	2273.7	7534.0
Hydro (pumping excluded)	339	451	422	423	431	431	9	8	0	2.1	1.9	0.0
Wind	0	0	1004	1215	1842	1842	723	934	1569	256.5	331.4	575.0
Solar	0	0	0	0	0	0	0	0	0			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	4839	3827	4420	6756	6820	6820	731	783	1448	19.8	13.1	26.9
<u>Nuclear energy</u>	2291	1200	0	2030	2520	2520	0	-219	-335		-9.7	-11.7
<u>Renewable energy</u>	98	115	1009	1147	1625	1625	684	794	1259	210.6	225.2	344.4
Hydro (pumping excluded)	98	108	117	141	152	152	0	0	0	0.0	0.0	0.0
Wind	0	6	888	998	1457	1457	684	794	1259	335.0	389.0	636.8
Solar	0	0	4	7	16	16	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	2451	2512	3412	3579	2675	2675	47	208	524	1.4	6.2	24.3
of which cogeneration units	2442	2498	2439	2124	1872	1872	190	288	603	8.5	15.7	47.6
Solids fired	0	0	50	50	50	50	-67	-67	-67	-57.3	-57.3	-57.3
Gas fired	1838	1877	2621	2621	1900	1900	-13	-13	-13	-0.5	-0.5	-0.7
Oil fired	613	631	588	589	0	0	0	0	0	0.0	0.0	-7.3
Biomass-waste fired	0	5	152	318	725	725	127	288	604	505.3	982.5	498.6
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	23.0	39.4	33.9	34.1	41.3	41.3	-9.7	-6.2	-11.7			
Efficiency of gross thermal power generation (%)	22.3	25.6	41.4	20.2	15.0	15.0	0.0	-1.8	5.2			
% of gross electricity from CHP	18.5	22.7	68.0	9.4	7.2	7.2	-1.0	1.6	4.0			
Carbon free gross electricity generation (%)	78.8	75.0	17.5	95.1	99.7	99.7	11.6	4.0	2.9			
- nuclear	75.7	71.7	0.0	82.9	84.0	84.0	0.0	-4.8	-10.1			
- renewable energy forms	3.0	3.3	17.5	12.2	15.7	15.7	11.6	8.9	12.9			
Transport sector												
Passenger transport activity (Gpkm)												
	21.3	19.7	33.9	41.6	43.5	46.5	-0.5	-0.6	-0.6	-1.1	-1.3	-1.4
Public road transport	7.9	2.8	3.8	4.8	5.1	5.4	0.1	0.1	0.1	2.1	2.6	2.8
Private cars and motorcycles	9.3	16.1	29.3	35.7	37.0	39.2	-0.5	-0.7	-0.8	-1.5	-1.9	-2.0
Rail	3.6	0.6	0.4	0.5	0.6	0.9	0.0	0.0	0.0	2.1	2.9	3.3
Aviation	0.2	0.2	0.3	0.5	0.6	0.9	0.0	0.0	0.0	-2.6	-3.5	-3.4
Inland navigation	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.6	-0.8	-1.0
Freight transport activity (Gtkm)												
	26.8	16.7	28.4	45.1	50.6	54.8	-0.6	-0.8	-1.0	-1.4	-1.6	-1.7
Trucks	7.3	7.8	15.9	24.9	27.5	29.4	-1.1	-1.6	-1.8	-4.4	-5.3	-5.8
Rail	19.3	8.9	12.5	20.1	23.1	25.5	0.5	0.7	0.8	2.6	3.1	3.4
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-0.9	-1.1
Energy demand in transport (ktoe)												
	1990	1048	1397	1811	1805	1884	-86	-151	-172	-4.6	-7.7	-8.4
Public road transport	164	25	30	36	35	32	0	-1	-4	-0.3	-2.3	-11.5
Private cars and motorcycles	396	630	823	962	942	1029	-28	-39	-37	-2.8	-4.0	-3.5
Trucks	1159	288	414	617	632	634	-57	-93	-121	-8.5	-12.8	-16.0
Rail	132	75	79	120	125	109	1	1	1	1.0	1.0	1.2
Aviation	135	27	46	71	66	73	-3	-19	-11	-3.8	-22.1	-13.4
Inland navigation	5	3	5	6	6	7	0	0	0	-1.0	-1.8	-3.2

Source: PRIMES

Luxembourg: Cost Efficiency Scenario with high prices					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	47	47	57	74	160	201	258	274	286	1.9	10.9	4.9	1.0	
Solids	0	0	0	0	0	0	0	0	0					
Oil	0	0	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	0	0	0	0	0	0	0	0	0					
Renewable energy sources	47	47	57	74	160	201	258	274	286	1.9	10.9	4.9	1.0	
Hydro	6	7	10	8	9	9	9	10	10	5.8	-1.0	0.1	0.1	
Biomass & Waste	41	39	44	59	89	111	139	152	167	0.7	7.3	4.6	1.8	
Wind	0	0	2	5	13	14	20	21	17		19.2	4.2	-1.9	
Solar and others	0	0	0	2	48	66	89	92	93			6.4	0.4	
Geothermal	0	0	0	0	0	0	0	0	0			3.2	0.3	
Net Imports	3520	3257	3620	4606	4825	4758	4563	4565	4640	0.3	2.9	-0.6	0.2	
Solids	1134	514	125	82	54	49	45	35	28	-19.8	-8.1	-1.8	-4.5	
Oil	1620	1756	2332	3066	3250	3047	2775	2651	2622	3.7	3.4	-1.6	-0.6	
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0					
- Oil products	1620	1756	2332	3066	3250	3047	2775	2651	2622	3.7	3.4	-1.6	-0.6	
Natural gas	430	557	670	1179	1119	1193	1188	1271	1321	4.6	5.3	0.6	1.1	
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Gross Inland Consumption	3556	3335	3628	4698	4985	4960	4821	4839	4927	0.2	3.2	-0.3	0.2	
Solids	1134	514	125	82	54	49	45	35	28	-19.8	-8.1	-1.8	-4.5	
Oil	1609	1788	2283	3084	3250	3047	2775	2651	2622	3.6	3.6	-1.6	-0.6	
Natural gas	430	557	670	1179	1119	1193	1188	1271	1321	4.6	5.3	0.6	1.1	
Nuclear	0	0	0	0	0	0	0	0	0					
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9	
Renewable energy forms	47	47	57	74	208	329	483	520	556	1.9	13.9	8.8	1.4	
as % in Gross Inland Consumption														
Solids	31.9	15.4	3.5	1.7	1.1	1.0	0.9	0.7	0.6					
Oil	45.2	53.6	62.9	65.6	65.2	61.4	57.5	54.8	53.2					
Natural gas	12.1	16.7	18.5	25.1	22.5	24.0	24.6	26.3	26.8					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Renewable energy forms	1.3	1.4	1.6	1.6	4.2	6.6	10.0	10.7	11.3					
Gross Electricity Generation in GWh_e	627	498	433	3344	2651	3226	3636	4426	5059	-3.6	19.9	3.2	3.4	
Self consumption and grid losses	410	497	439	448	185	206	223	284	339	0.7	-8.3	1.8	4.3	
Fuel Inputs to Thermal Power Generation	190	132	75	568	447	524	556	671	762	-8.8	19.5	2.2	3.2	
Solids	0	0	0	0	0	0	0	0	0					
Oil (including refinery gas)	3	2	0	0	1	0	0	0	0					
Gas (including derived gases)	162	106	47	525	397	471	484	582	655	-11.6	23.7	2.0	3.1	
Biomass & Waste	25	24	28	43	50	54	73	89	107	1.0	5.9	3.8	3.9	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	378	144	0	1	70	167	273	294	319			14.6	1.6	
Refineries	0	0	0	0	0	0	0	0	0					
Biofuels and hydrogen production	0	0	0	1	70	167	273	294	319			14.6	1.6	
District heating	0	0	0	0	0	0	0	0	0					
Derived gases, cokeries etc.	378	144	0	0	0	0	0	0	0					
Energy Branch Consumption	31	30	26	30	7	7	8	10	11	-1.8	-12.8	2.2	2.9	
Non-Energy Uses	20	23	14	20	25	28	29	31	32	-3.9	6.4	1.3	1.1	
Final Energy Demand	3329	3165	3549	4424	4760	4687	4523	4488	4533	0.6	3.0	-0.5	0.0	
by sector														
Industry	1729	1196	958	937	979	1039	1074	1122	1172	-5.7	0.2	0.9	0.9	
- energy intensive industries	1525	900	501	470	477	494	485	488	485	-10.5	-0.5	0.2	0.0	
- other industrial sectors	204	296	457	467	502	544	589	634	687	8.4	0.9	1.6	1.5	
Residential	519	563	596	649	670	631	613	592	563	1.4	1.2	-0.9	-0.9	
Tertiary	74	99	118	130	132	136	115	117	118	4.7	1.2	-1.4	0.3	
Transport	1007	1307	1877	2708	2979	2882	2721	2657	2680	6.4	4.7	-0.9	-0.2	
by fuel														
Solids	756	369	125	82	54	49	45	35	28	-16.5	-8.0	-1.8	-4.5	
Oil	1581	1752	2266	3065	3224	3019	2746	2620	2590	3.7	3.6	-1.6	-0.6	
Gas	622	585	623	678	723	721	703	687	664	0.0	1.5	-0.3	-0.6	
Electricity	355	430	491	529	565	603	625	719	806	3.3	1.4	1.0	2.6	
Heat (from CHP and District Heating)	0	14	27	55	74	76	75	80	81		10.6	0.1	0.8	
Renewable energy forms	15	15	16	16	121	219	329	345	362	0.4	22.4	10.5	1.0	
Other	0	0	0	0	0	1	1	2	2			14.0	6.0	
RES in Gross Final Energy Consumption ^(A)			34	48	188	290	423	453	482		18.6	8.4	1.3	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8		10.3	13.9	14.1	13.5	12.7	12.4	12.4	-2.1	3.1	-1.0	-0.2	
CO₂ Emissions (energy related)	10.6	8.7	8.8	12.4	12.6	12.1	11.2	11.0	11.0	-1.8	3.6	-1.1	-0.2	
Power generation/District heating	0.7	0.4	0.1	1.2	0.9	1.1	1.1	1.4	1.5	-17.0	23.8	2.0	3.1	
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Industry	5.7	3.1	1.7	1.5	1.5	1.5	1.5	1.5	1.5	-11.5	-1.2	0.4	0.0	
Residential	1.3	1.3	1.4	1.4	1.3	1.1	1.0	0.9	0.7	1.1	-0.8	-2.4	-3.9	
Tertiary	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-2.1	-0.5	-1.1	
Transport	3.0	3.9	5.6	8.1	8.8	8.3	7.5	7.2	7.2	6.5	4.6	-1.6	-0.4	
CO₂ Emissions (non energy related)	1.6	1.0	0.7	0.7	0.7	0.7	0.7	0.6	0.6	-7.6	-0.6	-0.3	-0.5	
Non-CO₂ GHGs Emissions	0.6		0.8	0.9	0.8	0.8	0.7	0.8	0.8	2.4	0.6	-0.9	0.3	
TOTAL GHGs Emissions Index (1990=100)	100.0		80.6	108.5	109.6	105.7	98.7	96.9	96.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9	
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6	
Gross Int. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	136.3	113.3	94.1	82.2	74.5	-5.9	-0.5	-3.6	-2.3	
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.61	2.44	2.64	2.52	2.44	2.33	2.28	2.24	-2.0	0.3	-0.8	-0.4	
Import Dependency %	99.0	97.7	99.8	98.0	96.8	95.9	94.6	94.3	94.2					
Total Energy-related Costs ^(B) (in 000 M€05)			2.6	3.3	4.6	5.4	6.1	6.7	7.4		5.7	3.0	1.8	
as % of GDP			10.4	11.4	12.5	12.2	12.0	11.4	11.1					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	257.2	159.2	100.0	96.3	86.7	78.2	70.2	64.4	60.5	-9.0	-1.4	-2.1	-1.5	
Residential (Energy on Private Income, index 2000=100)	125.2	116.2	100.0	91.5	81.5	66.2	56.3	48.2	41.4	-2.2	-2.0	-3.6	-3.0	
Tertiary (Energy on Value added, index 2000=100)	104.8	111.9	100.0	93.4	77.0	66.1	47.6	42.3	38.2	-0.5	-2.6	-4.7	-2.2	
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	165.9	146.5	129.5	115.8	110.7	1.8	1.0	-2.4	-1.6	
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	141.9	131.1	119.2	113.0	108.6	0.0	4.3	-1.7	-0.9	
Carbon Intensity Indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.59	0.15	0.31	0.26	0.26	0.25	0.25	0.25	-18.4	5.7	-0.5	0.3	
Final energy demand (t of CO ₂ /toe)	2.98	2.63	2.46	2.52	2.44	2.35	2.24	2.15	2.09	-1.9	-0.1	-0.9	-0.7	
Industry	3.28	2.58	1.74	1.63	1.51	1.48	1.43	1.37	1.32	-6.1	-1.4	-0.5	-0.8	
Residential	2.45	2.39	2.37	2.21	1.95	1.80	1.68	1.44	1.22	-0.3	-1.9	-1.5	-3.1	
Tertiary	0.21	0.34	0.65	0.48	0.47	0.46	0.52	0.47	0.45	12.0	-3.2	1.0	-1.4	
Transport	2.95	2.96	2.97	3.00	2.95	2.86	2.75	2.72	2.69	0.1	-0.1	-0.7	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.1	3.9	6.2	9.3	10.0	10.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	5.6	9.6	10.6	11.5					
Gross Electricity generation by source (in GWh)														
			433	3344	2651	3226	3636	4426	5059		19.9	3.2	3.4	
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1	0	2	0	0	0	0		9.3			
Gas (including derived gases)			222	3083	2188	2710	2965	3681	4282		25.7	3.1	3.7	
Biomass-waste			63	97	176	221	301	368	442		10.8	5.5	3.9	
Hydro (pumping excluded)			120	93	109	110	110	111	112		-1.0	0.1	0.1	
Wind			27	53	156	164	237	241	195		19.2	4.2	-1.9	
Solar			0	18	20	21	23	25	28			1.7	1.9	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			275	722	891	988	1138	1277	1418		12.5	2.5	2.2	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			167	214	276	285	318	324	306		5.1	1.4	-0.4	
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0	
Wind			10	35	95	102	132	137	115		25.3	3.4	-1.4	
Solar			2	23	25	28	30	33	36		29.0	1.7	1.7	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			108	509	615	703	820	953	1112		19.0	2.9	3.1	
of which cogeneration units			61	112	228	243	235	228	247		14.1	0.3	0.5	
Solids fired			0	0	0	0	0	0	0					
Gas fired			87	477	503	591	713	834	987		19.2	3.5	3.3	
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5	
Biomass-waste fired			15	25	105	107	103	115	121		21.7	-0.2	1.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			16.8	52.5	33.1	36.3	35.6	38.6	39.7					
Efficiency of gross thermal power generation (%)			32.7	48.1	45.5	48.1	50.5	51.9	53.3					
% of gross electricity from CHP			53.7	11.8	28.5	28.1	28.1	25.0	22.0					
Carbon free gross electricity generation (%)			48.5	7.8	17.4	16.0	18.5	16.8	15.4					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			48.5	7.8	17.4	16.0	18.5	16.8	15.4					
Transport sector														
Passenger transport activity (Gpkm)	5.2	6.2	7.4	8.3	9.0	9.5	9.8	10.1	10.4	3.5	2.0	0.8	0.7	
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.1	2.6	3.9	0.8	1.0	
Private cars and motorcycles	4.2	4.9	5.8	6.4	6.9	7.2	7.3	7.5	7.7	3.4	1.8	0.6	0.6	
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	4.8	-2.0	0.9	2.0	
Aviation	0.4	0.5	0.7	0.8	1.0	1.1	1.2	1.2	1.3	5.8	3.7	2.2	0.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	3.8	6.0	8.2	9.2	10.4	11.4	12.2	13.2	14.0	8.0	2.4	1.6	1.4	
Trucks	3.2	5.5	7.6	8.8	10.1	11.1	11.9	12.9	13.8	9.0	2.8	1.7	1.4	
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-5.3	-2.5	-0.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	1007	1307	1877	2708	2979	2882	2721	2657	2680	6.4	4.7	-0.9	-0.2	
Public road transport	18	18	24	29	32	30	28	26	26	2.9	2.9	-1.3	-0.7	
Private cars and motorcycles	500	609	760	916	969	942	841	766	750	4.3	2.5	-1.4	-1.1	
Trucks	345	482	757	1323	1474	1488	1452	1483	1520	8.2	6.9	-0.1	0.5	
Rail	13	9	15	9	8	7	6	6	5	2.0	-5.9	-3.0	-1.5	
Aviation	131	189	320	431	497	415	394	375	379	9.3	4.5	-2.3	-0.4	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Luxembourg: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	47	57	74	201	258	286	19	32	21	10.5	13.9	7.7
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	47	57	74	201	258	286	19	32	21	10.5	13.9	7.7
Hydro	6	10	8	9	9	10	0	0	0	1.8	1.2	0.0
Biomass & Waste	41	44	59	111	139	167	0	0	-4	0.0	0.0	-2.4
Wind	0	2	5	14	20	17	2	1	1	14.0	5.1	4.3
Solar and others	0	0	2	66	89	93	17	30	24	34.9	51.5	34.9
Geothermal	0	0	0	0	0	0	0	0	0	26.8	33.6	33.7
Net Imports	3520	3620	4606	4758	4563	4640	-436	-509	-440	-8.4	-10.0	-8.7
Solids	1134	125	82	49	45	28	-1	-2	-3	-2.7	-4.0	-8.5
Oil	1620	2332	3066	3047	2775	2622	-327	-340	-386	-9.7	-10.9	-12.8
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	1620	2332	3066	3047	2775	2622	-327	-340	-386	-9.7	-10.9	-12.8
Natural gas	430	670	1179	1193	1188	1321	-95	-141	-13	-7.4	-10.6	-0.9
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	3556	3628	4698	4960	4821	4927	-417	-477	-419	-7.8	-9.0	-7.8
Solids	1134	125	82	49	45	28	-1	-2	-3	-2.7	-4.0	-8.5
Oil	1609	2283	3084	3047	2775	2622	-327	-340	-386	-9.7	-10.9	-12.8
Natural gas	430	670	1179	1193	1188	1321	-95	-141	-13	-7.4	-10.6	-0.9
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	336	492	280	343	331	400	0	0	0	0.0	0.0	0.0
Renewable energy forms	47	57	74	329	483	556	6	6	-18	1.9	1.2	-3.1
as % in Gross Inland Consumption												
Solids	31.9	3.5	1.7	1.0	0.9	0.6	0.1	0.0	0.0			
Oil	45.2	62.9	65.6	61.4	57.5	53.2	-1.3	-1.2	-3.1			
Natural gas	12.1	18.5	25.1	24.0	24.6	26.8	0.1	-0.4	1.9			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	1.3	1.6	1.6	6.6	10.0	11.3	0.6	1.0	0.6			
Gross Electricity Generation in GWh_e	627	433	3344	3226	3636	5059	-337	-387	1228	-9.5	-9.6	32.0
Self consumption and grid losses	410	439	448	206	223	339	-18	-16	76	-8.0	-6.6	28.8
Fuel Inputs to Thermal Power Generation	190	75	568	524	556	762	-57	-64	166	-9.9	-10.2	27.9
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	3	0	0	0	0	0	0	0	0			
Gas (including derived gases)	162	47	525	471	484	655	-60	-82	148	-11.4	-14.5	29.2
Biomass & Waste	25	28	43	54	73	107	3	19	18	6.0	34.8	20.4
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	378	0	1	167	273	319	-17	-47	-58	-9.0	-14.6	-15.3
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	1	167	273	319	-17	-47	-58	-9.0	-14.6	-15.3
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	378	0	0	0	0	0	0	0	0			
Energy Branch Consumption	31	26	30	7	8	11	-1	0	2	-11.0	-3.5	25.4
Non-Energy Uses	20	14	20	28	29	32	0	0	0	0.0	0.0	0.0
Final Energy Demand	3329	3549	4424	4687	4523	4533	-390	-445	-497	-7.7	-9.0	-9.9
by sector												
Industry	1729	958	937	1039	1074	1172	-25	-28	-43	-2.3	-2.5	-3.6
- energy intensive industries	1525	501	470	494	485	485	-5	-10	-9	-1.1	-2.1	-1.8
- other industrial sectors	204	457	467	544	589	687	-19	-18	-35	-3.4	-2.9	-4.8
Residential	519	596	649	631	613	563	-51	-49	-103	-7.5	-7.4	-15.4
Tertiary	74	118	130	136	115	118	-15	-41	-38	-9.7	-26.3	-24.3
Transport	1007	1877	2708	2882	2721	2680	-300	-328	-313	-9.4	-10.8	-10.5
by fuel												
Solids	756	125	82	49	45	28	-1	-2	-3	-2.7	-4.0	-8.5
Oil	1581	2266	3065	3019	2746	2590	-327	-340	-386	-9.8	-11.0	-13.0
Gas	622	623	678	721	703	664	-34	-58	-161	-4.6	-7.7	-19.5
Electricity	355	491	529	603	625	806	-27	-32	99	-4.4	-4.9	14.0
Heat (from CHP and District Heating)	0	27	55	76	75	81	-4	-7	-19	-4.5	-8.4	-19.3
Renewable energy forms	15	16	16	219	329	362	4	-6	-27	1.9	-1.7	-6.9
Other	0	0	0	1	1	2	0	0	0	14.3	-2.5	-8.6
RES in Gross Final Energy Consumption ^(A)	34	48	290	423	482	9	11	-10	3.3	2.8	-2.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	12.8	10.3	13.9	13.5	12.7	12.4	-1.3	-1.5	-1.3	-8.7	-10.4	-9.6
CO₂ Emissions (energy related)	10.6	8.8	12.4	12.1	11.2	11.0	-1.2	-1.4	-1.2	-9.1	-10.9	-10.0
Power generation/District heating	0.7	0.1	1.2	1.1	1.1	1.5	-0.1	-0.2	0.3	-11.4	-14.5	29.2
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	5.7	1.7	1.5	1.5	1.5	1.5	0.0	0.0	-0.1	-1.4	-2.8	-8.5
Residential	1.3	1.4	1.4	1.1	1.0	0.7	-0.2	-0.2	-0.5	-13.4	-16.8	-42.7
Tertiary	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-7.2	-20.5	-24.9
Transport	3.0	5.6	8.1	8.3	7.5	7.2	-0.9	-0.9	-0.9	-9.6	-10.8	-11.0
CO ₂ Emissions (non energy related)	1.6	0.7	0.7	0.7	0.7	0.6	0.0	0.0	0.0	-0.9	-1.9	-2.8
Non-CO ₂ GHGs Emissions	0.6	0.8	0.9	0.8	0.7	0.8	-0.1	-0.1	-0.1	-7.2	-10.0	-9.7
TOTAL GHGs Emissions Index (1990=100)	100.0	80.6	108.5	105.7	98.7	96.9	-10.0	-11.4	-10.3			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Luxembourg: Cost Efficiency Scenario with high prices											
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.379	0.434	0.455	0.499	0.521	0.567	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	13.5	25.3	29.4	43.8	51.2	66.1	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	262.8	143.4	159.8	113.3	94.1	74.5	-9.5	-9.3	-6.3	-7.8	-9.0	-7.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.99	2.44	2.64	2.44	2.33	2.24	-0.04	-0.05	-0.05	-1.5	-2.0	-2.3
Import Dependency %	99.0	99.8	98.0	95.9	94.6	94.2	-0.7	-1.1	-0.8			
Total Energy-related Costs ^(B) (in 000 M€05)		2.6	3.3	5.4	6.1	7.4	0.1	0.1	0.4	2.2	2.5	5.6
as % of GDP		10.4	11.4	12.2	12.0	11.1	0.3	0.3	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.1	0.2	0.4						
as % of GDP				0.27	0.29	0.59						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	257.2	100.0	96.3	78.2	70.2	60.5	-1.9	-1.8	-2.2	-2.3	-2.5	-3.6
Residential (Energy on Private Income, index 2000=100)	125.2	100.0	91.5	66.2	56.3	41.4	-5.4	-4.5	-7.6	-7.5	-7.4	-15.4
Tertiary (Energy on Value added, index 2000=100)	104.8	100.0	93.4	66.1	47.6	38.2	-7.1	-17.0	-12.3	-9.7	-26.3	-24.3
Passenger transport (toe/Mpkm)	124.7	149.6	165.9	146.5	129.5	110.7	-14.2	-9.9	-5.3	-8.9	-7.1	-4.5
Freight transport (toe/Mtkm)	93.1	93.3	144.6	131.1	119.2	108.6	-10.0	-13.9	-13.8	-7.1	-10.5	-11.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.13	0.15	0.31	0.26	0.25	0.25	-0.01	-0.01	0.02	-3.4	-5.7	8.0
Final energy demand (t of CO ₂ /toe)	2.98	2.46	2.52	2.35	2.24	2.09	-0.03	-0.04	-0.10	-1.3	-1.6	-4.8
Industry	3.28	1.74	1.63	1.48	1.43	1.32	0.01	0.00	-0.07	0.9	-0.2	-5.1
Residential	2.45	2.37	2.21	1.80	1.68	1.22	-0.12	-0.19	-0.58	-6.4	-10.2	-32.2
Tertiary	0.21	0.65	0.48	0.46	0.52	0.45	0.01	0.04	0.00	2.7	7.8	-0.8
Transport	2.95	2.97	3.00	2.86	2.75	2.69	0.00	0.00	-0.02	-0.2	-0.1	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.1	6.2	9.3	10.6	0.7	1.1	0.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.6	9.6	11.5	-0.1	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
	433	3344	3226	3636	5059	5059	-337	-387	1228	-9.5	-9.6	32.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1	0	0	0	0	0	0	0	0			
Gas (including derived gases)	222	3083	2710	2965	4282	4282	-372	-479	1140	-12.1	-13.9	36.3
Biomass-waste	63	97	221	301	442	442	13	79	77	6.3	35.6	21.2
Hydro (pumping excluded)	120	93	110	110	112	112	2	1	0	1.8	1.2	0.0
Wind	27	53	164	237	195	195	20	11	8	14.0	5.1	4.3
Solar	0	18	21	23	28	28	0	0	2	0.0	0.0	8.6
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	275	722	988	1138	1418	1418	-19	-39	202	-1.9	-3.3	16.6
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	167	214	285	318	306	306	18	10	9	6.7	3.2	3.0
Hydro (pumping excluded)	155	155	155	155	155	155	0	0	0	0.0	0.0	0.0
Wind	10	35	102	132	115	115	18	10	7	21.4	7.9	6.0
Solar	2	23	28	30	36	36	0	0	2	0.0	0.0	6.9
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	108	509	703	820	1112	1112	-37	-49	193	-5.0	-5.6	21.0
of which cogeneration units	61	112	243	235	247	247	-21	-19	-53	-8.1	-7.5	-17.6
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	87	477	591	713	987	987	-47	-69	181	-7.4	-8.8	22.4
Oil fired	6	7	6	4	4	4	0	0	0	0.0	0.0	0.0
Biomass-waste fired	15	25	107	103	121	121	10	20	12	10.5	23.8	11.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	16.8	52.5	36.3	35.6	39.7	39.7	-3.0	-2.5	4.7			
Efficiency of gross thermal power generation (%)	32.7	48.1	48.1	50.5	53.3	53.3	-0.6	-0.4	2.7			
% of gross electricity from CHP	53.7	11.8	28.1	28.1	22.0	22.0	-0.7	-1.3	-12.2			
Carbon free gross electricity generation (%)	48.5	7.8	16.0	18.5	15.4	15.4	2.5	4.1	-2.6			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	48.5	7.8	16.0	18.5	15.4	15.4	2.5	4.1	-2.6			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	5.2	7.4	8.3	9.5	9.8	10.4	-0.1	-0.2	-0.2	-1.4	-1.6	-1.7
Private cars and motorcycles	0.5	0.6	0.8	0.9	1.0	1.1	0.0	0.0	0.0	1.7	2.0	2.2
Rail	4.2	5.8	6.4	7.2	7.3	7.7	-0.1	-0.2	-0.2	-1.6	-2.1	-2.2
Aviation	0.2	0.3	0.3	0.3	0.3	0.4	0.0	0.0	0.0	1.6	2.1	2.6
Inland navigation	0.4	0.7	0.8	1.1	1.2	1.3	0.0	0.0	0.0	-2.7	-2.6	-3.2
Freight transport activity (Gtkm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
Trucks	3.8	8.2	9.2	11.4	12.2	14.0	-0.2	-0.3	-0.4	-1.8	-2.3	-2.5
Rail	3.2	7.6	8.8	11.1	11.9	13.8	-0.2	-0.3	-0.4	-2.0	-2.5	-2.6
Inland navigation	0.6	0.6	0.4	0.3	0.3	0.3	0.0	0.0	0.0	5.7	7.1	7.9
Energy demand in transport (ktoe)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
Public road transport	1007	1877	2708	2882	2721	2680	-300	-328	-313	-9.4	-10.8	-10.5
Private cars and motorcycles	18	24	29	30	28	26	-1	-2	-2	-2.0	-5.4	-6.0
Trucks	500	760	916	942	841	750	-36	-91	-55	-3.6	-9.7	-6.9
Rail	345	757	1323	1488	1452	1520	-144	-209	-236	-8.8	-12.6	-13.5
Aviation	13	15	9	7	6	5	0	0	0	1.0	-0.1	-0.9
Inland navigation	131	320	431	415	394	379	-120	-27	-20	-22.4	-6.3	-4.9
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Malta: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30		
	Annual % Change														
Primary Production	0	0	0	0	4	25	43	51	58				26.9	3.2	
Solids	0	0	0	0	0	0	0	0	0						
Oil	0	0	0	0	0	0	0	0	0						
Natural gas	0	0	0	0	0	0	0	0	0						
Nuclear	0	0	0	0	0	0	0	0	0						
Renewable energy sources	0	0	0	0	4	25	43	51	58			26.9	3.2		
Hydro	0	0	0	0	0	0	0	0	0						
Biomass & Waste	0	0	0	0	0	0	0	0	0						
Wind	0	0	0	0	0	5	14	17	22				4.8		
Solar and others	0	0	0	0	4	20	29	34	36			22.2	2.3		
Geothermal	0	0	0	0	0	0	0	0	0			5.7	-1.1		
Net Imports	611	890	818	953	907	768	707	718	724	3.0	1.0	-2.5	0.2		
Solids	0	0	0	0	0	0	0	0	0						
Oil	611	890	818	953	835	634	459	445	438	3.0	0.2	-5.8	-0.5		
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0						
- Oil products	611	890	818	953	835	634	459	445	438	3.0	0.2	-5.8	-0.5		
Natural gas	0	0	0	0	72	57	154	166	162			7.9	0.6		
Electricity	0	0	0	0	0	73	85	95	108				2.4		
Gross Inland Consumption	581	808	769	953	911	793	750	769	782	2.8	1.7	-1.9	0.4		
Solids	0	0	0	0	0	0	0	0	0						
Oil	581	808	769	953	835	634	459	445	438	2.8	0.8	-5.8	-0.5		
Natural gas	0	0	0	0	72	57	154	166	162			7.9	0.6		
Nuclear	0	0	0	0	0	0	0	0	0						
Electricity	0	0	0	0	0	73	85	95	108				2.4		
Renewable energy forms	0	0	0	0	5	29	52	63	74			27.6	3.4		
as % in Gross Inland Consumption															
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Oil	100.0	100.0	100.0	100.0	91.6	79.9	61.2	57.9	56.1						
Natural gas	0.0	0.0	0.0	0.0	7.9	7.2	20.5	21.6	20.8						
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Renewable energy forms	0.0	0.0	0.0	0.0	0.5	3.7	7.0	8.2	9.4						
Gross Electricity Generation in GWh_e	1100	1632	1917	2240	1973	1220	1338	1493	1532	5.7	0.3	-3.8	1.4		
Self consumption and grid losses	190	373	350	438	160	112	120	133	143	6.3	-7.5	-2.8	1.8		
Fuel Inputs to Thermal Power Generation	321	463	494	580	477	254	185	191	188	4.4	-0.4	-9.0	0.1		
Solids	0	0	0	0	0	0	0	0	0						
Oil (including refinery gas)	321	463	494	580	405	196	27	19	18	4.4	-2.0	-23.8	-4.1		
Gas (including derived gases)	0	0	0	0	72	57	153	166	162			7.9	0.6		
Biomass & Waste	0	0	0	0	0	1	5	6	8				5.0		
Geothermal heat	0	0	0	0	0	0	0	0	0						
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0						
Fuel Input to other conversion processes	0	0	0	0	1	3	5	6	8			24.2	4.1		
Refineries	0	0	0	0	0	0	0	0	0						
Biofuels and hydrogen production	0	0	0	0	1	3	5	6	8			25.8	4.2		
District heating	0	0	0	0	0	0	0	0	0			-10.4	1.6		
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0						
Energy Branch Consumption	8	19	10	12	7	3	2	2	2	2.5	-2.8	-11.2	0.1		
Non-Energy Uses	6	0	0	0	0	0	0	0	0						
Final Energy Demand	332	451	408	528	590	629	654	673	687	2.1	3.7	1.0	0.5		
by sector															
Industry	0	42	43	46	49	53	59	65	71		1.3	1.7	2.0		
- energy intensive industries	0	0	0	0	0	0	0	0	0						
- other industrial sectors	0	42	43	46	49	53	59	65	71		1.3	1.7	2.0		
Residential	55	73	76	89	101	109	113	114	117	3.2	2.9	1.2	0.3		
Tertiary	56	32	52	66	66	72	75	77	78	-0.7	2.4	1.3	0.4		
Transport	221	304	237	328	374	395	407	417	421	0.7	4.6	0.9	0.4		
by fuel															
Solids	0	0	0	0	0	0	0	0	0						
Oil	254	342	274	373	430	438	432	426	421	0.8	4.6	0.1	-0.3		
Gas	0	0	0	0	0	0	0	0	0			0.6	-0.1		
Electricity	78	108	135	155	156	168	189	211	227	5.6	1.5	2.0	1.8		
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			-10.4	1.6		
Renewable energy forms	0	0	0	0	4	23	32	36	39			21.9	2.1		
Other	0	0	0	0	0	0	0	0	0			15.2	1.6		
RES in Gross Final Energy Consumption ^(A)			0	0	4	28	49	58	68			27.0	3.3		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1		2.8	3.5	3.2	2.5	2.2	2.2	2.2	2.9	1.4	-3.8	0.0		
CO₂ Emissions (energy related)	1.8	2.5	2.4	3.0	2.7	2.1	1.7	1.7	1.7	3.0	1.4	-4.5	-0.3		
Power generation/District heating	1.0	1.5	1.6	1.9	1.5	0.8	0.4	0.4	0.4	4.4	-0.7	-11.3	-0.3		
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-1.8	4.1	-5.1	-11.9		
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		6.1	-7.7			
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.2	1.2	1.2	0.7	4.7	0.7	0.3		
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Non-CO₂ GHGs Emissions	0.3		0.4	0.5	0.5	0.5	0.4	0.5	0.5	2.2	1.5	-0.4	1.2		
TOTAL GHGs Emissions Index (1990=100)	100.0		132.6	167.6	152.9	121.0	103.8	104.7	104.3						

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Malta: Cost Efficiency Scenario with high prices													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479		0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8		4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	176.6	129.9	101.1	89.0	80.1		-1.9	0.3	-5.4	-2.3
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.08	3.10	3.12	3.02	2.61	2.32	2.24	2.17		0.1	-0.3	-2.6	-0.7
Import Dependency %	100.0	104.5	100.8	100.0	99.6	96.9	94.3	93.4	92.6					
Total Energy-related Costs ^(B) (in 000 M€05)			0.4	0.6	0.8	0.9	1.0	1.2	1.3			7.6	2.8	2.2
as % of GDP			8.3	12.2	14.9	14.0	13.6	13.3	12.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	0.0	126.5	100.0	92.9	87.2	81.0	75.9	72.2	69.9			-1.4	-1.4	-0.8
Residential (Energy on Private Income, index 2000=100)	117.9	117.1	100.0	110.4	114.0	103.8	88.3	75.9	68.7		-1.6	1.3	-2.5	-2.5
Tertiary (Energy on Value added, index 2000=100)	183.1	76.9	100.0	132.1	116.8	105.7	89.5	78.6	70.2		-5.9	1.6	-2.6	-2.4
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.0	56.9	55.5	54.1	52.3		-3.8	2.2	-0.4	-0.6
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	166.9	159.6	148.0	139.4	133.4		2.5	4.8	-1.2	-1.0
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.91	0.82	0.83	0.74	0.62	0.33	0.30	0.28		-1.3	-1.0	-7.7	-1.6
Final energy demand (t of CO ₂ /toe)	2.26	2.24	1.98	2.10	2.17	2.08	1.98	1.89	1.83		-1.3	0.9	-0.9	-0.7
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Residential	1.66	1.47	1.01	1.10	1.13	0.88	0.60	0.30	0.16		-4.9	1.2	-6.2	-12.2
Tertiary	0.00	0.00	0.50	0.49	0.72	0.51	0.28	0.14	0.08			3.6	-8.8	-12.1
Transport	2.97	2.96	2.98	3.00	2.99	2.97	2.96	2.95	2.93		0.0	0.1	-0.1	-0.1
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			0.0	0.0	0.7	4.4	7.3	8.5	9.7					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.9	1.4	1.6	2.0					
Gross Electricity generation by source (in GWh)														
			1917	2240	1973	1220	1338	1493	1532			0.3	-3.8	1.4
Nuclear energy			0	0	0	0	0	0	0					
Solids			0	0	0	0	0	0	0					
Oil (including refinery gas)			1917	2240	1508	784	107	106	97			-2.4	-23.3	-0.9
Gas (including derived gases)			0	0	465	375	1034	1119	1101				8.3	0.6
Biomass-waste			0	0	0	7	26	33	43					5.1
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	55	157	203	252					4.8
Solar			0	0	0	0	14	31	38					10.9
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			472	483	538	566	552	640	705			1.3	0.3	2.5
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			0	0	0	22	71	102	127					5.9
Hydro (pumping excluded)			0	0	0	0	0	0	0					
Wind			0	0	0	22	63	82	102					5.0
Solar			0	0	0	0	9	20	25					10.9
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			472	483	538	543	481	538	578			1.3	-1.1	1.9
of which cogeneration units			0	0	0	0	0	0	0					
Solids fired			0	0	0	0	0	0	0					
Gas fired			0	0	62	62	208	241	284				12.9	3.1
Oil fired			472	483	476	481	269	293	289			0.1	-5.5	0.7
Biomass-waste fired			0	0	0	1	3	4	5					5.1
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			43.6	49.5	40.0	24.0	27.1	26.2	24.4					
Efficiency of gross thermal power generation (%)			33.4	33.2	35.6	39.4	54.3	56.7	56.9					
% of gross electricity from CHP			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Carbon free gross electricity generation (%)			0.0	0.0	0.0	5.0	14.7	17.9	21.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			0.0	0.0	0.0	5.0	14.7	17.9	21.7					
Transport sector														
Passenger transport activity (Gpkm)	2.4	3.4	4.0	4.4	5.0	5.5	6.0	6.5	6.8		5.2	2.3	1.8	1.3
Public road transport	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8		5.9	1.8	1.7	1.5
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	1.9	2.0	2.1	2.1		4.4	2.4	0.9	0.5
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Aviation	1.2	1.6	2.1	2.3	2.7	3.0	3.4	3.7	4.0		5.6	2.4	2.4	1.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	-0.1	-0.1	-0.1
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		-3.2	-0.1	-0.1	-0.1
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)	221	304	237	328	374	395	407	417	421		0.7	4.6	0.9	0.4
Public road transport	5	11	10	12	14	15	15	15	15		5.8	4.0	0.9	-0.3
Private cars and motorcycles	87	160	89	142	174	185	198	213	219		0.2	6.9	1.3	1.0
Trucks	57	59	52	84	83	79	73	68	65		-0.8	4.7	-1.3	-1.2
Rail	0	0	0	0	0	0	0	0	0					
Aviation	72	74	86	90	103	116	120	121	122		1.8	1.8	1.6	0.2
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Malta: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	0	0	0	25	43	58	14	18	18	140.0	71.5	46.1
Solids	0	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0			
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	0	0	0	25	43	58	14	18	18	140.0	71.5	46.1
Hydro	0	0	0	0	0	0	0	0	0			
Biomass & Waste	0	0	0	0	0	0	0	0	0			
Wind	0	0	0	5	14	22	3	5	5	213.7	56.6	26.5
Solar and others	0	0	0	20	29	36	11	13	14	127.6	79.4	60.8
Geothermal	0	0	0	0	0	0	0	0	0	74.6	114.7	125.8
Net Imports	611	818	953	768	707	724	-78	-91	-93	-9.2	-11.4	-11.4
Solids	0	0	0	0	0	0	0	0	0	-22.5	-49.0	-81.3
Oil	611	818	953	634	459	438	-37	-49	-58	-5.6	-9.7	-11.7
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0			
- Oil products	611	818	953	634	459	438	-37	-49	-58	-5.6	-9.7	-11.7
Natural gas	0	0	0	57	154	162	-33	-35	-24	-37.0	-18.5	-13.1
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	581	769	953	793	750	782	-64	-73	-75	-7.4	-8.9	-8.8
Solids	0	0	0	0	0	0	0	0	0	-22.5	-49.0	-81.3
Oil	581	769	953	634	459	438	-37	-49	-58	-5.6	-9.7	-11.7
Natural gas	0	0	0	57	154	162	-33	-35	-24	-37.0	-18.5	-13.1
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	0	0	0	73	85	108	0	0	0	0.0	0.0	0.0
Renewable energy forms	0	0	0	29	52	74	7	11	7	31.1	26.9	11.3
as % in Gross Inland Consumption												
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Oil	100.0	100.0	100.0	79.9	61.2	56.1	1.6	-0.6	-1.9			
Natural gas	0.0	0.0	0.0	7.2	20.5	20.8	-3.4	-2.4	-1.0			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	0.0	0.0	0.0	3.7	7.0	9.4	1.1	2.0	1.7			
Gross Electricity Generation in GWh_e	1100	1917	2240	1220	1338	1532	-300	-238	-133	-19.7	-15.1	-8.0
Self consumption and grid losses	190	350	438	112	120	143	-23	-19	-14	-16.8	-13.5	-8.8
Fuel Inputs to Thermal Power Generation	321	494	580	254	185	188	-60	-51	-36	-19.0	-21.7	-16.1
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	321	494	580	196	27	18	-19	-10	-1	-8.8	-28.1	-7.6
Gas (including derived gases)	0	0	0	57	153	162	-33	-35	-24	-37.0	-18.5	-13.1
Biomass & Waste	0	0	0	1	5	8	-7	-6	-10	-85.6	-56.2	-56.1
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	0	0	0	3	5	8	0	-1	-1	-5.5	-9.5	-10.8
Refineries	0	0	0	0	0	0	0	0	0			
Biofuels and hydrogen production	0	0	0	3	5	8	0	-1	-1	-5.8	-9.0	-10.4
District heating	0	0	0	0	0	0	0	0	0	10.3	-52.6	-58.1
Derived gases, cokeries etc.	0	0	0	0	0	0	0	0	0			
Energy Branch Consumption	8	10	12	3	2	2	-1	-1	-1	-25.1	-25.6	-23.9
Non-Energy Uses	6	0	0	0	0	0	0	0	0			
Final Energy Demand	332	408	528	629	654	687	-31	-47	-57	-4.7	-6.7	-7.7
by sector												
Industry	0	43	46	53	59	71	-2	-3	-3	-3.7	-4.7	-3.4
- energy intensive industries	0	0	0	0	0	0	0	0	0			
- other industrial sectors	0	43	46	53	59	71	-2	-3	-3	-3.7	-4.7	-3.4
Residential	55	76	89	109	113	117	-4	-8	-12	-3.6	-6.3	-9.2
Tertiary	56	52	66	72	75	78	-13	-14	-17	-14.9	-15.7	-17.9
Transport	221	237	328	395	407	421	-13	-22	-26	-3.1	-5.2	-5.8
by fuel												
Solids	0	0	0	0	0	0	0	0	0	-22.5	-49.0	-81.3
Oil	254	274	373	438	432	421	-18	-39	-57	-4.0	-8.3	-11.8
Gas	0	0	0	0	0	0	0	0	0	6.7	-6.7	-5.8
Electricity	78	135	155	168	189	227	-24	-19	-10	-12.4	-9.0	-4.3
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0	10.2	-52.6	-58.1
Renewable energy forms	0	0	0	23	32	39	11	11	10	95.3	54.6	33.2
Other	0	0	0	0	0	0	0	0	0	4.9	0.7	-6.6
RES in Gross Final Energy Consumption ^(A)	0	0	0	28	49	68	11	15	13	66.8	43.4	24.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	2.1	2.8	3.5	2.5	2.2	2.2	-0.2	-0.3	-0.3	-7.9	-10.8	-11.0
CO₂ Emissions (energy related)	1.8	2.4	3.0	2.1	1.7	1.7	-0.2	-0.2	-0.2	-8.6	-11.7	-12.0
Power generation/District heating	1.0	1.6	1.9	0.8	0.4	0.4	-0.1	-0.1	-0.1	-15.4	-20.5	-12.5
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-21.7	-22.1	-14.9
Residential	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	-9.3	-32.1	-75.4
Tertiary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-15.1	-40.8	-80.8
Transport	0.7	0.7	1.0	1.2	1.2	1.2	0.0	-0.1	-0.1	-3.2	-5.5	-6.4
CO₂ Emissions (non energy related)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Non-CO₂ GHGs Emissions	0.3	0.4	0.5	0.5	0.4	0.5	0.0	0.0	0.0	-4.9	-7.0	-7.6
TOTAL GHGs Emissions Index (1990=100)	100.0	132.6	167.6	121.0	103.8	104.3	-10.4	-12.6	-12.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Malta: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	0.352	0.380	0.403	0.439	0.454	0.479	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	2.8	4.5	4.6	6.1	7.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	208.0	171.2	209.3	129.9	101.1	80.1	-10.4	-9.9	-7.7	-7.4	-8.9	-8.8
Carbon intensity (t of CO ₂ /toe of GIC)	3.06	3.10	3.12	2.61	2.32	2.17	-0.03	-0.07	-0.08	-1.2	-3.1	-3.5
Import Dependency %	100.0	100.8	100.0	96.9	94.3	92.6	-1.9	-2.7	-2.8			
Total Energy-related Costs ^(B) (in 000 M€05)		0.4	0.6	0.9	1.0	1.3	0.0	0.0	0.0	2.1	2.5	3.5
as % of GDP		8.3	12.2	14.0	13.6	12.9	0.3	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				0.0	0.0	0.0						
as % of GDP				0.30	0.34	0.45						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	0.0	100.0	92.9	81.0	75.9	69.9	-3.1	-3.7	-2.5	-3.7	-4.7	-3.4
Residential (Energy on Private Income, index 2000=100)	117.9	100.0	110.4	103.8	88.3	68.7	-3.8	-5.9	-6.9	-3.6	-6.3	-9.2
Tertiary (Energy on Value added, index 2000=100)	183.1	100.0	132.1	105.7	89.5	70.2	-18.5	-16.6	-15.3	-14.9	-15.7	-17.9
Passenger transport (toe/Mpkm)	68.3	46.5	54.8	56.9	55.5	52.3	-0.7	-1.4	-1.3	-1.2	-2.5	-2.5
Freight transport (toe/Mtkm)	81.8	104.3	167.6	159.6	148.0	133.4	-6.9	-12.9	-17.5	-4.1	-8.0	-11.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.93	0.82	0.83	0.62	0.33	0.28	0.03	-0.02	-0.01	5.4	-6.4	-4.9
Final energy demand (t of CO ₂ /toe)	2.26	1.98	2.10	2.08	1.98	1.83	0.01	-0.03	-0.09	0.7	-1.7	-4.5
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-18.7	-18.3	-11.9
Residential	1.66	1.01	1.10	0.88	0.60	0.16	-0.06	-0.23	-0.44	-5.9	-27.5	-72.9
Tertiary	0.00	0.50	0.49	0.51	0.28	0.08	0.00	-0.12	-0.26	-0.3	-29.8	-76.6
Transport	2.97	2.98	3.00	2.97	2.96	2.93	0.00	-0.01	-0.02	-0.1	-0.3	-0.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		0.0	0.0	4.4	7.3	9.7	1.9	2.6	2.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	0.9	1.4	2.0	0.0	-0.1	-0.1			
Gross Electricity generation by source (in GWh_e)												
	1917	2240	1220	1338	1532	1532	-300	-238	-133	-19.7	-15.1	-8.0
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	0	0	0	0	0	0	0	0	0			
Oil (including refinery gas)	1917	2240	784	107	97	97	-76	-42	-8	-8.8	-28.1	-7.6
Gas (including derived gases)	0	0	375	1034	1101	1101	-222	-233	-161	-37.1	-18.4	-12.8
Biomass-waste	0	0	7	26	43	43	-40	-33	-54	-85.6	-56.1	-56.0
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	55	157	252	252	37	57	53	213.7	56.6	26.5
Solar	0	0	0	14	38	38	0	14	38			
Geothermal and other renewables	0	0	0	0	0	0	0	0	0			
Net Generation Capacity in MW_e												
	472	483	566	552	705	705	-27	-20	19	-4.6	-3.4	2.8
<u>Nuclear energy</u>	0	0	0	0	0	0	0	0	0			
<u>Renewable energy</u>	0	0	22	71	127	127	15	31	47	197.8	75.3	57.7
Hydro (pumping excluded)	0	0	0	0	0	0	0	0	0			
Wind	0	0	22	63	102	102	15	22	22	197.8	53.5	26.8
Solar	0	0	0	9	25	25	0	9	25			
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0			
<u>Thermal power</u>	472	483	543	481	578	578	-42	-50	-27	-7.2	-9.5	-4.5
of which cogeneration units	0	0	0	0	0	0	0	0	0			
Solids fired	0	0	0	0	0	0	0	0	0			
Gas fired	0	0	62	208	284	284	-40	-50	-18	-39.0	-19.2	-5.9
Oil fired	472	483	481	269	289	289	2	3	-3	0.5	1.3	-1.0
Biomass-waste fired	0	0	1	3	5	5	-5	-4	-7	-85.6	-56.1	-56.0
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	43.6	49.5	24.0	27.1	24.4	24.4	-4.5	-3.6	-2.8			
Efficiency of gross thermal power generation (%)	33.4	33.2	39.4	54.3	56.9	56.9	-1.7	0.6	0.5			
% of gross electricity from CHP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Carbon free gross electricity generation (%)	0.0	0.0	5.0	14.7	21.7	21.7	0.8	4.6	3.9			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	0.0	0.0	5.0	14.7	21.7	21.7	0.8	4.6	3.9			
Transport sector												
Passenger transport activity (Gpkm)												
	2.4	4.0	4.4	5.5	6.0	6.8	-0.1	-0.1	-0.1	-1.0	-1.4	-1.5
Public road transport	0.3	0.5	0.5	0.6	0.7	0.8	0.0	0.0	0.0	2.8	3.6	4.0
Private cars and motorcycles	0.9	1.4	1.6	1.9	2.0	2.1	0.0	0.0	0.0	-0.8	-1.1	-1.2
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Aviation	1.2	2.1	2.3	3.0	3.4	4.0	-0.1	-0.1	-0.1	-1.8	-2.5	-2.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-2.4	-3.0	-3.3
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	-2.4	-3.0	-3.3
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	221	237	328	395	407	421	-13	-22	-26	-3.1	-5.2	-5.8
Public road transport	5	10	12	15	15	15	0	-1	-1	-0.8	-6.3	-8.6
Private cars and motorcycles	87	89	142	185	198	219	-5	-8	-7	-2.4	-3.7	-3.1
Trucks	57	52	84	79	73	65	-5	-9	-11	-6.4	-10.8	-14.5
Rail	0	0	0	0	0	0	0	0	0			
Aviation	72	86	90	116	120	122	-2	-5	-6	-2.0	-3.8	-5.0
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Netherlands: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	60478	65988	57172	61834	57032	55390	49390	51574	48071	-0.6	0.0	-1.4	-0.3
Solids	0	0	0	0	0	0	0	0	0				
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0			
Natural gas	54613	60456	51904	56265	53300	50121	41856	40100	32670	-0.5	0.3	-2.4	-2.4
Nuclear	881	1036	1013	1031	1022	1023	1024	4007	6989	1.4	0.1	0.0	21.2
Renewable energy sources	956	933	1831	2242	2710	4246	6509	7467	8411	6.7	4.0	9.2	2.6
Hydro	7	8	12	8	9	9	9	9	9	5.3	-3.5	0.0	0.0
Biomass & Waste	942	894	1739	2035	2143	3060	4191	4779	5288	6.3	2.1	6.9	2.4
Wind	5	27	71	178	440	719	1132	1418	1669	30.9	20.0	9.9	4.0
Solar and others	2	4	9	22	118	458	1177	1261	1446	15.5	29.4	25.8	2.1
Geothermal	0	0	0	0	0	0	0	0	0			3.1	1.9
Net Imports	17443	16359	34331	36912	39968	42316	46364	44667	50749	7.0	1.5	1.5	0.9
Solids	9574	8921	8222	8313	5198	7231	10577	6097	6715	-1.5	-4.5	7.4	-4.4
Oil	30876	32829	41673	47392	48657	48367	46440	46493	46661	3.0	1.6	-0.5	0.0
- Crude oil and Feedstocks	47956	59277	60955	61302	65234	65019	64063	64350	64658	2.4	0.7	-0.2	0.1
- Oil products	-17080	-26448	-19282	-13910	-16577	-16653	-17623	-17857	-17996				
Natural gas	-23799	-26370	-17191	-20941	-15831	-14886	-12432	-10029	-4698				
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Gross Inland Consumption	67059	73374	75712	80963	79395	79706	77428	77497	79745	1.2	0.5	-0.3	0.3
Solids	9206	9098	8035	8190	5198	7231	10577	6097	6715	-1.4	-4.3	7.4	-4.4
Oil	24415	27242	28496	32027	31052	30367	28115	27750	27588	1.6	0.9	-1.0	-0.2
Natural gas	30810	34085	34711	35324	37469	35235	29425	30071	27972	1.2	0.8	-2.4	-0.5
Nuclear	881	1036	1013	1031	1022	1023	1024	4007	6989	1.4	0.1	0.0	21.2
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Renewable energy forms	956	933	1831	2817	3316	5110	7693	8817	9905	6.7	6.1	8.8	2.6
as % in Gross Inland Consumption													
Solids	13.7	12.4	10.6	10.1	6.5	9.1	13.7	7.9	8.4				
Oil	36.4	37.1	37.6	39.6	39.1	38.1	36.3	35.8	34.6				
Natural gas	45.9	46.5	45.8	43.6	47.2	44.2	38.0	38.8	35.1				
Nuclear	1.3	1.4	1.3	1.3	1.3	1.3	1.3	5.2	8.8				
Renewable energy forms	1.4	1.3	2.4	3.5	4.2	6.4	9.9	11.4	12.4				
Gross Electricity Generation in GWh_e	71824	81054	89599	100202	106091	118114	116635	127066	140151	2.2	1.7	1.0	1.9
Self consumption and grid losses	5554	6853	7752	8521	8594	9882	10011	10753	12190	3.4	1.0	1.5	2.0
Fuel Inputs to Thermal Power Generation	14621	16843	18233	19563	16640	18197	18221	15458	15444	2.2	-0.9	0.9	-1.6
Solids	5698	5900	5114	4958	1896	3968	7630	3320	4036	-1.1	-9.4	14.9	-6.2
Oil (including refinery gas)	702	876	618	640	0	0	52	0	8	-1.3			-17.3
Gas (including derived gases)	7651	9466	11071	11913	13000	11770	7214	8270	7274	3.8	1.6	-5.7	0.1
Biomass & Waste	570	601	1430	2052	1744	2459	3325	3867	4125	9.6	2.0	6.7	2.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	72281	83698	85058	89914	87067	87223	85766	85355	85118	1.6	0.2	-0.2	-0.1
Refineries	68767	80009	82188	86416	83169	83041	81354	80932	80678	1.8	0.1	-0.2	-0.1
Biofuels and hydrogen production	0	0	0	0	327	788	1356	1485	1601			15.3	1.7
District heating	0	0	0	436	499	419	371	411	397			-2.9	0.7
Derived gases, cokeries etc.	3514	3689	2870	3062	3072	2975	2685	2527	2443	-2.0	0.7	-1.3	-0.9
Energy Branch Consumption	5410	6247	5484	6580	6402	6349	5976	5949	5970	0.1	1.6	-0.7	0.0
Non-Energy Uses	9495	9406	9579	12301	13229	13612	13415	13400	13219	0.1	3.3	0.1	-0.1
Final Energy Demand	42924	47670	50125	51588	52025	51424	49313	49766	50271	1.6	0.4	-0.5	0.2
by sector													
Industry	12643	12714	13812	14597	15315	15582	15135	15309	15507	0.9	1.0	-0.1	0.2
- energy intensive industries	9577	8701	9885	10367	10914	11142	10726	10860	10968	0.3	1.0	-0.2	0.2
- other industrial sectors	3066	4012	3927	4231	4401	4439	4409	4449	4539	2.5	1.1	0.0	0.3
Residential	9932	11124	10286	10335	9853	9547	9174	9290	9460	0.4	-0.4	-0.7	0.3
Tertiary	9993	11429	12207	11587	11076	10399	9965	9751	9447	2.0	-1.0	-1.1	-0.5
Transport	10356	12404	13820	15068	15781	15896	15039	15416	15858	2.9	1.3	-0.5	0.5
by fuel													
Solids	1755	1461	1352	1515	1527	1561	1415	1328	1271	-2.6	1.2	-0.8	-1.1
Oil	12790	14685	16469	17366	17223	16490	14790	14862	14951	2.6	0.4	-1.5	0.1
Gas	21244	22515	21008	20335	20459	19271	17899	17034	15872	-0.1	-0.3	-1.3	-1.2
Electricity	6322	7143	8421	8986	9240	9562	9292	10290	11115	2.9	0.9	0.1	1.8
Heat (from CHP and District Heating)	439	1568	2558	2981	2781	3049	3245	3318	3589	19.3	0.8	1.6	1.0
Renewable energy forms	374	298	317	405	794	1488	2669	2928	3467	-1.6	9.6	12.9	2.7
Other	0	0	0	0	1	2	4	5	5			13.8	1.9
RES in Gross Final Energy Consumption ^(A)			940	1828	2922	4631	7014	8045	9076		12.0	9.1	2.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5		217.9	220.8	213.0	201.1	194.5	173.6	169.1	0.1	-0.2	-0.9	-1.4
CO₂ Emissions (energy related)	152.2	167.4	165.8	171.6	159.6	159.7	153.7	136.8	134.5	0.9	-0.4	-0.4	-1.3
Power generation/District heating	43.3	49.1	48.9	51.1	39.8	44.9	48.7	34.1	34.6	1.2	-2.1	2.1	-3.4
Energy Branch	13.7	15.8	13.1	14.8	14.2	13.8	12.8	12.7	12.7	-0.4	0.8	-1.0	-0.1
Industry	27.0	25.1	24.8	25.4	26.2	25.6	23.0	21.4	19.4	-0.8	0.6	-1.3	-1.7
Residential	19.2	20.6	18.9	17.8	16.4	15.0	13.9	13.8	13.4	-0.2	-1.4	-1.6	-0.4
Tertiary	18.9	20.7	19.5	18.1	17.3	15.5	14.3	13.2	11.9	0.3	-1.2	-1.9	-1.8
Transport	30.1	36.2	40.5	44.4	45.7	44.9	40.9	41.5	42.4	3.0	1.2	-1.1	0.4
CO₂ Emissions (non energy related)	10.7	10.4	9.2	10.9	11.2	11.3	11.1	11.1	11.1	-1.5	2.0	-0.1	0.1
Non-CO₂ GHGs Emissions	53.6		42.8	38.3	42.1	30.2	29.8	25.7	23.4	-2.2	-0.2	-3.4	-2.4
TOTAL GHGs Emissions Index (1990=100)	100.0		100.6	102.0	98.4	92.9	89.8	80.2	78.1				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Netherlands: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	136.9	123.7	110.2	101.9	98.3	-2.0	-1.5	-2.1	-1.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.28	2.19	2.12	2.01	2.00	1.98	1.77	1.69	-0.4	-0.9	-0.1	-1.6
Import Dependency %	22.4	19.3	38.6	37.8	41.2	43.3	48.4	46.4	51.4				
Total Energy-related Costs ^(B) (in 000 M€05)			44.0	52.6	65.2	77.6	88.0	96.2	103.8		4.0	3.0	1.7
as % of GDP			9.2	10.4	11.2	12.0	12.5	12.7	12.8				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	111.4	113.0	100.0	105.3	100.1	93.6	85.5	81.5	78.7	-1.1	0.0	-1.6	-0.8
Residential (Energy on Private Income, index 2000=100)	133.5	134.0	100.0	96.7	80.9	71.0	63.0	59.4	57.1	-2.9	-2.1	-2.5	-1.0
Tertiary (Energy on Value added, index 2000=100)	115.8	115.3	100.0	87.5	72.0	60.7	53.4	48.3	43.9	-1.5	-3.2	-2.9	-2.0
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.3	45.1	38.9	37.5	36.5	1.7	0.3	-2.1	-0.6
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.3	35.8	33.4	31.9	30.6	0.8	-0.3	-1.4	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.48	0.39	0.35	0.27	0.28	0.30	0.20	0.18	-3.4	-3.7	1.0	-4.7
Final energy demand (t of CO ₂ /toe)	2.22	2.15	2.07	2.05	2.03	1.96	1.87	1.81	1.73	-0.7	-0.2	-0.8	-0.7
Industry	2.14	1.97	1.80	1.74	1.71	1.64	1.52	1.40	1.25	-1.7	-0.5	-1.2	-1.9
Residential	1.93	1.85	1.84	1.72	1.67	1.57	1.52	1.48	1.41	-0.5	-1.0	-0.9	-0.7
Tertiary	1.89	1.81	1.60	1.56	1.56	1.49	1.44	1.35	1.26	-1.7	-0.2	-0.8	-1.3
Transport	2.91	2.92	2.93	2.95	2.90	2.83	2.72	2.70	2.68	0.1	-0.1	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.8	3.5	5.5	8.8	13.9	15.8	17.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	5.7	10.0	10.7	11.4				
Gross Electricity generation by source (in GWh)													
			89599	100202	106091	118114	116635	127066	140151		1.7	1.0	1.9
Nuclear energy			3925	3996	3961	3967	3971	18146	31723		0.1	0.0	23.1
Solids			22115	20959	6973	18993	35267	19171	22771		-10.9	17.6	-4.3
Oil (including refinery gas)			3769	1651	411	355	374	34	22		-19.9	-0.9	-24.6
Gas (including derived gases)			55039	64687	82455	75062	48105	55005	47269		4.1	-5.2	-0.2
Biomass-waste			3772	6720	6906	10828	14959	17234	17750		6.2	8.0	1.7
Hydro (pumping excluded)			142	88	99	99	99	99	99		-3.5	0.0	0.0
Wind			829	2067	5118	8361	13167	16491	19407		20.0	9.9	4.0
Solar			8	34	94	195	340	512	735		28.0	13.7	8.0
Geothermal and other renewables			0	0	74	255	353	374	374			16.9	0.6
Net Generation Capacity in MW_e			20113	19871	25860	27587	28148	34327	35714		2.5	0.9	2.4
<u>Nuclear energy</u>			501	501	507	512	514	2096	3664		0.1	0.2	21.7
<u>Renewable energy</u>			495	1653	3352	3648	5655	7136	8452		21.1	5.4	4.1
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	3132	3178	4912	6118	7090		21.5	4.6	3.7
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	38	132	183	194	194			16.9	0.6
<u>Thermal power</u>			19116	17718	22001	23427	21979	25095	23598		1.4	0.0	0.7
of which cogeneration units			9089	9231	8794	10139	9722	11071	10774		-0.3	1.0	1.0
Solids fired			4171	4171	4174	5926	5327	5044	3874		0.0	2.5	-3.1
Gas fired			13574	11700	15524	14633	13205	16462	15950		1.4	-1.6	1.9
Oil fired			839	825	826	695	678	489	453		-0.2	-2.0	-3.9
Biomass-waste fired			533	1022	1477	2173	2768	3100	3320		10.7	6.5	1.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.8	55.2	45.1	46.9	45.2	40.5	42.9				
Efficiency of gross thermal power generation (%)			39.9	41.3	50.0	49.7	46.6	50.9	48.9				
% of gross electricity from CHP			32.0	37.6	42.2	40.3	43.6	45.1	38.9				
Carbon free gross electricity generation (%)			9.7	12.9	15.3	20.1	28.2	41.6	50.0				
- nuclear			4.4	4.0	3.7	3.4	3.4	14.3	22.6				
- renewable energy forms			5.3	8.9	11.6	16.7	24.8	27.3	27.4				
Transport sector													
Passenger transport activity (Gpkm)													
Public road transport	175.3	177.6	189.5	198.2	213.9	230.1	244.8	262.4	280.2	0.8	1.2	1.4	1.4
Private cars and motorcycles	13.0	12.0	11.3	11.7	12.3	12.6	13.1	13.4	13.6	-1.4	0.9	0.7	0.4
Rail	138.7	133.2	143.4	149.5	160.2	170.1	178.9	188.7	198.5	0.3	1.1	1.1	1.0
Aviation	12.3	17.7	16.1	16.3	17.5	19.3	21.6	24.7	27.8	2.7	0.8	2.1	2.6
Inland navigation	9.8	13.5	17.8	19.7	23.1	27.0	30.2	34.5	39.3	6.2	2.6	2.7	2.7
Freight transport activity (Gtkm)	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.6	1.1	1.1
Trucks	94.8	105.7	125.4	131.6	142.1	154.0	165.1	174.8	183.9	2.8	1.3	1.5	1.1
Rail	56.1	67.1	79.6	84.2	90.8	97.3	103.5	110.2	115.8	3.6	1.3	1.3	1.1
Inland navigation	3.1	3.1	4.5	5.2	6.1	6.9	7.6	8.3	8.9	3.9	3.0	2.2	1.6
Energy demand in transport (ktoe)	35.7	35.5	41.3	42.2	45.2	49.8	54.0	56.3	59.2	1.5	0.9	1.8	0.9
Public road transport	10356	12404	13820	15068	15781	15896	15039	15416	15858	2.9	1.3	-0.5	0.5
Private cars and motorcycles	104	105	95	91	90	87	84	81	80	-0.9	-0.5	-0.7	-0.6
Trucks	5043	5525	5286	5999	6183	6133	6019	6208	6363	0.5	1.6	-0.3	0.6
Rail	2899	3325	4254	4933	5142	5190	5165	5235	5298	3.9	1.9	0.0	0.3
Aviation	147	162	176	172	182	187	184	177	162	1.8	0.4	0.1	-1.2
Inland navigation	1608	2589	3343	3670	3967	4064	3337	3457	3687	7.6	1.7	-1.7	1.0
	556	697	667	204	217	235	250	258	268	1.8	-10.6	1.4	0.7

Source: PRIMES

Netherlands: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	60478	57172	61834	55390	49390	48071	-1179	-5331	2415	-2.1	-9.7	5.3
Solids	0	0	0	0	0	0	0	0	0			
Oil	4029	2423	2296	0	0	0	0	0	0			
Natural gas	54613	51904	56265	50121	41856	32670	-1859	-7324	0	-3.6	-14.9	0.0
Nuclear	881	1013	1031	1023	1024	6989	0	0	0	0.0	0.0	0.0
Renewable energy sources	956	1831	2242	4246	6509	8411	679	1992	2415	19.1	44.1	40.3
Hydro	7	12	8	9	9	9	0	0	0	0.1	0.1	0.0
Biomass & Waste	942	1739	2035	3060	4191	5288	357	739	689	13.2	21.4	15.0
Wind	5	71	178	719	1132	1669	62	387	737	9.4	52.0	79.0
Solar and others	2	9	22	458	1177	1446	261	866	989	132.1	278.7	216.1
Geothermal	0	0	0	0	0	0	0	0	0	29.5	42.8	73.4
Net Imports	17443	34331	36912	42316	46364	50749	-5004	-2667	-10796	-10.6	-5.4	-17.5
Solids	9574	8222	8313	7231	10577	6715	-3708	-1591	-6383	-33.9	-13.1	-48.7
Oil	30876	41673	47392	48367	46440	46661	-1363	-2218	-2772	-2.7	-4.6	-5.6
- Crude oil and Feedstocks	47956	60955	61302	65019	64063	64658	-1271	-1817	-2190	-1.9	-2.8	-3.3
- Oil products	-17080	-19282	-13910	-16653	-17623	-17996	-91	-401	-582	0.6	2.3	3.3
Natural gas	-23799	-17191	-20941	-14886	-12432	-4698	-34	933	-1837	0.2	-7.0	64.2
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	67059	75712	80963	79706	77428	79745	-6185	-8003	-8388	-7.2	-9.4	-9.5
Solids	9206	8035	8190	7231	10577	6715	-3708	-1591	-6383	-33.9	-13.1	-48.7
Oil	24415	28496	32027	30367	28115	27588	-1364	-2223	-2778	-4.3	-7.3	-9.1
Natural gas	30810	34711	35324	35235	29425	27972	-1893	-6390	-1837	-5.1	-17.8	-6.2
Nuclear	881	1013	1031	1023	1024	6989	0	0	0	0.0	0.0	0.0
Electricity	792	1626	1573	740	594	577	0	0	0	0.0	0.0	0.0
Renewable energy forms	956	1831	2817	5110	7693	9905	780	2201	2609	18.0	40.1	35.8
as % in Gross Inland Consumption												
Solids	13.7	10.6	10.1	9.1	13.7	8.4	-3.7	-0.6	-6.4			
Oil	36.4	37.6	39.6	38.1	36.3	34.6	1.2	0.8	0.1			
Natural gas	45.9	45.8	43.6	44.2	38.0	35.1	1.0	-3.9	1.3			
Nuclear	1.3	1.3	1.3	1.3	1.3	8.8	0.1	0.1	0.8			
Renewable energy forms	1.4	2.4	3.5	6.4	9.9	12.4	1.4	3.5	4.1			
Gross Electricity Generation in GWh_e	71824	89599	100202	118114	116635	140151	-18014	-28573	-14991	-13.2	-19.7	-9.7
Self consumption and grid losses	5554	7752	8521	9882	10011	12190	-1662	-2153	-3125	-14.4	-17.7	-20.4
Fuel Inputs to Thermal Power Generation	14621	18233	19563	18197	18221	15444	-3869	-5385	-4629	-17.5	-22.8	-23.1
Solids	5698	5114	4958	3968	7630	4036	-3729	-1455	-6258	-48.4	-16.0	-60.8
Oil (including refinery gas)	702	618	640	0	52	8	0	-19	8	-100.0	-26.5	
Gas (including derived gases)	7651	11071	11913	11770	7214	7274	-667	-5014	835	-5.4	-41.0	13.0
Biomass & Waste	570	1430	2052	2459	3325	4125	527	1103	786	27.3	49.7	23.5
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	72281	85058	89914	87223	85766	85118	-1340	-2074	-2599	-1.5	-2.4	-3.0
Refineries	68767	82188	86416	83041	81354	80678	-1284	-1851	-2191	-1.5	-2.2	-2.6
Biofuels and hydrogen production	0	0	0	788	1356	1601	-66	-178	-285	-7.8	-11.6	-15.1
District heating	0	0	436	419	371	397	-30	-36	-110	-6.7	-8.9	-21.7
Derived gases, cokeries etc.	3514	2870	3062	2975	2685	2443	41	-9	-13	1.4	-0.3	-0.5
Energy Branch Consumption	5410	5484	6580	6349	5976	5970	-194	-372	-451	-3.0	-5.9	-7.0
Non-Energy Uses	9495	9579	12301	13612	13415	13219	-9	-23	-1	-0.1	-0.2	0.0
Final Energy Demand	42924	50125	51588	51424	49313	50271	-3613	-5085	-5045	-6.6	-9.3	-9.1
by sector												
Industry	12643	13812	14597	15582	15135	15507	-485	-768	-696	-3.0	-4.8	-4.3
- energy intensive industries	9577	9885	10367	11142	10726	10968	-306	-576	-439	-2.7	-5.1	-3.8
- other industrial sectors	3066	3927	4231	4439	4409	4539	-180	-192	-257	-3.9	-4.2	-5.4
Residential	9932	10286	10335	9547	9174	9460	-793	-966	-274	-7.7	-9.5	-2.8
Tertiary	9993	12207	11587	10399	9965	9447	-1504	-1657	-2196	-12.6	-14.3	-18.9
Transport	10356	13820	15068	15896	15039	15858	-831	-1695	-1879	-5.0	-10.1	-10.6
by fuel												
Solids	1755	1352	1515	1561	1415	1271	-5	-153	-136	-0.3	-9.8	-9.6
Oil	12790	16469	17366	16490	14790	14951	-1284	-2038	-2600	-7.2	-12.1	-14.8
Gas	21244	21008	20335	19271	17899	15872	-1121	-1151	-2496	-5.5	-6.0	-13.6
Electricity	6322	8421	8986	9562	9292	11115	-1402	-2254	-1001	-12.8	-19.5	-8.3
Heat (from CHP and District Heating)	439	2558	2981	3049	3245	3589	18	-200	58	0.6	-5.8	1.7
Renewable energy forms	374	317	405	1488	2669	3467	181	711	1130	13.8	36.3	48.3
Other	0	0	0	2	4	5	0	0	0	4.8	-1.3	-8.3
RES in Gross Final Energy Consumption ^(A)		940	1828	4631	7014	9076	744	2106	2580	19.2	42.9	39.7
TOTAL GHGs Emissions (Mt of CO₂ eq.)	216.5	217.9	220.8	201.1	194.5	169.1	-28.0	-34.8	-44.3	-12.2	-15.2	-20.8
CO₂ Emissions (energy related)	152.2	165.8	171.6	159.7	153.7	134.5	-23.0	-27.7	-37.6	-12.6	-15.3	-21.8
Power generation/District heating	43.3	48.9	51.1	44.9	48.7	34.6	-16.3	-17.6	-22.9	-26.7	-26.6	-39.8
Energy Branch	13.7	13.1	14.8	13.8	12.8	12.7	-0.3	-0.7	-0.5	-2.2	-5.5	-3.7
Industry	27.0	24.8	25.4	25.6	23.0	19.4	-0.6	-0.7	-3.2	-2.1	-2.9	-14.3
Residential	19.2	18.9	17.8	15.0	13.9	13.4	-1.8	-1.8	-1.9	-10.6	-11.3	-12.5
Tertiary	18.9	19.5	18.1	15.5	14.3	11.9	-1.7	-2.1	-3.7	-9.7	-12.9	-23.5
Transport	30.1	40.5	44.4	44.9	40.9	42.4	-2.4	-4.7	-5.3	-5.0	-10.4	-11.2
CO₂ Emissions (non energy related)	10.7	9.2	10.9	11.3	11.1	11.1	0.0	-0.2	-0.3	-0.1	-1.7	-2.2
Non-CO₂ GHGs Emissions	53.6	42.8	38.3	30.2	29.8	23.4	-4.9	-7.0	-6.5	-14.1	-19.0	-21.7
TOTAL GHGs Emissions Index (1990=100)	100.0	100.6	102.0	92.9	89.8	78.1	-12.9	-16.1	-20.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Netherlands: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	14.893	15.864	16.306	16.957	17.209	17.589	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	344.9	477.3	505.6	644.5	702.6	811.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	194.4	158.6	160.1	123.7	110.2	98.3	-9.6	-11.4	-10.3	-7.2	-9.4	-9.5
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.19	2.12	2.00	1.98	1.69	-0.12	-0.14	-0.27	-5.8	-6.5	-13.6
Import Dependency %	22.4	38.6	37.8	43.3	48.4	51.4	-2.2	1.2	-6.1			
Total Energy-related Costs ^(B) (in 000 M€05)		44.0	52.6	77.6	88.0	103.8	2.1	0.9	4.1	2.8	1.1	4.1
as % of GDP		9.2	10.4	12.0	12.5	12.8	0.3	0.1	0.5			
Total Compliance Costs ^(D) (in 000 M€05)				2.2	1.1	4.2						
as % of GDP				0.34	0.15	0.52						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	111.4	100.0	105.3	93.6	85.5	78.7	-2.9	-4.3	-3.5	-3.0	-4.8	-4.3
Residential (Energy on Private Income, index 2000=100)	133.5	100.0	96.7	71.0	63.0	57.1	-5.9	-6.6	-1.7	-7.7	-9.5	-2.8
Tertiary (Energy on Value added, index 2000=100)	115.8	100.0	87.5	60.7	53.4	43.9	-8.8	-8.9	-10.2	-12.6	-14.3	-18.9
Passenger transport (toe/Mpkm)	39.4	46.8	49.7	45.1	38.9	36.5	-1.4	-3.7	-2.9	-3.0	-8.7	-7.4
Freight transport (toe/Mtkm)	36.4	39.5	39.6	35.8	33.4	30.6	-1.8	-2.9	-3.9	-4.8	-8.1	-11.3
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.56	0.39	0.35	0.28	0.30	0.18	-0.06	-0.04	-0.10	-18.7	-12.4	-35.2
Final energy demand (t of CO ₂ /toe)	2.22	2.07	2.05	1.96	1.87	1.73	0.01	0.00	-0.10	0.7	0.2	-5.3
Industry	2.14	1.80	1.74	1.64	1.52	1.25	0.01	0.03	-0.15	0.9	2.0	-10.4
Residential	1.93	1.84	1.72	1.57	1.52	1.41	-0.05	-0.03	-0.16	-3.2	-1.9	-9.9
Tertiary	1.89	1.60	1.56	1.49	1.44	1.26	0.05	0.02	-0.08	3.4	1.6	-5.8
Transport	2.91	2.93	2.95	2.83	2.72	2.68	0.00	-0.01	-0.02	0.0	-0.3	-0.6
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.8	3.5	8.8	13.9	17.6	1.9	5.1	6.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	5.7	10.0	11.4	-0.2	-0.5	-0.7			
Gross Electricity generation by source (in GWh_e)												
	89599	100202	118114	116635	140151	140151	-18014	-28573	-14991	-13.2	-19.7	-9.7
Nuclear energy	3925	3996	3967	3971	31723	31723	0	0	0	0.0	0.0	0.0
Solids	22115	20959	18993	35267	22771	22771	-16913	-6584	-37129	-47.1	-15.7	-62.0
Oil (including refinery gas)	3769	1651	355	374	22	22	-20	-1	0	-5.4	-0.2	0.0
Gas (including derived gases)	55039	64687	75062	48105	47269	47269	-4569	-31844	7570	-5.7	-39.8	19.1
Biomass-waste	3772	6720	10828	14959	17750	17750	2514	5138	5889	30.2	52.3	49.6
Hydro (pumping excluded)	142	88	99	99	99	99	0	0	0	0.1	0.1	0.0
Wind	829	2067	8361	13167	19407	19407	720	4502	8567	9.4	52.0	79.0
Solar	8	34	195	340	735	735	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	255	353	374	374	255	216	112		158.6	42.6
Net Generation Capacity in MW_e												
	20113	19871	27587	28148	35714	35714	-1676	-3003	-188	-5.7	-9.6	-0.5
<u>Nuclear energy</u>	501	501	512	514	3664	3664	0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	495	1653	3648	5655	8452	8452	343	1798	3300	10.4	46.6	64.1
Hydro (pumping excluded)	37	37	37	37	37	37	0	0	0	0.0	0.0	0.0
Wind	446	1565	3178	4912	7090	7090	211	1686	3242	7.1	52.3	84.3
Solar	12	51	300	523	1131	1131	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	132	183	194	194	132	112	58		158.6	42.6
<u>Thermal power</u>	19116	17718	23427	21979	23598	23598	-2019	-4801	-3488	-7.9	-17.9	-12.9
of which cogeneration units	9089	9231	10139	9722	10774	10774	-464	-1163	274	-4.4	-10.7	2.6
Solids fired	4171	4171	5926	5327	3874	3874	0	-156	-3324	0.0	-2.8	-46.2
Gas fired	13574	11700	14633	13205	15950	15950	-2441	-5444	-889	-14.3	-29.2	-5.3
Oil fired	839	825	695	678	453	453	0	0	-157	0.0	0.0	-25.7
Biomass-waste fired	533	1022	2173	2768	3320	3320	423	799	881	24.1	40.6	36.1
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	48.8	55.2	46.9	45.2	42.9	42.9	-4.0	-5.9	-3.8			
Efficiency of gross thermal power generation (%)	39.9	41.3	49.7	46.6	48.9	48.9	1.3	-1.5	1.1			
% of gross electricity from CHP	32.0	37.6	40.3	43.6	38.9	38.9	4.1	4.6	9.8			
Carbon free gross electricity generation (%)	9.7	12.9	20.1	28.2	50.0	50.0	5.2	12.3	14.2			
- nuclear	4.4	4.0	3.4	3.4	22.6	22.6	0.4	0.7	2.2			
- renewable energy forms	5.3	8.9	16.7	24.8	27.4	27.4	4.8	11.7	12.0			
Transport sector												
Passenger transport activity (Gpkm)												
	175.3	189.5	198.2	230.1	244.8	280.2	-2.8	-3.9	-4.7	-1.2	-1.6	-1.7
Public road transport	13.0	11.3	11.7	12.6	13.1	13.6	0.2	0.3	0.3	1.9	2.4	2.6
Private cars and motorcycles	138.7	143.4	149.5	170.1	178.9	198.5	-2.5	-3.2	-4.1	-1.5	-1.8	-2.0
Rail	12.3	16.1	16.3	19.3	21.6	27.8	0.2	0.1	0.6	1.3	0.7	2.3
Aviation	9.8	17.8	19.7	27.0	30.2	39.3	-0.7	-1.1	-1.5	-2.7	-3.6	-3.8
Inland navigation	1.5	0.9	0.9	1.0	1.0	1.1	0.0	0.0	0.0	-0.8	-0.9	-1.2
Freight transport activity (Gtkm)												
	94.8	125.4	131.6	154.0	165.1	183.9	-2.8	-3.7	-4.5	-1.8	-2.2	-2.4
Trucks	56.1	79.6	84.2	97.3	103.5	115.8	-3.3	-4.5	-5.4	-3.3	-4.2	-4.5
Rail	3.1	4.5	5.2	6.9	7.6	8.9	0.2	0.3	0.4	3.4	3.6	4.9
Inland navigation	35.7	41.3	42.2	49.8	54.0	59.2	0.4	0.5	0.5	0.7	0.9	0.8
Energy demand in transport (ktoe)												
	10356	13820	15068	15896	15039	15858	-831	-1695	-1879	-5.0	-10.1	-10.6
Public road transport	104	95	91	87	84	80	-1	-2	-4	-0.7	-2.5	-5.0
Private cars and motorcycles	5043	5286	5999	6133	6019	6363	-198	-270	-340	-3.1	-4.3	-5.1
Trucks	2899	4254	4933	5190	5165	5298	-384	-623	-879	-6.9	-10.8	-14.2
Rail	147	176	172	187	184	162	-2	-3	3	-0.8	-1.4	2.1
Aviation	1608	3343	3670	4064	3337	3687	-246	-795	-655	-5.7	-19.2	-15.1
Inland navigation	556	667	204	235	250	268	0	-2	-5	-0.2	-0.7	-1.9

Source: PRIMES

Poland: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	99383	99400	80296	79265	68731	66837	67972	72239	76544	-2.1	-1.5	-0.1	1.2	
Solids	94459	91104	71298	68876	57053	52994	50741	46479	40993	-2.8	-2.2	-1.2	-2.1	
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5	
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0	
Nuclear	0	0	0	0	0	0	0	6122	14684					
Renewable energy sources	2369	4763	4256	5016	7728	10043	13531	16188	17567	6.0	6.1	5.8	2.6	
Hydro	139	162	181	189	254	266	280	287	299	2.7	3.4	1.0	0.7	
Biomass & Waste	2230	4600	4072	4806	6966	9011	11264	13070	13634	6.2	5.5	4.9	1.9	
Wind	0	0	0	12	487	648	1393	2034	2625		102.0	11.1	6.5	
Solar and others	0	0	0	0	7	95	564	766	976			54.2	5.6	
Geothermal	0	0	3	9	14	22	31	32	33		16.7	8.2	0.8	
Net Imports	2238	-152	10131	16954	26754	30927	33074	34213	35467	16.3	10.2	2.1	0.7	
Solids	-18913	-21202	-16309	-12482	-8998	-9662	-10348	-10491	-10464					
Oil	14468	15481	20381	21929	25493	28009	28453	28761	29339	3.5	2.3	1.1	0.3	
- Crude oil and Feedstocks	13085	13984	18827	18169	21176	23138	23447	23662	24087	3.7	1.2	1.0	0.3	
- Oil products	1383	1498	1554	3760	4317	4871	5006	5099	5252	1.2	10.8	1.5	0.5	
Natural gas	6773	5810	6607	8531	11209	12017	13242	14138	14746	-0.2	5.4	1.7	1.1	
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Gross Inland Consumption	100021	100019	90777	93935	95117	97357	100615	106003	111550	-1.0	0.5	0.6	1.0	
Solids	75405	70500	56358	55184	48055	43332	40393	35988	30529	-2.9	-1.6	-1.7	-2.8	
Oil	13399	16003	20759	22525	25874	28302	28722	28961	29478	4.5	2.2	1.0	0.3	
Natural gas	8938	8995	9960	12235	14409	15117	16242	16938	17446	1.1	3.8	1.2	0.7	
Nuclear	0	0	0	0	0	0	0	6122	14684					
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861					
Renewable energy forms	2369	4763	4249	4954	7638	11174	15768	18783	20274	6.0	6.0	7.5	2.5	
as % in Gross Inland Consumption														
Solids	75.4	70.5	62.1	58.7	50.5	44.5	40.1	34.0	27.4					
Oil	13.4	16.0	22.9	24.0	27.2	29.1	28.5	27.3	26.4					
Natural gas	8.9	9.0	11.0	13.0	15.1	15.5	16.1	16.0	15.6					
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	13.2					
Renewable energy forms	2.4	4.8	4.7	5.3	8.0	11.5	15.7	17.7	18.2					
Gross Electricity Generation in GWh_e	134591	137017	143147	155331	150936	154954	162616	185730	211482	0.6	0.5	0.7	2.7	
Self consumption and grid losses	21063	28189	27977	28574	25681	26001	25608	30544	35334	2.9	-0.9	0.0	3.3	
Fuel Inputs to Thermal Power Generation	43419	36847	35960	38149	32995	30577	30305	26314	21208	-1.9	-0.9	-0.8	-3.5	
Solids	41138	35842	34793	35942	30928	26937	24948	20597	15944	-1.7	-1.2	-2.1	-4.4	
Oil (including refinery gas)	1236	405	228	179	23	181	173	10	3	-15.6	-20.4	22.2	-33.1	
Gas (including derived gases)	673	488	783	1483	1068	1044	1348	449	61	1.5	3.1	2.4	-26.6	
Biomass & Waste	372	114	157	546	976	2415	3836	5259	5200	-8.3	20.1	14.7	3.1	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	37855	32959	33903	31826	32181	33602	33723	33733	33624	-1.1	-0.5	0.5	0.0	
Refineries	13160	14929	19949	19591	22165	24123	24447	24609	24984	4.2	1.1	1.0	0.2	
Biofuels and hydrogen production	0	0	0	55	454	932	1699	1980	2098			14.1	2.1	
District heating	9949	5985	4320	3639	3225	3145	3196	2915	2917	-8.0	-2.9	-0.1	-0.9	
Derived gases, cokeries etc.	14746	12045	9635	8541	6337	5403	4381	4230	3624	-4.2	-4.1	-3.6	-1.9	
Energy Branch Consumption	6809	7655	7401	7680	9251	9497	9449	9971	10237	0.8	2.3	0.2	0.8	
Non-Energy Uses	4193	3646	4218	4354	5150	6196	6962	7792	8441	0.1	2.0	3.1	1.9	
Final Energy Demand	59583	63489	55720	57169	61996	66180	69718	73580	76523	-0.7	1.1	1.2	0.9	
by sector														
Industry	25252	22720	18883	16373	17648	19538	21184	22916	24209	-2.9	-0.7	1.8	1.3	
- energy intensive industries	16252	15428	13374	11149	11571	12471	13124	14053	14790	-1.9	-1.4	1.3	1.2	
- other industrial sectors	9000	7292	5509	5225	6076	7067	8060	8863	9419	-4.8	1.0	2.9	1.6	
Residential	18126	23284	17516	18375	18868	18567	19108	19608	20000	-0.3	0.7	0.1	0.5	
Tertiary	8867	9229	10136	10334	10873	11478	11875	12588	13163	1.3	0.7	0.9	1.0	
Transport	7338	8256	9185	12087	14608	16597	17551	18469	19151	2.3	4.7	1.9	0.9	
by fuel														
Solids	17066	23299	13728	11262	10739	10748	10384	10045	9789	-2.2	-2.4	-0.3	-0.6	
Oil	9104	11582	15452	17798	20521	22161	22301	22813	22956	5.4	2.9	0.8	0.3	
Gas	7987	7735	7447	8400	10869	11046	11389	12459	12962	-0.7	3.9	0.5	1.3	
Electricity	8233	7703	8317	8498	8530	9181	9988	11300	13061	0.1	0.3	1.6	2.7	
Heat (from CHP and District Heating)	15563	8763	6886	7056	6270	6513	7161	7328	7322	-7.8	-0.9	1.3	0.2	
Renewable energy forms	1631	4408	3889	4156	5066	6529	8490	9631	10428	9.1	2.7	5.3	2.1	
Other	0	0	0	0	1	3	4	4	5			12.5	2.8	
RES in Gross Final Energy Consumption (A)			4153	4481	6866	9857	13785	16925	18789	5.2	7.2	3.1		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0		374.6	373.4	358.4	343.5	335.7	302.4	269.4	-1.4	-0.4	-0.7	-2.2	
CO₂ Emissions (energy related)	332.2	330.8	290.3	290.7	280.9	269.2	260.3	230.7	199.2	-1.3	-0.3	-0.8	-2.6	
Power generation/District heating	209.3	169.9	158.8	162.1	139.9	123.2	115.1	83.8	52.3	-2.7	-1.3	-1.9	-7.6	
Energy Branch	5.8	12.7	11.4	10.6	11.4	11.3	11.1	10.3	9.9	6.9	0.0	-0.3	-1.1	
Industry	44.0	59.9	46.3	33.2	37.5	40.1	41.3	42.7	43.6	0.5	-2.1	1.0	0.6	
Residential	33.1	44.4	27.9	30.2	29.9	27.4	25.7	25.1	24.0	-1.7	0.7	-1.5	-0.7	
Tertiary	19.4	20.7	20.1	20.4	21.7	22.0	21.3	20.6	20.6	0.4	0.7	-0.2	-0.4	
Transport	20.5	23.1	25.8	34.3	40.6	45.1	45.8	47.5	48.8	2.3	4.7	1.2	0.6	
CO₂ Emissions (non energy related)	8.4	10.3	12.7	10.8	11.5	14.1	16.9	19.3	21.5	4.2	-1.0	3.9	2.5	
Non-CO₂ GHGs Emissions	89.4		71.6	72.0	66.0	60.3	58.6	52.4	48.7	-2.2	-0.8	-1.2	-1.8	
TOTAL GHGs Emissions Index (1990=100)	100.0		87.1	86.8	83.3	79.9	78.1	70.3	62.6					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Poland: Cost Efficiency Scenario with high prices													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1	
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3	
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	315.7	252.7	213.1	187.4	170.5	-4.6	-3.1	-3.9	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.31	3.20	3.09	2.95	2.76	2.59	2.18	1.79	-0.4	-0.8	-1.3	-3.6	
Import Dependency %	2.2	-0.2	11.1	18.0	28.0	31.6	32.7	32.1	31.7					
Total Energy-related Costs ^(B) (in 000 M€05)			33.9	38.6	53.9	71.4	89.7	104.4	116.8		4.8	5.2	2.7	
as % of GDP			16.1	15.8	17.9	18.5	19.0	18.4	17.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	205.0	181.1	100.0	72.5	59.4	49.9	43.4	39.7	37.6	-6.9	-5.1	-3.1	-1.4	
Residential (Energy on Private Income, index 2000=100)	182.2	177.3	100.0	74.1	62.4	49.1	41.7	35.8	31.4	-5.8	-4.6	-4.0	-2.8	
Tertiary (Energy on Value added, index 2000=100)	124.3	113.7	100.0	89.0	77.0	64.2	54.4	47.7	42.4	-2.1	-2.6	-3.4	-2.5	
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.0	24.6	23.3	22.0	21.2	2.9	-0.3	-0.7	-0.9	
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	39.8	37.9	34.9	32.7	30.8	0.3	3.7	-1.3	-1.2	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.67	0.65	0.57	0.48	0.42	0.28	0.16	0.8	-1.6	-2.9	-9.2	
Final energy demand (t of CO ₂ /toe)	1.96	2.33	2.16	2.06	2.09	2.03	1.92	1.86	1.79	0.9	-0.3	-0.8	-0.7	
Industry	1.74	2.64	2.45	2.02	2.13	2.05	1.95	1.86	1.80	3.5	-1.4	-0.9	-0.8	
Residential	1.83	1.90	1.59	1.64	1.58	1.48	1.35	1.28	1.20	-1.4	-0.1	-1.6	-1.2	
Tertiary	2.19	2.25	1.98	1.97	1.99	1.92	1.80	1.69	1.56	-1.0	0.0	-1.0	-1.4	
Transport	2.80	2.80	2.81	2.84	2.78	2.72	2.61	2.57	2.55	0.0	-0.1	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			7.2	7.5	10.7	14.4	19.2	22.2	23.6					
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.2	5.8	10.2	11.4	11.8					
Gross Electricity generation by source (in GWh)														
			143147	155331	150936	154954	162616	185730	211482		0.5	0.7	2.7	
Nuclear energy			0	0	0	0	0	27724	66699					
Solids			134042	141361	126895	117562	106777	93856	81848		-0.5	-1.7	-2.6	
Oil (including refinery gas)			2936	2964	775	1195	1057	72	194		-12.5	3.2	-15.6	
Gas (including derived gases)			2979	5603	7946	9688	11879	7594	4181		10.3	4.1	-9.9	
Biomass-waste			1080	3068	6706	15876	23450	29486	24526		20.0	13.3	0.4	
Hydro (pumping excluded)			2105	2201	2954	3094	3251	3338	3478		3.4	1.0	0.7	
Wind			5	135	5660	7539	16199	23646	30519		102.0	11.1	6.5	
Solar			0	0	0	0	3	14	37			25.7	29.1	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			30194	31711	35088	40996	43616	51343	57495		1.5	2.2	2.8	
<u>Nuclear energy</u>			0	0	0	0	0	3200	7699					
<u>Renewable energy</u>			640	1038	3995	5229	8839	11929	14774		20.1	8.3	5.3	
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7	
Wind			5	124	3016	4156	7679	10679	13498		89.0	9.8	5.8	
Solar			0	0	0	0	3	15	40			25.7	29.1	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			29554	30673	31093	35767	34777	36214	35022		0.5	1.1	0.1	
of which cogeneration units			6632	6800	6851	8243	9024	10033	9969		0.3	2.8	1.0	
Solids fired			28139	28775	28755	29745	26850	24509	20455		0.2	-0.7	-2.7	
Gas fired			820	1263	1664	1856	2117	1976	1933		7.3	2.4	-0.9	
Oil fired			472	474	461	456	456	191	135		-0.2	-0.1	-11.5	
Biomass-waste fired			122	160	213	3711	5354	9538	12500		5.8	38.0	8.8	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.2	51.1	45.5	39.9	39.6	37.8	38.2					
Efficiency of gross thermal power generation (%)			33.7	34.5	37.1	40.6	40.6	42.8	44.9					
% of gross electricity from CHP			12.2	12.9	25.8	32.3	31.1	28.2	23.0					
Carbon free gross electricity generation (%)			2.2	3.5	10.2	17.1	26.4	45.3	59.2					
- nuclear			0.0	0.0	0.0	0.0	0.0	14.9	31.5					
- renewable energy forms			2.2	3.5	10.2	17.1	26.4	30.4	27.7					
Transport sector														
Passenger transport activity (Gpkm)	207.0	183.3	216.5	243.8	279.6	323.6	368.6	418.9	466.6	0.5	2.6	2.8	2.4	
Public road transport	46.3	34.0	31.7	29.9	29.3	29.8	33.1	36.0	38.4	-3.7	-0.8	1.2	1.5	
Private cars and motorcycles	102.8	115.0	153.1	188.3	225.2	264.8	301.4	341.5	379.2	4.1	3.9	3.0	2.3	
Rail	55.4	31.6	28.8	22.3	20.9	23.1	26.4	31.7	37.0	-6.3	-3.2	2.4	3.4	
Aviation	2.0	2.3	2.6	3.1	4.0	5.6	7.3	9.4	11.7	3.1	4.3	6.2	4.8	
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.8	2.3	
Freight transport activity (Gtkm)	122.9	120.3	130.2	156.0	191.3	228.3	257.4	282.7	300.4	0.6	3.9	3.0	1.6	
Trucks	40.3	51.2	75.0	111.8	139.8	165.4	183.9	200.5	211.7	6.4	6.4	2.8	1.4	
Rail	81.6	68.2	54.0	43.8	51.1	62.5	73.1	81.7	88.1	-4.0	-0.5	3.6	1.9	
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.6	1.3	-11.8	2.5	2.7	
Energy demand in transport (ktoe)	7338	8256	9185	12087	14608	16597	17551	18469	19151	2.3	4.7	1.9	0.9	
Public road transport	314	229	217	190	185	181	187	180	169	-3.6	-1.6	0.1	-1.0	
Private cars and motorcycles	3299	4112	4876	5324	6351	7215	7756	8343	8978	4.0	2.7	2.0	1.5	
Trucks	2335	2847	3178	5748	7157	8106	8398	8665	8796	3.1	8.5	1.6	0.5	
Rail	1095	667	539	502	540	628	655	659	555	-6.8	0.0	1.9	-1.6	
Aviation	196	371	369	319	374	466	552	620	650	6.5	0.1	4.0	1.6	
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.4	2.2	

Source: PRIMES

Poland: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	99383	80296	79265	66837	67972	76544	-548	470	-1689	-0.8	0.7	-2.2
Solids	94459	71298	68876	52994	50741	40993	-983	-1051	-3850	-1.8	-2.0	-8.6
Oil	178	1429	1489	700	700	600	0	0	0	0.0	0.0	0.0
Natural gas	2378	3313	3884	3100	3000	2700	0	0	0	0.0	0.0	0.0
Nuclear	0	0	0	0	0	14684	0	0	-574			-3.8
Renewable energy sources	2369	4256	5016	10043	13531	17567	434	1521	2735	4.5	12.7	18.4
Hydro	139	181	189	266	280	299	32	19	0	13.5	7.2	0.0
Biomass & Waste	2230	4072	4806	9011	11264	13634	0	319	174	0.0	2.9	1.3
Wind	0	0	12	648	1393	2625	323	730	1795	99.2	110.2	216.4
Solar and others	0	0	0	95	564	976	70	436	747	267.9	340.3	326.7
Geothermal	0	3	9	22	31	33	10	17	18	87.4	129.3	113.0
Net Imports	2238	10131	16954	30927	33074	35467	-7098	-7892	-9817	-18.7	-19.3	-21.7
Solids	-18913	-16309	-12482	-9662	-10348	-10464	-6372	-6857	-6367	193.7	196.4	155.4
Oil	14468	20381	21929	28009	28453	29339	-1097	-2267	-2943	-3.8	-7.4	-9.1
- Crude oil and Feedstocks	13085	18827	18169	23138	23447	24087	-867	-1786	-2306	-3.6	-7.1	-8.7
- Oil products	1383	1554	3760	4871	5006	5252	-230	-481	-637	-4.5	-8.8	-10.8
Natural gas	6773	6607	8531	12017	13242	14746	-511	-703	-2842	-4.1	-5.0	-16.2
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	100021	90777	93935	97357	100615	111550	-7646	-7423	-11506	-7.3	-6.9	-9.4
Solids	75405	56358	55184	43332	40393	30529	-7355	-7908	-10217	-14.5	-16.4	-25.1
Oil	13399	20759	22525	28302	28722	29478	-1097	-2267	-2944	-3.7	-7.3	-9.1
Natural gas	8938	9960	12235	15117	16242	17446	-511	-703	-2842	-3.3	-4.1	-14.0
Nuclear	0	0	0	0	0	14684	0	0	-574			-3.8
Electricity	-90	-548	-962	-567	-510	-861	0	0	0	0.0	0.0	0.0
Renewable energy forms	2369	4249	4954	11174	15768	20274	1317	3455	5070	13.4	28.1	33.3
as % in Gross Inland Consumption												
Solids	75.4	62.1	58.7	44.5	40.1	27.4	-3.8	-4.6	-5.7			
Oil	13.4	22.9	24.0	29.1	28.5	26.4	1.1	-0.1	0.1			
Natural gas	8.9	11.0	13.0	15.5	16.1	15.6	0.6	0.5	-0.8			
Nuclear	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	0.8			
Renewable energy forms	2.4	4.7	5.3	11.5	15.7	18.2	2.1	4.3	5.8			
Gross Electricity Generation in GWh_e	134591	143147	155331	154954	162616	211482	-25311	-36677	-21919	-14.0	-18.4	-9.4
Self consumption and grid losses	21063	27977	28574	26001	25608	35334	-4692	-9080	-841	-15.3	-26.2	-2.3
Fuel Inputs to Thermal Power Generation	43419	35960	38149	30577	30305	21208	-6678	-6091	-8449	-17.9	-16.7	-28.5
Solids	41138	34793	35942	26937	24948	15944	-6508	-6885	-9623	-19.5	-21.6	-37.6
Oil (including refinery gas)	1236	228	179	181	173	3	-108	82	-15	-37.5	89.1	-83.0
Gas (including derived gases)	673	783	1483	1044	1348	61	-676	-926	-1798	-39.3	-40.7	-96.7
Biomass & Waste	372	157	546	2415	3836	5200	614	1638	2987	34.1	74.5	135.0
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	37855	33903	31826	33602	33723	33624	-694	-1629	-2901	-2.0	-4.6	-7.9
Refineries	13160	19949	19591	24123	24447	24984	-868	-1787	-2306	-3.5	-6.8	-8.5
Biofuels and hydrogen production	0	0	55	932	1699	2098	-87	-250	-392	-8.5	-12.9	-15.7
District heating	9949	4320	3639	3145	3196	2917	-107	-106	-418	-3.3	-3.2	-12.5
Derived gases, cokeries etc.	14746	9635	8541	5403	4381	3624	368	515	215	7.3	13.3	6.3
Energy Branch Consumption	6809	7401	7680	9497	9449	10237	-311	-758	-390	-3.2	-7.4	-3.7
Non-Energy Uses	4193	4218	4354	6196	6962	8441	-13	-27	-2	-0.2	-0.4	0.0
Final Energy Demand	59583	55720	57169	66190	69718	76523	-3763	-4904	-5868	-5.4	-6.6	-7.1
by sector												
Industry	25252	18883	16373	19538	21184	24209	-514	-763	-651	-2.6	-3.5	-2.6
- energy intensive industries	16252	13374	11149	12471	13124	14790	-213	-382	-362	-1.7	-2.8	-2.4
- other industrial sectors	9000	5509	5225	7067	8060	9419	-301	-381	-288	-4.1	-4.5	-3.0
Residential	18126	17516	18375	18567	19108	20000	-1378	-1234	-1299	-6.9	-6.1	-6.1
Tertiary	8867	10136	10334	11478	11875	13163	-1017	-1458	-1938	-8.1	-10.9	-12.8
Transport	7338	9185	12087	16597	17551	19151	-854	-1449	-1980	-4.9	-7.6	-9.4
by fuel												
Solids	17066	13728	11262	10748	10384	9789	-1126	-1174	-1021	-9.5	-10.2	-9.4
Oil	9104	15452	17798	22161	22301	22956	-613	-1884	-2805	-2.7	-7.8	-10.9
Gas	7987	7447	8400	11046	11389	12962	181	276	-596	1.7	2.5	-4.4
Electricity	8233	8317	8498	9181	9988	13061	-1700	-2289	-1707	-15.6	-18.6	-11.6
Heat (from CHP and District Heating)	15563	6886	7056	6513	7161	7322	-872	-785	-652	-11.8	-9.9	-8.2
Renewable energy forms	1631	3889	4156	6529	8490	10428	368	951	914	6.0	12.6	9.6
Other	0	0	0	3	4	5	0	0	-1	5.3	-9.5	-11.7
RES in Gross Final Energy Consumption ^(A)		4153	4481	9857	13785	18789	1461	2824	4711	17.4	25.8	33.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	430.0	374.6	373.4	343.5	335.7	269.4	-40.7	-49.7	-89.0	-10.6	-12.9	-24.8
CO₂ Emissions (energy related)	332.2	290.3	290.7	269.2	260.3	199.2	-33.9	-40.1	-80.5	-11.2	-13.4	-28.8
Power generation/District heating	209.3	158.8	162.1	123.2	115.1	52.3	-27.2	-29.4	-65.1	-18.1	-20.3	-55.5
Energy Branch	5.8	11.4	10.6	11.3	11.1	9.9	-0.9	-1.1	-1.5	-7.4	-9.2	-13.0
Industry	44.0	46.3	33.2	40.1	41.3	43.6	0.4	-0.7	-1.5	1.1	-1.6	-3.2
Residential	33.1	27.9	30.2	27.4	25.7	24.0	-3.2	-3.5	-4.0	-10.4	-12.1	-14.4
Tertiary	19.4	20.1	20.4	22.0	21.3	20.6	-0.7	-1.6	-3.0	-3.1	-6.9	-12.9
Transport	20.5	25.8	34.3	45.1	45.8	48.8	-2.4	-3.8	-5.3	-5.0	-7.7	-9.9
CO₂ Emissions (non energy related)	8.4	12.7	10.8	14.1	16.9	21.5	-0.1	-0.2	-0.3	-0.9	-1.4	-1.2
Non-CO₂ GHGs Emissions	89.4	71.6	72.0	60.3	58.6	48.7	-6.6	-9.3	-8.2	-9.9	-13.7	-14.4
TOTAL GHGs Emissions Index (1990=100)	100.0	87.1	86.8	79.9	78.1	62.6	-9.5	-11.5	-20.7			

Source: PRIMES

	SUMMARY ENERGY BALANCE AND INDICATORS (B)						Poland: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.038	38.654	38.174	37.428	37.065	36.542	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	144.8	209.9	243.8	385.3	472.2	654.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	691.0	432.4	385.4	252.7	213.1	170.5	-19.8	-15.7	-17.6	-7.3	-6.9	-9.4
Carbon intensity (t of CO ₂ /toe of GIC)	3.32	3.20	3.09	2.76	2.59	1.79	-0.12	-0.19	-0.49	-4.2	-7.0	-21.4
Import Dependency %	2.2	11.1	18.0	31.6	32.7	31.7	-4.4	-5.0	-5.0			
Total Energy-related Costs ^(B) (in 000 M€05)		33.9	38.6	71.4	89.7	116.8	3.6	5.4	8.7	5.4	6.4	8.0
as % of GDP		16.1	15.8	18.5	19.0	17.9	0.9	1.2	1.3			
Total Compliance Costs ^(D) (in 000 M€05)				3.7	5.6	8.9						
as % of GDP				0.97	1.19	1.35						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	205.0	100.0	72.5	49.9	43.4	37.6	-1.3	-1.6	-1.0	-2.6	-3.5	-2.6
Residential (Energy on Private Income, index 2000=100)	182.2	100.0	74.1	49.1	41.7	31.4	-3.6	-2.7	-2.0	-6.9	-6.1	-6.1
Tertiary (Energy on Value added, index 2000=100)	124.3	100.0	89.0	64.2	54.4	42.4	-5.7	-6.7	-6.2	-8.1	-10.9	-12.8
Passenger transport (toe/Mpkm)	19.5	25.8	24.3	24.6	23.3	21.2	-0.5	-0.7	-0.7	-1.8	-2.9	-3.4
Freight transport (toe/Mtkm)	26.9	27.6	39.4	37.9	34.9	30.8	-2.1	-3.4	-4.3	-5.2	-8.9	-12.2
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.62	0.67	0.65	0.48	0.42	0.16	-0.03	-0.03	-0.17	-6.5	-6.5	-51.1
Final energy demand (t of CO ₂ /toe)	1.96	2.16	2.06	2.03	1.92	1.79	0.03	0.00	-0.04	1.3	-0.1	-2.2
Industry	1.74	2.45	2.02	2.05	1.95	1.80	0.07	0.04	-0.01	3.7	1.9	-0.6
Residential	1.83	1.59	1.64	1.48	1.35	1.20	-0.06	-0.09	-0.12	-3.7	-6.4	-8.9
Tertiary	2.19	1.98	1.97	1.92	1.80	1.56	0.10	0.08	0.00	5.5	4.5	-0.1
Transport	2.80	2.81	2.84	2.72	2.61	2.55	0.00	0.00	-0.01	-0.1	-0.1	-0.5
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		7.2	7.5	14.4	19.2	23.6	2.8	5.0	7.2			
Biofuels share in transport gasoline and diesel (%)		0.0	0.6	5.8	10.2	11.8	-0.2	-0.5	-0.7			
Gross Electricity generation by source (in GWh_e)												
	143147	155331	154954	162616	211482	211482	-25311	-36677	-21919	-14.0	-18.4	-9.4
Nuclear energy	0	0	0	0	66699	66699	0	0	-2611			-3.8
Solids	134042	141361	117562	106777	81848	81848	-29880	-51513	-42289	-20.3	-32.5	-34.1
Oil (including refinery gas)	2936	2964	1195	1057	194	194	-1026	-810	-487	-46.2	-43.4	-71.5
Gas (including derived gases)	2979	5603	9688	11879	4181	4181	-3737	-4327	-11539	-27.8	-26.7	-73.4
Biomass-waste	1080	3068	15876	23450	24526	24526	5208	11265	14133	48.8	92.4	136.0
Hydro (pumping excluded)	2105	2201	3094	3251	3478	3478	369	218	0	13.5	7.2	0.0
Wind	5	135	7539	16199	30519	30519	3755	8491	20874	99.2	110.2	216.4
Solar	0	0	0	3	37	37	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	30194	31711	40996	43616	57495	57495	604	-3645	6229	1.5	-7.7	12.2
<u>Nuclear energy</u>	0	0	0	0	7699	7699	0	0	-301			-3.8
<u>Renewable energy</u>	640	1038	5229	8839	14774	14774	2188	3787	8637	71.9	75.0	140.8
Hydro (pumping excluded)	635	914	1072	1156	1235	1235	0	0	0	0.0	0.0	0.0
Wind	5	124	4156	7679	13498	13498	2188	3787	8637	111.2	97.3	177.7
Solar	0	0	0	3	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	29554	30673	35767	34777	35022	35022	-1584	-7433	-2107	-4.2	-17.6	-5.7
of which cogeneration units	6632	6800	8243	9024	9969	9969	-504	-1064	-836	-5.8	-10.5	-7.7
Solids fired	28139	28775	29745	26850	20455	20455	-3643	-10599	-6553	-10.9	-28.3	-24.3
Gas fired	820	1263	1856	2117	1933	1933	-1054	-1426	-4035	-36.2	-40.3	-67.6
Oil fired	472	474	456	456	135	135	-137	-137	-66	-23.1	-23.1	-32.9
Biomass-waste fired	122	160	3711	5354	12500	12500	3249	4730	8547	704.2	758.8	216.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	0	0	0	0	0	0	0	0	0			
Avg. Load factor of net power capacity (%)	49.2	51.1	39.9	39.6	38.2	38.2	-7.2	-4.5	-10.0			
Efficiency of gross thermal power generation (%)	33.7	34.5	40.6	40.6	44.9	44.9	0.5	-3.9	1.1			
% of gross electricity from CHP	12.2	12.9	32.3	31.1	23.0	23.0	7.2	4.0	3.7			
Carbon free gross electricity generation (%)	2.2	3.5	17.1	26.4	59.2	59.2	7.6	14.9	19.4			
- nuclear	0.0	0.0	0.0	0.0	31.5	31.5	0.0	0.0	1.8			
- renewable energy forms	2.2	3.5	17.1	26.4	27.7	27.7	7.6	14.9	17.6			
Transport sector												
Passenger transport activity (Gpkm)												
	207.0	216.5	243.8	323.6	368.6	466.6	-3.3	-4.9	-6.4	-1.0	-1.3	-1.4
Public road transport	46.3	31.7	29.9	29.8	33.1	38.4	0.6	0.8	1.0	1.9	2.4	2.5
Private cars and motorcycles	102.8	153.1	188.3	264.8	301.4	379.2	-4.3	-6.0	-8.4	-1.6	-2.0	-2.2
Rail	55.4	28.8	22.3	23.1	26.4	37.0	0.5	0.6	1.5	2.3	2.4	4.4
Aviation	2.0	2.6	3.1	5.6	7.3	11.7	-0.2	-0.3	-0.5	-2.7	-3.6	-3.8
Inland navigation	0.5	0.3	0.2	0.3	0.3	0.4	0.0	0.0	0.0	-0.7	-0.8	-1.1
Freight transport activity (Gtkm)												
	122.9	130.2	156.0	228.3	257.4	300.4	-3.6	-5.1	-5.9	-1.6	-1.9	-1.9
Trucks	40.3	75.0	111.8	165.4	183.9	211.7	-6.0	-8.3	-10.6	-3.5	-4.3	-4.8
Rail	81.6	54.0	43.8	62.5	73.1	88.1	2.4	3.3	4.8	3.9	4.7	5.7
Inland navigation	1.0	1.2	0.3	0.4	0.4	0.6	0.0	0.0	0.0	0.6	0.8	0.6
Energy demand in transport (ktoe)												
	7338	9185	12087	16597	17551	19151	-854	-1449	-1980	-4.9	-7.6	-9.4
Public road transport	314	217	190	181	187	169	-1	-4	-19	-0.4	-2.1	-10.2
Private cars and motorcycles	3299	4876	5324	7215	7756	8978	-215	-338	-357	-2.9	-4.2	-3.8
Trucks	2335	3178	5748	8106	8398	8796	-641	-1075	-1480	-7.3	-11.3	-14.4
Rail	1095	539	502	628	655	555	19	0	-12	3.1	-0.1	-2.1
Aviation	196	369	319	466	552	650	-17	-31	-112	-3.5	-5.3	-14.7
Inland navigation	99	6	2	2	3	3	0	0	0	-0.5	-1.2	-2.5

Source: PRIMES

Portugal: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2808	2602	3109	3583	5462	6303	7844	8975	10359	1.0	5.8	3.7	2.8
Solids	115	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	2692	2602	3109	3583	5462	6303	7844	8975	10359	1.4	5.8	3.7	2.8
Hydro	787	717	974	407	871	871	872	872	872	2.1	-1.1	0.0	0.0
Biomass & Waste	1891	1831	2053	2936	3425	3879	4813	5409	5837	0.8	5.3	3.5	1.9
Wind	0	1	14	152	984	1123	1354	1569	1778	66.9	52.5	3.2	2.8
Solar and others	11	15	18	23	97	308	670	978	1692	5.4	18.0	21.4	9.7
Geothermal	3	37	49	66	85	122	134	149	180	31.4	5.7	4.6	3.0
Net Imports	15160	17876	21588	24040	22468	22565	20696	20209	18864	3.6	0.4	-0.8	-0.9
Solids	2789	3797	3913	3223	3399	3446	3136	2676	1516	3.4	-1.4	-0.8	-7.0
Oil	12367	14001	15556	16338	15323	15079	14189	14149	14124	2.3	-0.2	-0.8	0.0
- Crude oil and Feedstocks	11360	13547	12022	13459	13098	13001	12622	12611	12605	0.6	0.9	-0.4	0.0
- Oil products	1007	454	3534	2878	2225	2078	1567	1538	1518	13.4	-4.5	-3.4	-0.3
Natural gas	0	0	2039	3893	3641	3889	3286	3307	3155		6.0	-1.0	-0.4
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Gross Inland Consumption	16890	19611	24108	26677	27324	28234	27886	28508	28530	3.6	1.3	0.2	0.2
Solids	2580	3493	3803	3347	3399	3446	3136	2676	1516	4.0	-1.1	-0.8	-7.0
Oil	11614	13437	15083	15410	14717	14445	13535	13474	13430	2.6	-0.2	-0.8	-0.1
Natural gas	0	0	2034	3751	3641	3889	3286	3307	3155		6.0	-1.0	-0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Renewable energy forms	2692	2602	3109	3583	5462	6303	7844	8975	10359	1.4	5.8	3.7	2.8
as % in Gross Inland Consumption													
Solids	15.3	17.8	15.8	12.5	12.4	12.2	11.2	9.4	5.3				
Oil	68.8	68.5	62.6	57.8	53.9	51.2	48.5	47.3	47.1				
Natural gas	0.0	0.0	8.4	14.1	13.3	13.8	11.8	11.6	11.1				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	15.9	13.3	12.9	13.4	20.0	22.3	28.1	31.5	36.3				
Gross Electricity Generation in GWh_e	28350	33148	43364	46180	56173	60095	61215	68587	75542	4.3	2.6	0.9	2.1
Self consumption and grid losses	4441	4776	5435	6125	6127	6601	6529	8073	8318	2.0	1.2	0.6	2.5
Fuel Inputs to Thermal Power Generation	4304	5493	6507	8007	6984	7080	6087	5866	5048	4.2	0.7	-1.4	-1.9
Solids	2027	2919	3198	3319	3394	3442	3132	2672	1513	4.7	0.6	-0.8	-7.0
Oil (including refinery gas)	2105	2371	1670	1884	880	551	0	0	256	-2.3	-6.2		
Gas (including derived gases)	19	18	1234	2309	1791	2022	1423	1354	1242	51.6	3.8	-2.3	-1.3
Biomass & Waste	149	148	356	430	837	949	1405	1699	1863	9.1	8.9	5.3	2.9
Geothermal heat	3	37	49	65	82	117	128	142	174	31.4	5.2	4.6	3.1
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	11484	14055	12700	13608	13544	13602	13428	13532	13587	1.0	0.6	-0.1	0.1
Refineries	11152	13579	12251	13608	13356	13244	12843	12820	12804	0.9	0.9	-0.4	0.0
Biofuels and hydrogen production	0	0	0	0	189	357	585	712	783			12.0	3.0
District heating	0	16	0	0	0	0	0	0	0				
Derived gases, cokeries etc.	332	460	449	0	0	0	0	0	0	3.1			
Energy Branch Consumption	658	870	881	900	809	786	731	787	720	3.0	-0.8	-1.0	-0.2
Non-Energy Uses	2103	1875	2330	2405	2576	2660	2729	2851	2949	1.0	1.0	0.6	0.8
Final Energy Demand	11208	13042	16937	16654	19686	20492	20757	21518	22018	4.2	1.5	0.5	0.6
by sector													
Industry	4139	4247	5518	5656	5852	6007	6198	6482	6687	2.9	0.6	0.6	0.8
- energy intensive industries	2497	2646	3437	3757	3837	3922	4015	4176	4295	3.2	1.1	0.5	0.7
- other industrial sectors	1642	1601	2081	1899	2015	2085	2183	2307	2392	2.4	-0.3	0.8	0.9
Residential	2290	2569	2804	3206	3571	3915	3956	4191	4407	2.0	2.4	1.0	1.1
Tertiary	1052	1373	2098	2766	2789	2822	2743	2795	2838	7.2	2.9	-0.2	0.3
Transport	3728	4853	6517	7026	7475	7748	7860	8049	8086	5.7	1.4	0.5	0.3
by fuel													
Solids	617	546	465	16	5	5	4	4	4	-2.8	-36.1	-2.3	-1.2
Oil	6683	8187	10469	10492	10557	10562	10193	10038	9668	4.6	0.1	-0.4	-0.5
Gas	103	97	853	1307	1797	1813	1819	1909	1873	23.6	7.7	0.1	0.3
Electricity	2024	2477	3299	3983	4360	4702	4739	5231	5801	5.0	2.8	0.8	2.0
Heat (from CHP and District Heating)	28	36	134	328	322	311	345	381	440	16.8	9.1	0.7	2.5
Renewable energy forms	1752	1698	1716	2529	2644	3100	3655	3952	4229	-0.2	4.4	3.3	1.5
Other	0	0	0	0	1	1	2	3	3			10.8	6.2
RES in Gross Final Energy Consumption ^(A)			2907	3266	5206	5976	7401	8457	9774	6.0	3.6	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3		84.7	87.3	81.9	79.6	73.8	71.3	65.9	3.5	-0.3	-1.0	-1.1
CO₂ Emissions (energy related)	39.0	48.3	58.5	61.6	58.7	58.3	52.5	50.2	44.8	4.1	0.0	-1.1	-1.6
Power generation/District heating	14.8	19.2	20.9	24.5	20.4	20.1	15.7	13.7	9.7	3.5	-0.3	-2.6	-4.7
Energy Branch	1.5	2.2	2.3	2.3	2.2	2.1	1.9	1.8	1.7	4.3	-0.4	-1.5	-1.1
Industry	8.2	8.4	10.8	7.3	8.0	8.0	7.6	7.3	6.6	2.8	-2.9	-0.5	-1.4
Residential	1.6	1.9	2.0	2.3	2.3	2.3	2.3	2.4	2.3	2.0	1.2	0.3	-0.1
Tertiary	1.9	2.2	3.2	4.2	4.0	3.6	3.1	2.9	2.6	5.4	2.3	-2.4	-1.9
Transport	11.0	14.4	19.4	21.0	21.8	22.2	21.9	22.1	22.0	5.8	1.2	0.0	0.0
CO₂ Emissions (non energy related)	4.5	6.5	7.2	6.5	6.2	6.1	6.2	6.4	6.5	4.7	-1.5	0.1	0.5
Non-CO₂ GHGs Emissions	16.7		19.0	19.2	17.1	15.2	15.0	14.7	14.6	1.3	-1.1	-1.3	-0.3
TOTAL GHGs Emissions Index (1990=100)	100.0		140.5	144.8	135.7	132.0	122.4	118.2	109.3				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Portugal: Cost Efficiency Scenario with high prices													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Main Energy System Indicators														
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1	
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5	
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	167.9	152.5	131.0	117.0	104.6	0.2	0.0	-2.4	-2.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.46	2.43	2.31	2.15	2.06	1.88	1.76	1.57	0.5	-1.2	-1.3	-1.8	
Import Dependency %	86.7	89.0	87.2	88.2	80.4	78.2	72.5	69.2	64.6					
Total Energy-related Costs ^(B) (in 000 M€05)			15.4	18.1	23.5	28.2	33.9	38.9	42.6		4.3	3.7	2.3	
as % of GDP			10.8	12.3	14.4	15.2	15.9	16.0	15.6					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	84.8	93.6	100.0	102.6	102.9	95.1	87.2	81.5	78.4	1.7	0.3	-1.6	-1.1	
Residential (Energy on Private Income, index 2000=100)	122.0	112.6	100.0	106.3	107.9	105.1	93.5	87.5	82.7	-2.0	0.8	-1.4	-1.2	
Tertiary (Energy on Value added, index 2000=100)	68.3	77.7	100.0	123.9	110.9	97.9	83.2	74.4	67.8	3.9	1.0	-2.8	-2.0	
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.3	37.2	34.9	32.9	30.5	0.2	-1.1	-1.2	-1.3	
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.4	56.8	53.9	51.8	50.0	1.3	-0.4	-1.1	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.57	0.47	0.49	0.34	0.31	0.24	0.19	0.12	-1.0	-3.1	-3.4	-6.7	
Final energy demand (t of CO ₂ /toe)	2.03	2.06	2.09	1.86	1.83	1.76	1.68	1.61	1.52	0.3	-1.3	-0.8	-1.0	
Industry	1.99	1.97	1.96	1.30	1.37	1.33	1.23	1.13	0.99	-0.1	-3.5	-1.1	-2.1	
Residential	0.71	0.74	0.71	0.70	0.63	0.59	0.59	0.57	0.53	0.0	-1.2	-0.7	-1.2	
Tertiary	1.77	1.61	1.50	1.53	1.42	1.26	1.13	1.03	0.90	-1.6	-0.6	-2.2	-2.2	
Transport	2.95	2.96	2.97	2.98	2.92	2.87	2.79	2.75	2.72	0.1	-0.2	-0.5	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			16.7	17.0	25.8	28.4	34.7	38.1	43.0					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.4	4.5	7.3	8.7	9.4					
Gross Electricity generation by source (in GWh)														
			43364	46180	56173	60095	61215	68587	75542		2.6	0.9	2.1	
Nuclear energy			0	0	0	0	0	0	0					
Solids			14765	15311	15489	15866	14452	14338	8972		0.5	-0.7	-4.7	
Oil (including refinery gas)			9483	9244	5276	3323	127	0	1530		-5.7	-31.1	28.3	
Gas (including derived gases)			5745	11580	10141	11527	8032	7977	7870		5.8	-2.3	-0.2	
Biomass-waste			1802	3434	3448	5114	8760	10583	11007		6.7	9.8	2.3	
Hydro (pumping excluded)			11321	4730	10126	10132	10137	10137	10142		-1.1	0.0	0.0	
Wind			168	1773	11445	13056	15749	18240	20669		52.5	3.2	2.8	
Solar			1	3	114	176	2861	6042	14000		60.6	38.0	17.2	
Geothermal and other renewables			80	105	133	901	1097	1271	1353		5.2	23.5	2.1	
Net Generation Capacity in MW_e			10643	13440	21993	23003	26237	30040	36664		7.5	1.8	3.4	
<u>Nuclear energy</u>			0	0	0	0	0	0	0					
<u>Renewable energy</u>			4058	5284	10391	11810	15000	18580	26114		9.9	3.7	5.7	
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0	
Wind			100	1047	6002	6860	8148	9382	11062		50.6	3.1	3.1	
Solar			1	3	80	138	1896	4160	9990		66.1	37.3	18.1	
Other renewables (tidal etc.)			0	0	0	377	466	548	572				2.1	
<u>Thermal power</u>			6585	8156	11602	11193	11237	11460	10550		5.8	-0.3	-0.6	
of which cogeneration units			1372	1373	1907	2100	2395	2594	2822		3.3	2.3	1.7	
Solids fired			1903	1914	1868	1910	1910	1938	1085		-0.2	0.2	-5.5	
Gas fired			1868	3724	5989	5505	5184	5078	5428		12.4	-1.4	0.5	
Oil fired			2338	2008	1981	1919	1688	1610	1248		-1.6	-1.6	-3.0	
Biomass-waste fired			463	493	1748	1833	2424	2804	2748		14.2	3.3	1.3	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			13	16	16	26	31	31	41		2.1	7.0	2.6	
Avg. Load factor of net power capacity (%)			44.8	37.8	28.4	29.1	26.0	25.1	22.9					
Efficiency of gross thermal power generation (%)			42.1	42.6	42.5	43.7	44.6	48.5	50.5					
% of gross electricity from CHP			11.3	10.1	11.1	13.5	18.4	18.6	17.9					
Carbon free gross electricity generation (%)			30.8	21.8	45.0	48.9	63.1	67.5	75.7					
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0					
- renewable energy forms			30.8	21.8	45.0	48.9	63.1	67.5	75.7					
Transport sector														
Passenger transport activity (Gpkm)	52.7	68.5	88.5	100.7	112.1	122.4	131.8	142.2	151.5	5.3	2.4	1.6	1.4	
Public road transport	10.3	11.3	11.8	11.1	11.4	11.7	12.3	12.7	13.1	1.4	-0.4	0.8	0.6	
Private cars and motorcycles	28.6	42.5	60.0	71.4	80.2	87.3	92.9	99.1	104.6	7.7	2.9	1.5	1.2	
Rail	6.3	5.3	4.6	4.6	4.8	5.2	5.7	6.5	7.4	-3.2	0.6	1.6	2.7	
Aviation	7.1	9.1	11.7	13.2	15.3	17.8	20.3	23.3	25.9	5.1	2.7	2.9	2.4	
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.5	1.1	
Freight transport activity (Gtkm)	26.4	30.7	41.9	46.0	50.9	56.2	60.6	65.2	69.3	4.7	2.0	1.8	1.4	
Trucks	23.1	27.3	38.9	42.6	46.9	51.7	55.6	59.8	63.6	5.4	1.9	1.7	1.4	
Rail	1.5	2.0	2.2	2.4	2.8	3.2	3.6	3.8	4.1	4.1	2.6	2.4	1.5	
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.6	-7.9	3.0	2.5	0.9	
Energy demand in transport (ktoe)	3728	4853	6517	7026	7475	7748	7860	8049	8086	5.7	1.4	0.5	0.3	
Public road transport	67	90	100	108	104	100	100	93	86	4.2	0.4	-0.4	-1.5	
Private cars and motorcycles	1575	2299	2945	3058	3248	3300	3280	3285	3332	6.5	1.0	0.1	0.2	
Trucks	1387	1717	2551	2872	3002	3113	3182	3295	3393	6.3	1.6	0.6	0.6	
Rail	82	80	88	66	68	65	63	62	55	0.6	-2.5	-0.8	-1.3	
Aviation	574	620	790	881	1006	1116	1178	1255	1159	3.2	2.4	1.6	-0.2	
Inland navigation	43	46	43	41	47	52	57	60	61	0.0	0.8	1.9	0.7	

Source: PRIMES

Portugal: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2808	3109	3583	6303	7844	10359	612	1253	1772	10.8	19.0	20.6
Solids	115	0	0	0	0	0	0	0	0			
Oil	0	0	0	0	0	0	0	0	0	-3.4	-200.4	119.1
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	0	0	0	0	0	0	0	0	0			
Renewable energy sources	2692	3109	3583	6303	7844	10359	612	1253	1772	10.8	19.0	20.6
Hydro	787	974	407	871	872	872	1	0	0	0.1	0.0	0.0
Biomass & Waste	1891	2053	2936	3879	4813	5837	176	647	682	4.8	15.5	13.2
Wind	0	14	152	1123	1354	1778	200	85	206	21.7	6.7	13.1
Solar and others	11	18	23	308	670	1692	199	479	880	181.6	249.8	108.4
Geothermal	3	49	66	122	134	180	36	42	3	42.8	45.1	1.8
Net Imports	15160	21588	24040	22565	20696	18864	-2586	-5034	-6456	-10.3	-19.6	-25.5
Solids	2789	3913	3223	3446	3136	1516	-1121	-2211	-3183	-24.5	-41.4	-67.7
Oil	12367	15556	16338	15079	14189	14124	-1358	-1855	-1669	-8.3	-11.6	-10.6
- Crude oil and Feedstocks	11360	12022	13459	13001	12622	12605	-756	-982	-986	-5.5	-7.2	-7.3
- Oil products	1007	3534	2878	2078	1567	1518	-601	-873	-683	-22.4	-35.8	-31.0
Natural gas	0	2039	3893	3889	3286	3155	-108	-968	-1605	-2.7	-22.8	-33.7
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	16890	24108	26677	28234	27886	28530	-1975	-3782	-4685	-6.5	-11.9	-14.1
Solids	2580	3803	3347	3446	3136	1516	-1121	-2211	-3183	-24.5	-41.4	-67.7
Oil	11614	15083	15410	14445	13535	13430	-1358	-1855	-1669	-8.6	-12.1	-11.1
Natural gas	0	2034	3751	3889	3286	3155	-108	-968	-1605	-2.7	-22.8	-33.7
Nuclear	0	0	0	0	0	0	0	0	0			
Electricity	3	80	587	151	85	69	0	0	0	0.0	0.0	0.0
Renewable energy forms	2692	3109	3583	6303	7844	10359	612	1253	1772	10.8	19.0	20.6
as % in Gross Inland Consumption												
Solids	15.3	15.8	12.5	12.2	11.2	5.3	-2.9	-5.6	-8.8			
Oil	68.8	62.6	57.8	51.2	48.5	47.1	-1.1	-0.1	1.6			
Natural gas	0.0	8.4	14.1	13.8	11.8	11.1	0.5	-1.6	-3.3			
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Renewable energy forms	15.9	12.9	13.4	22.3	28.1	36.3	3.5	7.3	10.5			
Gross Electricity Generation in GWh_e	28350	43364	46180	60095	61215	75542	-7290	-14346	-14163	-10.8	-19.0	-15.8
Self consumption and grid losses	4441	5435	6125	6601	6529	8318	-1191	-2291	-2833	-15.3	-26.0	-25.4
Fuel Inputs to Thermal Power Generation	4304	6507	8007	7080	6087	5048	-1719	-3153	-3941	-19.5	-34.1	-43.8
Solids	2027	3198	3319	3442	3132	1513	-1122	-2212	-3184	-24.6	-41.4	-67.8
Oil (including refinery gas)	2105	1670	1884	551	0	256	-672	-645	-137	-55.0	-100.0	-34.7
Gas (including derived gases)	19	1234	2309	2022	1423	1242	-27	-790	-1193	-1.3	-35.7	-49.0
Biomass & Waste	149	356	430	949	1405	1863	67	456	572	7.6	48.0	44.3
Geothermal heat	3	49	65	117	128	174	35	39	0	42.6	43.5	0.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	11484	12700	13608	13602	13428	13587	-783	-1051	-1106	-5.4	-7.3	-7.5
Refineries	11152	12251	13608	13244	12843	12804	-757	-982	-986	-5.4	-7.1	-7.2
Biofuels and hydrogen production	0	0	0	357	585	783	-26	-69	-120	-6.9	-10.6	-13.3
District heating	0	0	0	0	0	0	0	0	0			
Derived gases, cokeries etc.	332	449	0	0	0	0	0	0	0			
Energy Branch Consumption	658	881	900	786	731	720	-109	-162	-193	-12.1	-18.1	-21.2
Non-Energy Uses	2103	2330	2405	2660	2729	2949	-1	-2	-1	-0.1	-0.1	0.0
Final Energy Demand	11208	16937	18654	20492	20757	22018	-977	-1855	-2434	-4.6	-8.2	-10.0
by sector												
Industry	4139	5518	5656	6007	6198	6687	-160	-292	-280	-2.6	-4.5	-4.0
- energy intensive industries	2497	3437	3757	3922	4015	4295	-74	-154	-135	-1.8	-3.7	-3.0
- other industrial sectors	1642	2081	1899	2085	2183	2392	-86	-138	-146	-4.0	-5.9	-5.7
Residential	2290	2804	3206	3915	3956	4407	-97	-421	-513	-2.4	-9.6	-10.4
Tertiary	1052	2098	2766	2822	2743	2838	-392	-598	-763	-12.2	-17.9	-21.2
Transport	3728	6517	7026	7748	7860	8086	-328	-543	-877	-4.1	-6.5	-9.8
by fuel												
Solids	617	465	16	5	4	4	1	1	1	26.7	37.3	59.8
Oil	6683	10469	10492	10562	10193	9668	-619	-1115	-1451	-5.5	-9.9	-13.0
Gas	103	853	1307	1813	1819	1873	-80	-166	-394	-4.2	-8.4	-17.4
Electricity	2024	3299	3983	4702	4739	5801	-523	-1034	-970	-10.0	-17.9	-14.3
Heat (from CHP and District Heating)	28	134	328	311	345	440	-7	28	13	-2.2	8.9	3.0
Renewable energy forms	1752	1716	2529	3100	3655	4229	251	431	367	8.8	13.4	9.5
Other	0	0	0	1	2	3	0	0	0	6.0	-5.3	-6.8
RES in Gross Final Energy Consumption ^(A)		2907	3266	5976	7401	9774	576	1164	1720	10.7	18.7	21.4
TOTAL GHGs Emissions (Mt of CO₂ eq.)	60.3	84.7	87.3	79.6	73.8	65.9	-10.4	-18.8	-23.5	-11.5	-20.3	-26.3
CO₂ Emissions (energy related)	39.0	58.5	61.6	58.3	52.5	44.8	-8.9	-16.7	-21.3	-13.3	-24.2	-32.2
Power generation/District heating	14.8	20.9	24.5	20.1	15.7	9.7	-6.6	-12.6	-15.8	-24.9	-44.6	-62.0
Energy Branch	1.5	2.3	2.3	2.1	1.9	1.7	-0.2	-0.3	-0.3	-9.0	-13.7	-13.5
Industry	8.2	10.8	7.3	8.0	7.6	6.6	-0.5	-1.3	-1.3	-5.6	-14.2	-16.8
Residential	1.6	2.0	2.3	2.3	2.3	2.3	-0.2	-0.3	-0.5	-8.7	-12.3	-18.2
Tertiary	1.9	3.2	4.2	3.6	3.1	2.6	-0.4	-0.7	-0.9	-10.3	-17.5	-25.0
Transport	11.0	19.4	21.0	22.2	21.9	22.0	-1.0	-1.6	-2.6	-4.1	-6.6	-10.6
CO₂ Emissions (non energy related)	4.5	7.2	6.5	6.1	6.2	6.5	-0.1	-0.1	-0.1	-1.1	-1.9	-2.1
Non-CO₂ GHGs Emissions	16.7	19.0	19.2	15.2	15.0	14.6	-1.4	-2.0	-2.0	-8.3	-11.6	-12.3
TOTAL GHGs Emissions Index (1990=100)	100.0	140.5	144.8	132.0	122.4	109.3	-17.2	-31.2	-39.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Portugal: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	9.996	10.195	10.529	10.762	10.771	10.660	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	102.2	143.1	147.8	185.2	212.8	272.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	165.2	168.4	180.5	152.5	131.0	104.6	-10.7	-17.8	-17.2	-6.5	-11.9	-14.1
Carbon intensity (t of CO ₂ /toe of GIC)	2.31	2.43	2.31	2.06	1.88	1.57	-0.16	-0.30	-0.42	-7.2	-13.9	-21.1
Import Dependency %	86.7	87.2	88.2	78.2	72.5	64.6	-3.4	-7.1	-10.1			
Total Energy-related Costs ^(B) (in 000 M€05)		15.4	18.1	28.2	33.9	42.6	0.8	1.3	1.7	2.9	4.0	4.1
as % of GDP		10.8	12.3	15.2	15.9	15.6	0.4	0.6	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.8	1.3	1.7						
as % of GDP				0.45	0.63	0.62						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	84.8	100.0	102.6	95.1	87.2	78.4	-2.5	-4.1	-3.3	-2.6	-4.5	-4.0
Residential (Energy on Private Income, index 2000=100)	122.0	100.0	106.3	105.1	93.5	82.7	-2.6	-10.0	-9.6	-2.4	-9.6	-10.4
Tertiary (Energy on Value added, index 2000=100)	68.3	100.0	123.9	97.9	83.2	67.8	-13.6	-18.1	-18.2	-12.2	-17.9	-21.2
Passenger transport (toe/Mpkm)	43.0	43.9	40.6	37.2	34.9	30.5	-0.7	-1.1	-1.9	-1.9	-3.0	-5.8
Freight transport (toe/Mtkm)	55.4	62.9	63.8	56.8	53.9	50.0	-2.1	-4.0	-6.0	-3.6	-6.9	-10.7
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.52	0.47	0.49	0.31	0.24	0.12	-0.06	-0.12	-0.15	-16.2	-32.7	-55.3
Final energy demand (t of CO ₂ /toe)	2.03	2.09	1.86	1.76	1.68	1.52	-0.02	-0.03	-0.07	-0.9	-1.7	-4.1
Industry	1.99	1.96	1.30	1.33	1.23	0.99	-0.04	-0.14	-0.15	-3.1	-10.1	-13.3
Residential	0.71	0.71	0.70	0.59	0.59	0.53	-0.04	-0.02	-0.05	-6.4	-2.9	-8.7
Tertiary	1.77	1.50	1.53	1.26	1.13	0.90	0.03	0.01	-0.05	2.2	0.5	-4.8
Transport	2.95	2.97	2.98	2.87	2.79	2.72	0.00	0.00	-0.02	-0.1	-0.2	-0.9
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	16.7	17.0	28.4	34.7	43.0	43.0	4.0	8.0	11.3			
Biofuels share in transport gasoline and diesel (%)	0.0	0.0	4.5	7.3	9.4	9.4	-0.1	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Solids	14765	15311	15866	14452	8972	8972	-6329	-12310	-18629	-28.5	-46.0	-67.5
Oil (including refinery gas)	9483	9244	3323	127	1530	1530	-4219	-4223	-862	-55.9	-97.1	-36.1
Gas (including derived gases)	5745	11580	11527	8032	7870	7870	-185	-4808	-7278	-1.6	-37.4	-48.0
Biomass-waste	1802	3434	5114	8760	11007	11007	339	3004	2692	7.1	52.2	32.4
Hydro (pumping excluded)	11321	4730	10132	10137	10142	10142	10	5	0	0.1	0.0	0.0
Wind	168	1773	13056	15749	20669	20669	2325	989	2401	21.7	6.7	13.1
Solar	1	3	176	2861	14000	14000	0	2643	7162	0.0	1211.1	104.7
Geothermal and other renewables	80	105	901	1097	1353	1353	768	354	351	576.1	47.7	35.1
Net Generation Capacity in MW_e												
Nuclear energy	0	0	0	0	0	0	0	0	0			
Renewable energy	4058	5284	11810	15000	26114	26114	1500	2189	6941	14.5	17.1	36.2
Hydro (pumping excluded)	3958	4234	4435	4490	4490	4490	0	0	0	0.0	0.0	0.0
Wind	100	1047	6860	8148	11062	11062	1122	309	1291	19.6	3.9	13.2
Solar	1	3	138	1896	9990	9990	0	1724	5467	0.0	1001.6	120.9
Other renewables (tidal etc.)	0	0	377	466	572	572	377	156	182		50.3	46.9
Thermal power	6585	8156	11193	11237	10550	10550	-1120	-1638	-3331	-9.1	-12.7	-24.0
of which cogeneration units	1372	1373	2100	2395	2822	2822	-99	200	-33	-4.5	9.1	-1.1
Solids fired	1903	1914	1910	1910	1085	1085	-735	-1268	-2120	-27.8	-39.9	-66.1
Gas fired	1868	3724	5505	5184	5428	5428	-364	-894	-1472	-6.2	-14.7	-21.3
Oil fired	2338	2008	1919	1688	1248	1248	-203	-185	-203	-9.6	-9.9	-14.0
Biomass-waste fired	463	493	1833	2424	2748	2748	172	698	463	10.4	40.4	20.3
Fuel Cells	0	0	0	0	0	0	0	0	0			
Geothermal heat	13	16	26	31	41	41	10	10	0	64.1	48.9	0.0
Avg. Load factor of net power capacity (%)	44.8	37.8	29.1	26.0	22.9	22.9	-3.9	-6.6	-6.9			
Efficiency of gross thermal power generation (%)	42.1	42.6	43.7	44.6	50.5	50.5	-1.6	-1.8	-0.9			
% of gross electricity from CHP	11.3	10.1	13.5	18.4	17.9	17.9	0.6	4.9	2.3			
Carbon free gross electricity generation (%)	30.8	21.8	48.9	63.1	75.7	75.7	10.4	21.2	26.0			
- nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
- renewable energy forms	30.8	21.8	48.9	63.1	75.7	75.7	10.4	21.2	26.0			
Transport sector												
Passenger transport activity (Gpkm)												
Public road transport	10.3	11.8	11.1	11.7	12.3	13.1	0.2	0.3	0.4	2.1	2.7	2.9
Private cars and motorcycles	28.6	60.0	71.4	87.3	92.9	104.6	-1.2	-1.6	-2.0	-1.4	-1.7	-1.9
Rail	6.3	4.6	4.6	5.2	5.7	7.4	0.1	0.0	0.2	1.6	0.8	2.2
Aviation	7.1	11.7	13.2	17.8	20.3	25.9	-0.5	-0.7	-1.0	-2.5	-3.4	-3.7
Inland navigation	0.3	0.3	0.4	0.4	0.5	0.5	0.0	0.0	0.0	-0.6	-0.7	-0.9
Freight transport activity (Gtkm)												
Trucks	23.1	38.9	42.6	51.7	55.6	63.6	-1.3	-1.7	-2.1	-2.4	-3.0	-3.2
Rail	1.5	2.2	2.4	3.2	3.6	4.1	0.2	0.2	0.3	5.0	5.5	6.6
Inland navigation	1.9	0.8	1.0	1.3	1.4	1.6	0.0	0.0	0.0	1.8	2.2	2.2
Energy demand in transport (ktoe)												
Public road transport	67	100	108	100	100	86	0	-2	-4	-0.2	-1.6	-5.0
Private cars and motorcycles	1575	2945	3058	3300	3280	3332	-102	-144	-114	-3.0	-4.2	-3.3
Trucks	1387	2551	2872	3113	3182	3393	-188	-333	-521	-5.7	-9.5	-13.3
Rail	82	88	66	65	63	55	0	2	5	0.4	2.5	9.3
Aviation	574	790	881	1116	1178	1159	-38	-66	-242	-3.3	-5.3	-17.3
Inland navigation	43	43	41	52	57	61	0	0	-1	0.2	-0.2	-1.4

Source: PRIMES

Romania: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	41400	32600	28774	28181	29197	31476	35424	38800	44529	-3.6	0.1	2.0	2.3
Solids	7935	7889	5879	5793	6233	6242	6400	6878	7423	-3.0	0.6	0.3	1.5
Oil	7947	7104	6389	6120	5483	5826	6039	6153	6164	-2.2	-1.5	1.0	0.2
Natural gas	22911	14446	10968	9701	9755	9016	8359	8803	9481	-7.1	-1.2	-1.5	1.3
Nuclear	0	0	1407	1433	1474	2949	5142	6241	8846		0.5	13.3	5.6
Renewable energy sources	2607	3162	4131	5134	6252	7443	9484	10726	12616	4.7	4.2	4.3	2.9
Hydro	1460	1435	1271	1737	1691	1709	1719	1740	1788	-1.4	2.9	0.2	0.4
Biomass & Waste	1147	1726	2854	3314	4372	5340	7053	8050	9763	9.5	4.4	4.9	3.3
Wind	0	0	0	0	50	64	98	181	201			6.9	7.5
Solar and others	0	0	0	0	12	131	271	375	461			36.5	5.4
Geothermal	0	0	7	82	127	198	343	381	403		34.2	10.5	1.6
Net Imports	20360	14542	8099	10719	12104	12848	12725	13287	12298	-8.8	4.1	0.5	-0.3
Solids	2423	2870	1905	2904	3262	4116	4107	4377	2576	-2.4	5.5	2.3	-4.6
Oil	11194	6852	3542	3874	4884	5203	5408	5525	6069	-10.9	3.3	1.0	1.2
- Crude oil and Feedstocks	16094	8735	4836	8751	9551	10121	10481	10683	11431	-11.3	7.0	0.9	0.9
- Oil products	-4900	-1883	-1294	-4877	-4668	-4917	-5073	-5158	-5363				
Natural gas	5928	4794	2712	4190	4264	3941	3654	3848	4144	-7.5	4.6	-1.5	1.3
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	61492	47109	37069	39147	41301	44324	48149	52087	56827	-4.9	1.1	1.5	1.7
Solids	10126	10796	7757	8769	9495	10358	10507	11254	9999	-2.6	2.0	1.0	-0.5
Oil	19106	13886	10148	10162	10366	11030	11447	11677	12232	-6.1	0.2	1.0	0.7
Natural gas	28838	19240	13680	13942	14019	12957	12014	12650	13625	-7.2	0.2	-1.5	1.3
Nuclear	0	0	1407	1433	1474	2949	5142	6241	8846		0.5	13.3	5.6
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	6194	7372	9390	10619	12486	4.7	4.1	4.2	2.9
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	23.0	23.4	21.8	21.6	17.6				
Oil	31.1	29.5	27.4	26.0	25.1	24.9	23.8	22.4	21.5				
Natural gas	46.9	40.8	36.9	35.6	33.9	29.2	25.0	24.3	24.0				
Nuclear	0.0	0.0	3.8	3.7	3.6	6.7	10.7	12.0	15.6				
Renewable energy forms	4.2	6.7	11.2	13.0	15.0	16.6	19.5	20.4	22.0				
Gross Electricity Generation in GWh_e	63398	59255	51925	59402	63628	73121	85303	102265	118116	-2.0	2.1	3.0	3.3
Self consumption and grid losses	14388	11292	8909	10341	9624	9698	10686	13651	14905	-4.7	0.8	1.1	3.4
Fuel Inputs to Thermal Power Generation	23389	16475	10638	10103	8997	8734	9431	10799	11489	-7.6	-1.7	0.5	2.0
Solids	8166	7352	5442	5982	6349	6987	7568	8555	7707	-4.0	1.6	1.8	0.2
Oil (including refinery gas)	6202	2997	1684	775	63	63	0	0	2	-12.2	-28.0		
Gas (including derived gases)	8984	6090	3507	3343	2509	1426	604	330	680	-9.0	-3.3	-13.3	1.2
Biomass & Waste	36	37	4	3	76	257	1259	1914	3099	-19.0	33.1	32.5	9.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	25764	21571	14558	17946	18976	19809	19780	19921	20603	-5.5	2.7	0.4	0.4
Refineries	23718	15646	11318	14978	15034	15947	16520	16836	17595	-7.1	2.9	0.9	0.6
Biofuels and hydrogen production	0	0	0	0	83	183	290	519	879			13.4	11.7
District heating	496	1901	1737	823	1201	888	779	597	626	13.4	-3.6	-4.2	-2.1
Derived gases, cokeries etc.	1551	4024	1503	2144	2659	2791	2191	1969	1503	-0.3	5.9	-1.9	-3.7
Energy Branch Consumption	3594	5270	4137	4184	4323	4387	4357	4604	4797	1.4	0.4	0.1	1.0
Non-Energy Uses	908	1326	2291	2448	2425	2603	2836	3109	3344	9.7	0.6	1.6	1.7
Final Energy Demand	36548	26449	22374	24625	27542	30202	32538	35398	38295	-4.8	2.1	1.7	1.6
by sector													
Industry	25106	14528	8788	9751	10820	12154	12953	14360	15905	-10.0	2.1	1.8	2.1
- energy intensive industries	15699	10582	5962	6928	7564	8318	8542	9291	10020	-9.2	2.4	1.2	1.6
- other industrial sectors	9407	3946	2826	2823	3256	3836	4411	5069	5885	-11.3	1.4	3.1	2.9
Residential	4190	6461	8557	8093	8276	8558	9211	9905	10431	7.4	-0.3	1.1	1.3
Tertiary	2845	2401	1646	2576	3134	3336	3437	3370	3295	-5.3	6.7	0.9	-0.4
Transport	4407	3058	3384	4204	5312	6155	6937	7762	8663	-2.6	4.6	2.7	2.2
by fuel													
Solids	2678	1529	703	1429	1832	2003	1765	1593	1298	-12.5	10.0	-0.4	-3.0
Oil	8030	5234	5292	6547	7493	8338	8961	9362	9847	-4.1	3.5	1.8	0.9
Gas	20495	10249	6885	7721	8494	8569	8182	8769	9068	-10.3	2.1	-0.4	1.0
Electricity	4355	3282	3122	3481	3865	4531	5453	6632	7842	-3.3	2.2	3.5	3.7
Heat (from CHP and District Heating)	377	4679	3570	2135	1721	1697	2120	2587	3254	25.2	-7.0	2.1	4.4
Renewable energy forms	612	1476	2802	3312	4136	5063	6055	6453	6982	16.4	4.0	3.9	1.4
Other	0	0	0	0	1	1	2	3	3			13.8	4.7
RES in Gross Final Energy Consumption ^(A)			4197	5132	6118	7261	9120	10211	11843		3.8	4.1	2.6
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7		137.3	149.4	155.3	152.7	151.5	150.3	147.7	-6.4	1.2	-0.2	-0.3
CO₂ Emissions (energy related)	166.7	113.9	83.6	89.7	94.3	97.0	96.3	98.0	96.6	-6.7	1.2	0.2	0.0
Power generation/District heating	75.9	59.2	40.6	37.2	35.2	34.5	34.6	34.6	32.4	-6.1	-1.4	-0.2	-0.6
Energy Branch	6.2	7.5	7.4	8.0	7.9	7.9	7.6	7.6	7.7	1.8	0.6	-0.5	0.2
Industry	58.1	30.2	17.6	20.9	23.0	25.0	23.0	23.3	22.4	-11.3	2.7	0.0	-0.2
Residential	7.5	5.2	6.5	7.2	7.5	6.9	7.0	7.7	8.2	-1.4	1.4	-0.6	1.5
Tertiary	6.7	3.1	1.8	4.4	5.4	5.3	4.8	3.8	3.1	-12.1	11.3	-1.2	-4.2
Transport	12.3	8.6	9.6	12.1	15.2	17.4	19.4	21.2	22.8	-2.4	4.7	2.5	1.6
CO₂ Emissions (non energy related)	22.9	18.2	12.8	15.3	17.6	20.6	22.6	25.2	27.0	-5.6	3.2	2.5	1.8
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	43.3	43.3	35.1	32.6	27.0	24.1	-6.0	0.6	-2.8	-3.0
TOTAL GHGs Emissions Index (1990=100)	100.0		51.7	56.2	58.4	57.5	57.0	56.6	55.6				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Romania: Cost Efficiency Scenario with high prices													
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6	
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0	
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	393.8	314.1	260.1	218.5	188.3	-3.3	-4.4	-4.1	-3.2	
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.42	2.26	2.29	2.28	2.19	2.00	1.88	1.70	-1.8	0.1	-1.3	-1.6	
Import Dependency %	33.1	30.9	21.8	27.4	29.3	29.0	26.4	25.5	21.6					
Total Energy-related Costs ^(B) (in 000 M€05)			14.0	14.8	22.8	30.5	39.7	47.2	56.5		5.0	5.7	3.6	
as % of GDP			23.4	18.7	21.8	21.6	21.5	19.8	18.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	219.2	177.7	100.0	86.3	74.6	63.7	53.3	47.3	42.4	-7.5	-2.9	-3.3	-2.3	
Residential (Energy on Private Income, index 2000=100)	45.4	77.5	100.0	61.8	47.7	36.6	29.9	25.0	20.7	8.2	-7.1	-4.6	-3.6	
Tertiary (Energy on Value added, index 2000=100)	150.9	131.9	100.0	116.3	105.3	82.7	64.0	48.0	36.6	-4.0	0.5	-4.9	-5.4	
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.5	28.0	26.3	24.9	24.8	7.6	-2.7	-1.1	-0.6	
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	29.9	28.3	26.7	25.5	24.4	0.5	-3.2	-1.1	-0.9	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.43	0.39	0.39	0.38	0.34	0.29	0.25	0.20	-10.1	-0.2	-2.5	-3.8	
Final energy demand (t of CO ₂ /toe)	2.32	1.78	1.59	1.81	1.86	1.81	1.66	1.58	1.48	-3.7	1.6	-1.1	-1.2	
Industry	2.31	2.08	2.00	2.14	2.13	2.05	1.77	1.62	1.41	-1.4	0.6	-1.8	-2.3	
Residential	1.78	0.81	0.76	0.89	0.90	0.81	0.76	0.77	0.79	-8.2	1.8	-1.7	0.3	
Tertiary	2.37	1.30	1.12	1.69	1.72	1.58	1.39	1.12	0.95	-7.2	4.4	-2.1	-3.8	
Transport	2.79	2.81	2.85	2.89	2.86	2.83	2.79	2.73	2.63	0.2	0.0	-0.2	-0.6	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.7	19.7	21.2	23.1	27.0	27.7	29.8					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.3	2.5	3.6	5.9	9.0					
Gross Electricity generation by source (in GWh)														
			51925	59402	63628	73121	85303	102265	118116		2.1	3.0	3.3	
Nuclear energy			5455	5554	6207	11959	21672	26651	38508		1.3	13.3	5.9	
Solids			16409	19761	24345	29136	32545	41626	37294		4.0	2.9	1.4	
Oil (including refinery gas)			4145	3256	278	278	0	0	9		-23.7			
Gas (including derived gases)			11002	10316	10972	8630	3373	1983	4008		0.0	-11.1	1.7	
Biomass-waste			138	311	1576	2499	6575	9639	15110		27.6	15.4	8.7	
Hydro (pumping excluded)			14775	20203	19663	19870	19991	20229	20795		2.9	0.2	0.4	
Wind			0	0	583	743	1135	2106	2334			6.9	7.5	
Solar			0	0	4	7	12	31	58			12.0	17.4	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			19962	19838	22476	22044	22877	21789	23016		1.2	0.2	0.1	
<u>Nuclear energy</u>			654	650	1330	1382	2509	3084	4453		7.4	6.6	5.9	
<u>Renewable energy</u>			5935	6215	6790	7280	7843	8765	8940		1.4	1.5	1.3	
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1	
Wind			0	0	421	561	841	1695	1848			7.2	8.2	
Solar			0	3	3	6	9	25	46			12.0	17.4	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			13373	12972	14356	13382	12525	9940	9622		0.7	-1.4	-2.6	
of which cogeneration units			5378	5459	2158	2080	3672	4559	5576		-8.7	5.5	4.3	
Solids fired			7285	7139	7122	7474	7618	6126	5318		-0.2	0.7	-3.5	
Gas fired			3692	3459	4523	3752	2502	1642	1355		2.0	-5.7	-5.9	
Oil fired			2375	2354	2442	1702	1204	441	298		0.3	-6.8	-13.0	
Biomass-waste fired			20	20	269	454	1201	1731	2651		29.4	16.1	8.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			27.0	30.8	29.8	35.6	40.0	49.8	54.6					
Efficiency of gross thermal power generation (%)			25.6	28.6	35.5	39.9	38.8	42.4	42.2					
% of gross electricity from CHP			30.2	25.8	21.5	18.8	21.7	23.0	26.2					
Carbon free gross electricity generation (%)			39.2	43.9	44.1	48.0	57.9	57.4	65.0					
- nuclear			10.5	9.3	9.8	16.4	25.4	26.1	32.6					
- renewable energy forms			28.7	34.5	34.3	31.6	32.5	31.3	32.4					
Transport sector														
Passenger transport activity (Gpkm)	68.0	51.4	51.7	60.9	76.9	96.9	119.0	144.3	172.6	-2.7	4.1	4.5	3.8	
Public road transport	24.0	12.3	7.7	9.4	11.9	14.8	17.4	19.6	21.8	-10.7	4.4	3.9	2.3	
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.1	69.7	85.5	103.9	124.8	9.6	5.7	4.5	3.9	
Rail	30.6	18.9	11.6	8.0	8.2	9.9	12.2	14.7	17.2	-9.2	-3.4	4.0	3.5	
Aviation	0.7	0.7	0.8	1.2	1.7	2.4	4.0	6.0	8.7	1.6	7.3	9.0	8.3	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.9	0.9	
Freight transport activity (Gtkm)	80.0	40.7	33.3	76.5	101.6	121.8	142.5	163.0	179.3	-8.4	11.8	3.4	2.3	
Trucks	29.0	19.7	14.3	51.5	71.1	85.6	99.3	112.9	122.4	-6.8	17.4	3.4	2.1	
Rail	48.9	17.9	16.4	16.6	18.8	21.7	25.6	29.6	34.0	-10.4	1.4	3.1	2.9	
Inland navigation	2.1	3.1	2.6	8.4	11.7	14.5	17.6	20.6	22.9	2.3	16.1	4.1	2.6	
Energy demand in transport (ktoe)	4407	3058	3384	4204	5312	6155	6937	7762	8663	-2.6	4.6	2.7	2.2	
Public road transport	329	176	117	93	111	130	145	146	149	-9.9	-0.5	2.7	0.3	
Private cars and motorcycles	591	845	1681	1609	1977	2353	2694	3069	3644	11.0	1.6	3.1	3.1	
Trucks	2617	1272	893	2130	2786	3150	3477	3814	4018	-10.2	12.0	2.2	1.5	
Rail	282	470	449	208	221	243	243	254	256	4.8	-6.9	0.9	0.5	
Aviation	275	192	128	113	147	193	276	361	467	-7.3	1.3	6.5	5.4	
Inland navigation	312	103	115	51	70	86	102	117	129	-9.5	-4.8	3.8	2.4	

Source: PRIMES

Romania: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)						
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	41400	28774	28181	31476	35424	44529	-1072	-880	2039	-3.3	-2.4	4.8
Solids	7935	5879	5793	6242	6400	7423	-325	-826	-16	-4.9	-11.4	-0.2
Oil	7947	6389	6120	5826	6039	6164	-326	-133	0	-5.3	-2.2	0.0
Natural gas	22911	10968	9701	9016	8359	9481	-1139	-1899	-341	-11.2	-18.5	-3.5
Nuclear	0	1407	1433	2949	5142	8846	80	139	166	2.8	2.8	1.9
Renewable energy sources	2607	4131	5134	7443	9484	12616	639	1839	2232	9.4	24.1	21.5
Hydro	1460	1271	1737	1709	1719	1788	76	66	0	4.7	4.0	0.0
Biomass & Waste	1147	2854	3314	5340	7053	9763	390	1353	1557	7.9	23.7	19.0
Wind	0	0	0	64	98	201	14	41	128	27.3	73.3	175.1
Solar and others	0	0	0	131	271	461	93	193	320	241.3	246.9	226.6
Geothermal	0	7	82	198	343	403	66	185	228	49.8	117.0	129.4
Net Imports	20360	8099	10719	12848	12725	12298	-1083	-2436	-5799	-7.8	-16.1	-32.0
Solids	2423	1905	2904	4116	4107	2576	-274	-537	-1876	-6.2	-11.6	-42.1
Oil	11194	3542	3874	5203	5408	6069	-306	-1051	-1828	-5.6	-16.3	-23.1
- Crude oil and Feedstocks	16094	4836	8751	10121	10481	11431	-521	-1465	-2467	-4.9	-12.3	-17.7
- Oil products	-4900	-1294	-4877	-4917	-5073	-5363	216	415	639	-4.2	-7.6	-10.6
Natural gas	5928	2712	4190	3941	3654	4144	-498	-830	-2075	-11.2	-18.5	-33.4
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	61492	37069	39147	44324	48149	56827	-2155	-3316	-3760	-4.6	-6.4	-6.2
Solids	10126	7757	8769	10358	10507	9999	-599	-1363	-1892	-5.5	-11.5	-15.9
Oil	19106	10148	10162	11030	11447	12232	-632	-1184	-1828	-5.4	-9.4	-13.0
Natural gas	28838	13680	13942	12957	12014	13625	-1638	-2729	-2416	-11.2	-18.5	-15.1
Nuclear	0	1407	1433	2949	5142	8846	80	139	166	2.8	2.8	1.9
Electricity	815	-60	-250	-342	-350	-362	0	0	0	0.0	0.0	0.0
Renewable energy forms	2607	4137	5090	7372	9390	12486	634	1821	2211	9.4	24.1	21.5
as % in Gross Inland Consumption												
Solids	16.5	20.9	22.4	23.4	21.8	17.6	-0.2	-1.2	-2.0			
Oil	31.1	27.4	26.0	24.9	23.8	21.5	-0.2	-0.8	-1.7			
Natural gas	46.9	36.9	35.6	29.2	25.0	24.0	-2.2	-3.7	-2.5			
Nuclear	0.0	3.8	3.7	6.7	10.7	15.6	0.5	1.0	1.2			
Renewable energy forms	4.2	11.2	13.0	16.6	19.5	22.0	2.1	4.8	5.0			
Gross Electricity Generation in GWh_e	63398	51925	59402	73121	85303	118116	-7962	-10468	-5621	-9.8	-10.9	-4.5
Self consumption and grid losses	14388	8909	10341	9698	10686	14905	-1017	-1322	-129	-9.5	-11.0	-0.9
Fuel Inputs to Thermal Power Generation	23389	10638	10103	8734	9431	11489	-1598	-2097	-1334	-15.5	-18.2	-10.4
Solids	8166	5442	5982	6987	7568	7707	-817	-1456	-2068	-10.5	-16.1	-21.2
Oil (including refinery gas)	6202	1684	775	63	0	2	5	0	2	8.5		
Gas (including derived gases)	8984	3507	3343	1426	604	680	-800	-1564	-735	-35.9	-72.2	-51.9
Biomass & Waste	36	4	3	257	1259	3099	13	924	1466	5.5	275.6	89.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	25764	14558	17946	19809	19780	20603	-541	-1520	-2465	-2.7	-7.1	-10.7
Refineries	23718	11318	14978	15947	16520	17595	-848	-1598	-2467	-5.0	-8.8	-12.3
Biofuels and hydrogen production	0	0	0	183	290	879	-13	-34	-131	-6.7	-10.6	-13.0
District heating	496	1737	823	888	779	626	24	14	39	2.7	1.9	6.7
Derived gases, cokeries etc.	1551	1503	2144	2791	2191	1503	296	98	94	11.9	4.7	6.7
Energy Branch Consumption	3594	4137	4184	4387	4357	4797	-198	-410	-443	-4.3	-8.6	-8.5
Non-Energy Uses	908	2291	2448	2603	2836	3344	-2	-5	-12	-0.1	-0.2	-0.4
Final Energy Demand	36548	22374	24625	30202	32538	38295	-1193	-1735	-2488	-3.8	-5.1	-6.1
by sector												
Industry	25106	8788	9751	12154	12953	15905	-138	-444	-421	-1.1	-3.3	-2.6
- energy intensive industries	15699	5962	6928	8318	8542	10020	19	-265	-158	0.2	-3.0	-1.5
- other industrial sectors	9407	2826	2823	3836	4411	5885	-156	-179	-264	-3.9	-3.9	-4.3
Residential	4190	8557	8093	8558	9211	10431	-427	-342	-458	-4.7	-3.6	-4.2
Tertiary	2845	1646	2576	3336	3437	3295	-381	-460	-863	-10.2	-11.8	-20.7
Transport	4407	3384	4204	6155	6937	8663	-248	-489	-747	-3.9	-6.6	-7.9
by fuel												
Solids	2678	703	1429	2003	1765	1298	172	31	24	9.4	1.8	1.9
Oil	8030	5292	6547	8338	8961	9847	-425	-783	-1295	-4.9	-8.0	-11.6
Gas	20495	6885	7721	8569	8182	9068	-599	-909	-1459	-6.5	-10.0	-13.9
Electricity	4355	3122	3481	4531	5453	7842	-597	-767	-442	-11.6	-12.3	-5.3
Heat (from CHP and District Heating)	377	3570	2135	1697	2120	3254	-51	77	196	-2.9	3.8	6.4
Renewable energy forms	612	2802	3312	5063	6055	6982	308	616	487	6.5	11.3	7.5
Other	0	0	0	1	2	3	0	0	0	6.8	-4.1	-6.4
RES in Gross Final Energy Consumption ^(A)	4197	5132	7261	9120	11843	697	1672	2013	10.6	22.4	20.5	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	265.7	137.3	149.4	152.7	151.5	147.7	-16.6	-27.6	-31.5	-9.8	-15.4	-17.6
CO₂ Emissions (energy related)	166.7	83.6	89.7	97.0	96.3	96.6	-8.1	-15.3	-21.3	-7.7	-13.7	-18.1
Power generation/District heating	75.9	40.6	37.2	34.5	34.6	32.4	-5.2	-9.5	-12.4	-13.0	-21.5	-27.6
Energy Branch	6.2	7.4	8.0	7.9	7.6	7.7	-1.1	-1.6	-1.8	-12.2	-17.2	-19.1
Industry	58.1	17.6	20.9	25.0	23.0	22.4	0.8	-0.6	-1.0	3.5	-2.5	-4.4
Residential	7.5	6.5	7.2	6.9	7.0	8.2	-1.1	-1.0	-1.5	-13.8	-12.7	-15.2
Tertiary	6.7	1.8	4.4	5.3	4.8	3.1	-0.8	-1.2	-2.4	-13.0	-19.5	-43.7
Transport	12.3	9.6	12.1	17.4	19.4	22.8	-0.7	-1.5	-2.2	-4.1	-7.2	-8.9
CO₂ Emissions (non energy related)	22.9	12.8	15.3	20.6	22.6	27.0	0.5	-0.1	-0.7	2.5	-0.6	-2.4
Non-CO₂ GHGs Emissions	76.1	40.9	44.3	35.1	32.6	24.1	-9.0	-12.1	-9.5	-20.4	-27.1	-28.3
TOTAL GHGs Emissions Index (1990=100)	100.0	51.7	56.2	57.5	57.0	55.6	-6.2	-10.4	-11.8			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Romania: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	23.211	21.908	21.659	20.917	20.342	19.244	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	71.4	60.1	79.3	141.1	185.1	301.8	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	861.5	617.0	493.6	314.1	260.1	188.3	-15.3	-17.9	-12.5	-4.6	-6.4	-6.2
Carbon intensity (t of CO ₂ /toe of GIC)	2.71	2.26	2.29	2.19	2.00	1.70	-0.07	-0.17	-0.25	-3.2	-7.8	-12.7
Import Dependency %	33.1	21.8	27.4	29.0	26.4	21.6	-1.0	-3.0	-8.2			
Total Energy-related Costs ^(B) (in 000 M€05)		14.0	14.8	30.5	39.7	56.5	0.8	1.2	2.2	2.7	3.0	4.0
as % of GDP		23.4	18.7	21.6	21.5	18.7	0.6	0.6	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				0.9	1.4	2.4						
as % of GDP				0.65	0.75	0.79						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	219.2	100.0	86.3	63.7	53.3	42.4	-0.7	-1.8	-1.1	-1.1	-3.3	-2.6
Residential (Energy on Private Income, index 2000=100)	45.4	100.0	61.8	36.6	29.9	20.7	-1.8	-1.1	-0.9	-4.7	-3.6	-4.2
Tertiary (Energy on Value added, index 2000=100)	150.9	100.0	116.3	82.7	64.0	36.6	-9.4	-8.6	-9.6	-10.2	-11.8	-20.7
Passenger transport (toe/Mpkm)	18.7	38.8	30.4	28.0	26.3	24.8	-0.6	-0.9	-0.8	-2.1	-3.4	-3.3
Freight transport (toe/Mtkm)	39.2	41.4	30.7	28.3	26.7	24.4	-1.4	-2.4	-3.1	-4.6	-8.2	-11.3
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	1.12	0.39	0.39	0.34	0.29	0.20	-0.02	-0.05	-0.07	-5.1	-14.5	-25.7
Final energy demand (t of CO ₂ /toe)	2.32	1.59	1.81	1.81	1.66	1.48	0.01	-0.04	-0.09	0.6	-2.4	-5.5
Industry	2.31	2.00	2.14	2.05	1.77	1.41	0.09	0.02	-0.03	4.7	0.9	-1.9
Residential	1.78	0.76	0.89	0.81	0.76	0.79	-0.08	-0.08	-0.10	-9.5	-9.4	-11.5
Tertiary	2.37	1.12	1.69	1.58	1.39	0.95	-0.05	-0.13	-0.38	-3.0	-8.7	-28.9
Transport	2.79	2.85	2.89	2.83	2.79	2.63	-0.01	-0.02	-0.03	-0.2	-0.7	-1.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		17.7	19.7	23.1	27.0	29.8	3.1	6.1	6.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	2.5	3.6	9.0	-0.1	-0.1	-0.4			
Gross Electricity generation by source (in GWh_e)												
	51925	59402	73121	85303	118116		-7962	-10468	-5621	-9.8	-10.9	-4.5
Nuclear energy	5455	5554	11959	21672	38508		345	610	732	3.0	2.9	1.9
Solids	16409	19761	29136	32545	37294		-3520	-6316	-9884	-10.8	-16.3	-21.0
Oil (including refinery gas)	4145	3256	278	0	9		18	0	9	7.1		
Gas (including derived gases)	11002	10316	8630	3373	4008		-6662	-10908	-5505	-43.6	-76.4	-57.9
Biomass-waste	138	311	2499	6575	15110		810	4895	7542	47.9	291.3	99.7
Hydro (pumping excluded)	14775	20203	19870	19991	20795		888	772	0	4.7	4.0	0.0
Wind	0	0	743	1135	2334		159	480	1485	27.3	73.3	175.1
Solar	0	0	7	12	58		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0			
Net Generation Capacity in MW_e	19962	19838	22044	22877	23016		-543	153	928	-2.4	0.7	4.2
<u>Nuclear energy</u>	654	650	1382	2509	4453		40	70	85	3.0	2.9	1.9
<u>Renewable energy</u>	5935	6215	7280	7843	8940		141	371	1216	2.0	5.0	15.7
Hydro (pumping excluded)	5935	6212	6713	6993	7046		0	0	0	0.0	0.0	0.0
Wind	0	0	561	841	1848		141	371	1216	33.6	78.7	192.2
Solar	0	3	6	9	46		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0			
<u>Thermal power</u>	13373	12972	13382	12525	9622		-724	-288	-372	-5.1	-2.2	-3.7
of which cogeneration units	5378	5459	2080	3672	5576		-162	648	743	-7.2	21.4	15.4
Solids fired	7285	7139	7474	7618	5318		-237	-274	-557	-3.1	-3.5	-9.5
Gas fired	3692	3459	3752	2502	1355		-888	-888	-1135	-19.1	-26.2	-45.6
Oil fired	2375	2354	1702	1204	298		0	0	0	0.0	0.0	0.0
Biomass-waste fired	20	20	454	1201	2651		401	875	1320	750.7	268.2	99.2
Fuel Cells	0	0	0	0	0		0	0	0			
Geothermal heat	0	0	0	0	0		0	0	0			
Avg. Load factor of net power capacity (%)	27.0	30.8	35.6	40.0	54.6		-3.0	-5.3	-5.4			
Efficiency of gross thermal power generation (%)	25.6	28.6	39.9	38.8	42.2		-1.6	-2.2	-0.9			
% of gross electricity from CHP	30.2	25.8	18.8	21.7	26.2		0.7	1.5	1.0			
Carbon free gross electricity generation (%)	39.2	43.9	48.0	57.9	65.0		7.4	13.4	10.8			
- nuclear	10.5	9.3	16.4	25.4	32.6		2.0	3.4	2.1			
- renewable energy forms	28.7	34.5	31.6	32.5	32.4		5.4	10.0	8.8			
Transport sector												
Passenger transport activity (Gpkm)	68.0	51.7	60.9	96.9	119.0	172.6	-0.2	-0.5	-0.8	-0.3	-0.4	-0.5
Public road transport	24.0	7.7	9.4	14.8	17.4	21.8	0.4	0.5	0.7	2.5	3.2	3.3
Private cars and motorcycles	12.6	31.5	42.4	69.7	85.5	124.8	-0.8	-1.3	-1.8	-1.1	-1.5	-1.4
Rail	30.6	11.6	8.0	9.9	12.2	17.2	0.2	0.3	0.6	2.4	3.0	3.6
Aviation	0.7	0.8	1.2	2.4	4.0	8.7	0.0	-0.1	-0.3	-2.0	-2.8	-3.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.4	-0.6
Freight transport activity (Gtkm)	80.0	33.3	76.5	121.8	142.5	179.3	-0.6	-0.9	-0.8	-0.5	-0.6	-0.4
Trucks	29.0	14.3	51.5	85.6	99.3	122.4	-2.0	-3.0	-3.7	-2.3	-2.9	-2.9
Rail	48.9	16.4	16.6	21.7	25.6	34.0	1.1	1.6	2.4	5.5	6.7	7.5
Inland navigation	2.1	2.6	8.4	14.5	17.6	22.9	0.3	0.4	0.6	2.0	2.5	2.5
Energy demand in transport (ktoe)	4407	3384	4204	6155	6937	8663	-248	-489	-747	-3.9	-6.6	-7.9
Public road transport	329	117	93	130	145	149	0	-2	-17	0.4	-1.1	-10.3
Private cars and motorcycles	591	1681	1609	2353	2694	3644	-61	-112	-128	-2.5	-4.0	-3.4
Trucks	2617	893	2130	3150	3477	4018	-193	-362	-580	-5.8	-9.4	-12.6
Rail	282	449	208	243	243	256	9	-4	0	3.7	-1.8	0.0
Aviation	275	128	113	193	276	467	-4	-9	-21	-2.1	-3.2	-4.3
Inland navigation	312	115	51	86	102	129	1	1	0	1.3	1.0	-0.1

Source: PRIMES

Slovak Republic: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	5248	4808	5970	6305	5363	6516	7744	9388	10445	1.3	-1.1	3.7	3.0
Solids	1397	1017	1018	637	846	845	839	837	817	-3.1	-1.8	-0.1	-0.3
Oil	81	74	59	55	34	33	33	34	34	-3.1	-5.3	-0.2	0.2
Natural gas	338	264	133	126	123	115	95	92	92	-8.9	-0.7	-2.6	-0.3
Nuclear	3105	2950	4255	4573	3191	4071	4931	6219	7017	3.2	-2.8	4.4	3.6
Renewable energy sources	328	503	506	914	1168	1453	1846	2206	2485	4.4	8.7	4.7	3.0
Hydro	162	427	406	399	404	433	435	436	438	9.7	0.0	0.7	0.1
Biomass & Waste	166	76	100	507	738	950	1188	1484	1681	-5.0	22.2	4.9	3.5
Wind	0	0	0	1	17	20	108	118	128			20.6	1.7
Solar and others	0	0	0	0	7	46	109	159	229			31.9	7.7
Geothermal	0	0	0	8	3	4	7	8	8			10.1	1.7
Net Imports	16086	12482	11623	13163	12777	12365	12013	11942	11942	-3.2	1.0	-0.6	-0.1
Solids	6055	4131	3437	3794	3573	3668	3588	3529	3377	-5.5	0.4	0.0	-0.6
Oil	4231	3704	2711	3935	3649	3384	3325	3346	3379	-4.4	3.0	-0.9	0.2
- Crude oil and Feedstocks	5892	5405	5283	5768	5529	5326	5271	5314	5364	-1.1	0.5	-0.5	0.2
- Oil products	-1661	-1701	-2573	-1833	-1880	-1943	-1947	-1968	-1985				
Natural gas	5353	4528	5707	5757	5659	5281	4353	4244	4207	0.6	-0.1	-2.6	-0.3
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Gross Inland Consumption	20967	17692	17483	19407	18140	18881	19756	21330	22387	-1.8	0.4	0.9	1.3
Solids	7771	5414	4261	4288	4419	4513	4427	4366	4195	-5.8	0.4	0.0	-0.5
Oil	4229	3487	2925	4045	3683	3417	3358	3380	3413	-3.6	2.3	-0.9	0.2
Natural gas	5088	5217	5776	5925	5782	5396	4448	4336	4299	1.3	0.0	-2.6	-0.3
Nuclear	3105	2950	4255	4573	3191	4071	4931	6219	7017	3.2	-2.8	4.4	3.6
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Renewable energy forms	328	504	498	858	1087	1539	2636	3286	3708	4.3	8.1	9.3	3.5
as % in Gross Inland Consumption													
Solids	37.1	30.6	24.4	22.1	24.4	23.9	22.4	20.5	18.7				
Oil	20.2	19.7	16.7	20.8	20.3	18.1	17.0	15.8	15.2				
Natural gas	24.3	29.5	33.0	30.5	31.9	28.6	22.5	20.3	19.2				
Nuclear	14.8	16.7	24.3	23.6	17.6	21.6	25.0	29.2	31.3				
Renewable energy forms	1.6	2.8	2.8	4.4	6.0	8.2	13.3	15.4	16.6				
Gross Electricity Generation in GWh_e	23428	26036	30431	31346	30668	35092	40794	51153	56845	2.6	0.1	2.9	3.4
Self consumption and grid losses	4853	5351	5235	4704	3434	3780	4517	6130	7091	0.8	-4.1	2.8	4.6
Fuel Inputs to Thermal Power Generation	3232	3170	2656	2622	2766	2689	2954	3403	3693	-1.9	0.4	0.7	2.3
Solids	2054	1835	1617	1638	1481	1506	1603	1545	1561	-2.4	-0.9	0.8	-0.3
Oil (including refinery gas)	243	119	37	99	7	25	0	0	0	-17.1	-14.9		
Gas (including derived gases)	936	1216	1002	845	1160	867	209	240	251	0.7	1.5	-15.7	1.8
Biomass & Waste	0	0	0	40	117	292	1142	1619	1881			25.5	5.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	9009	7973	8020	9335	9419	9169	9131	9174	9006	-1.2	1.6	-0.3	-0.1
Refineries	6314	5182	5410	6374	6298	6130	6144	6219	6282	-1.5	1.5	-0.2	0.2
Biofuels and hydrogen production	0	0	0	11	52	118	213	249	290			15.2	3.1
District heating	237	731	584	717	689	567	568	548	481	9.4	1.7	-1.9	-1.7
Derived gases, cokeries etc.	2458	2060	2026	2233	2380	2354	2206	2159	1954	-1.9	1.6	-0.8	-1.2
Energy Branch Consumption	1154	990	905	2482	2022	1945	1841	1908	1921	-2.4	8.4	-0.9	0.4
Non-Energy Uses	1203	651	1109	1239	1258	1331	1479	1637	1717	-0.8	1.3	1.6	1.5
Final Energy Demand	14893	11085	10822	10560	11328	11697	11973	12480	12821	-3.1	0.5	0.6	0.7
by sector													
Industry	6706	4339	3953	4413	4893	5173	5130	5232	5226	-5.1	2.2	0.5	0.2
- energy intensive industries	4081	3091	3145	3590	4001	4237	4118	4169	4122	-2.6	2.4	0.3	0.0
- other industrial sectors	2626	1248	808	823	891	936	1012	1063	1105	-11.1	1.0	1.3	0.9
Residential	2275	2158	2822	2533	2496	2453	2645	2871	3059	2.2	-1.2	0.6	1.5
Tertiary	4473	3078	2498	1809	1831	1883	1984	2116	2188	-5.7	-3.1	0.8	1.0
Transport	1440	1509	1549	1805	2108	2188	2213	2261	2348	0.7	3.1	0.5	0.6
by fuel													
Solids	4319	2322	1511	1455	1872	1981	1807	1806	1690	-10.0	2.2	-0.3	-0.7
Oil	3294	1873	1870	2195	2382	2383	2278	2278	2293	-5.5	2.5	-0.4	0.1
Gas	4319	3907	4537	3651	3499	3446	3291	3245	3202	0.5	-2.6	-0.6	-0.3
Electricity	2013	1868	1893	1965	2254	2560	2989	3508	3918	-0.6	1.8	2.9	2.7
Heat (from CHP and District Heating)	781	1111	1011	951	1158	1053	1118	1096	1034	2.6	1.4	-0.3	-0.8
Renewable energy forms	166	4	1	344	162	273	488	547	683	-42.8	74.5	11.6	3.4
Other	0	0	0	0	0	0	1	1	1			10.7	7.3
RES in Gross Final Energy Consumption ^(A)			407	761	770	1048	2242	2903	3270		6.6	11.3	3.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0		47.1	50.5	51.8	50.3	47.8	45.3	41.9	-3.7	0.9	-0.8	-1.3
CO₂ Emissions (energy related)	53.3	39.7	35.1	37.1	37.8	36.4	33.3	31.1	27.8	-4.1	0.7	-1.3	-1.8
Power generation/District heating	12.1	12.9	10.6	10.5	10.2	9.4	8.2	6.2	3.7	-1.3	-0.3	-2.2	-7.5
Energy Branch	2.5	1.8	1.5	5.0	4.0	3.1	2.7	2.7	2.5	-4.6	10.0	-3.7	-1.0
Industry	17.8	12.2	10.3	10.4	12.0	12.4	11.2	10.9	10.0	-5.3	1.5	-0.7	-1.1
Residential	4.4	2.9	4.1	3.5	3.3	3.3	3.4	3.8	4.1	-0.6	-2.1	0.4	1.7
Tertiary	12.6	5.7	4.2	2.5	2.2	2.0	1.9	1.6	1.4	-10.3	-6.1	-1.8	-2.9
Transport	4.0	4.2	4.4	5.2	6.0	6.1	5.9	6.0	6.1	0.8	3.3	-0.2	0.3
CO₂ Emissions (non energy related)	3.5	2.8	3.3	3.7	4.4	5.1	5.7	6.1	6.3	-0.7	2.9	2.8	1.0
Non-CO₂ GHGs Emissions	12.3		8.8	9.7	9.6	8.9	8.8	8.1	7.8	-3.3	1.0	-0.9	-1.1
TOTAL GHGs Emissions Index (1990=100)	100.0		68.3	73.2	75.0	72.9	69.3	65.7	60.7				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovak Republic: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2	
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1	
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	362.6	300.9	254.7	231.0	211.7	-3.2	-4.5	-3.5	-1.8	
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.24	2.01	1.91	2.08	1.93	1.69	1.46	1.24	-2.3	0.4	-2.1	-3.0	
Import Dependency %	76.7	70.6	66.5	67.8	70.4	65.5	60.8	56.0	53.3					
Total Energy-related Costs ^(B) (in 000 M€05)			7.1	7.4	10.2	12.9	15.7	18.0	19.9		3.6	4.4	2.4	
as % of GDP			23.3	19.5	20.3	20.5	20.2	19.5	18.9					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	193.1	137.4	100.0	67.5	54.6	45.7	37.1	32.6	29.8	-6.4	-5.9	-3.8	-2.2	
Residential (Energy on Private Income, index 2000=100)	82.4	95.9	100.0	72.6	56.6	45.1	39.9	36.7	34.4	2.0	-5.5	-3.4	-1.5	
Tertiary (Energy on Value added, index 2000=100)	178.8	146.3	100.0	68.4	53.8	44.1	37.8	33.6	29.7	-5.6	-6.0	-3.5	-2.4	
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.0	27.4	26.1	25.1	25.1	3.6	0.5	-1.0	-0.4	
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	23.8	22.6	20.9	19.8	19.0	2.0	0.8	-1.3	-0.9	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.30	0.23	0.23	0.21	0.18	0.14	0.09	0.05	-3.8	-0.9	-4.3	-9.7	
Final energy demand (t of CO ₂ /toe)	2.60	2.26	2.13	2.05	2.08	2.04	1.87	1.78	1.68	-2.0	-0.2	-1.1	-1.0	
Industry	2.65	2.82	2.61	2.37	2.45	2.40	2.18	2.08	1.92	-0.2	-0.6	-1.2	-1.2	
Residential	1.93	1.35	1.46	1.39	1.33	1.35	1.30	1.31	1.33	-2.8	-0.9	-0.2	0.2	
Tertiary	2.81	1.87	1.69	1.37	1.23	1.08	0.94	0.75	0.63	-4.9	-3.2	-2.6	-3.9	
Transport	2.80	2.76	2.82	2.89	2.86	2.79	2.68	2.64	2.59	0.1	0.1	-0.7	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			3.6	6.9	6.6	8.6	18.0	22.2	24.3					
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.1	4.6	8.3	9.6	10.8					
Gross Electricity generation by source (in GWh)														
			30431	31346	30668	35092	40794	51153	56845		0.1	2.9	3.4	
Nuclear energy			16491	17724	12371	16180	19990	26865	30497		-2.8	4.9	4.3	
Solids			4969	4825	5628	6155	7163	8093	8817		1.3	2.4	2.1	
Oil (including refinery gas)			144	455	402	486	0	0	0		10.8			
Gas (including derived gases)			4102	3527	6805	5742	1710	1981	1949		5.2	-12.9	1.3	
Biomass-waste			0	172	563	1259	5598	7733	8953			25.8	4.8	
Hydro (pumping excluded)			4725	4637	4703	5030	5056	5075	5094		0.0	0.7	0.1	
Wind			0	7	194	230	1258	1374	1487			20.6	1.7	
Solar			0	0	2	9	18	33	49			24.7	10.3	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			6795	7307	7648	8225	9260	10280	10790		1.2	1.9	1.5	
<u>Nuclear energy</u>			2326	2439	1652	2119	2572	3234	3654		-3.4	4.5	3.6	
<u>Renewable energy</u>			1669	1838	2046	2188	2938	3032	3130		2.1	3.7	0.6	
Hydro (pumping excluded)			1668	1832	1905	2017	2025	2025	2029		1.3	0.6	0.0	
Wind			1	5	139	164	898	980	1062		63.8	20.5	1.7	
Solar			0	0	2	7	15	26	40			24.6	10.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			2800	3031	3950	3918	3750	4014	4005		3.5	-0.5	0.7	
of which cogeneration units			1220	1400	1721	1745	1791	2148	2205		3.5	0.4	2.1	
Solids fired			1598	1661	1846	1678	1267	1136	927		1.5	-3.7	-3.1	
Gas fired			1184	1221	1913	1918	1328	1370	1370		4.9	-3.6	0.3	
Oil fired			18	115	115	114	114	114	114		20.7	-0.1	0.0	
Biomass-waste fired			1	34	75	208	1041	1394	1594		54.4	30.0	4.4	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			45.5	44.3	43.4	46.4	47.7	53.3	56.1					
Efficiency of gross thermal power generation (%)			29.8	29.4	41.7	43.6	42.1	45.0	45.9					
% of gross electricity from CHP			26.0	15.8	30.2	30.4	26.2	24.4	23.8					
Carbon free gross electricity generation (%)			69.7	71.9	58.1	64.7	78.2	80.3	81.1					
- nuclear			54.2	56.5	40.3	46.1	49.0	52.5	53.6					
- renewable energy forms			15.5	15.4	17.8	18.6	29.2	27.8	27.4					
Transport sector														
Passenger transport activity (Gpkm)														
	41.5	34.2	35.8	36.4	38.8	41.6	46.1	50.7	54.7	-1.5	0.8	1.7	1.7	
Public road transport	19.5	11.2	8.4	8.1	8.0	7.9	7.9	7.9	7.9	-8.1	-0.5	-0.2	0.1	
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.2	31.0	35.2	39.6	43.4	4.5	1.6	2.2	2.1	
Rail	6.4	4.6	3.2	2.5	2.4	2.5	2.6	2.7	2.9	-6.6	-2.9	0.8	1.1	
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.6			5.9	4.3	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)														
	35.6	29.7	25.6	32.0	41.3	46.3	48.4	50.1	51.4	-3.3	4.9	1.6	0.6	
Trucks	14.2	15.9	14.3	22.6	31.0	34.6	35.9	37.1	38.1	0.1	8.0	1.5	0.6	
Rail	21.4	13.8	11.2	9.5	10.3	11.7	12.6	13.0	13.3	-6.2	-0.8	2.0	0.5	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	1440	1509	1549	1805	2108	2188	2213	2261	2348	0.7	3.1	0.5	0.6	
Public road transport	96	79	70	59	55	51	48	43	40	-3.1	-2.4	-1.4	-1.8	
Private cars and motorcycles	671	729	886	964	1002	1028	1088	1153	1247	2.8	1.2	0.8	1.4	
Trucks	572	583	510	693	947	1011	974	954	940	-1.1	6.4	0.3	-0.3	
Rail	100	119	83	49	50	51	49	47	46	-1.9	-4.9	-0.2	-0.6	
Aviation	0	0	0	39	54	48	55	64	74			0.2	3.1	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovak Republic: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	5248	5970	6305	6516	7744	10445	150	255	-126	2.4	3.4	-1.2
Solids	1397	1018	637	845	839	817	0	0	-20	0.0	0.0	-2.4
Oil	81	59	55	33	33	34	-2	-2	-2	-5.7	-4.9	-4.9
Natural gas	338	133	126	115	95	92	-16	-41	-31	-11.9	-30.3	-25.1
Nuclear	3105	4255	4573	4071	4931	7017	0	0	-180	0.0	0.0	-2.5
Renewable energy sources	328	506	914	1453	1846	2485	168	298	107	13.1	19.2	4.5
Hydro	162	406	399	433	435	438	6	3	0	1.4	0.7	0.0
Biomass & Waste	166	100	507	950	1188	1681	117	115	-174	14.1	10.7	-9.4
Wind	0	0	1	20	108	128	9	91	93	86.4	527.5	267.9
Solar and others	0	0	0	46	109	229	34	85	184	274.0	359.0	400.5
Geothermal	0	0	8	4	7	8	2	4	4	59.0	109.0	101.2
Net Imports	16086	11623	13163	12365	12013	11942	-979	-1603	-1227	-7.3	-11.8	-9.3
Solids	6055	3437	3794	3668	3588	3377	-58	-297	-804	-1.6	-7.6	-19.2
Oil	4231	2711	3935	3384	3325	3379	-387	-323	-327	-10.3	-8.9	-8.8
- Crude oil and Feedstocks	5892	5283	5768	5326	5271	5364	-335	-283	-284	-5.9	-5.1	-5.0
- Oil products	-1661	-2573	-1833	-1943	-1947	-1985	-52	-40	-42	2.7	2.1	2.2
Natural gas	5353	5707	5757	5281	4353	4207	-713	-1892	-1412	-11.9	-30.3	-25.1
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	20967	17483	19407	18881	19756	22387	-828	-1348	-1353	-4.2	-6.4	-5.7
Solids	7771	4261	4288	4513	4427	4195	-58	-297	-824	-1.3	-6.3	-16.4
Oil	4229	2925	4045	3417	3358	3413	-389	-325	-328	-10.2	-8.8	-8.8
Natural gas	5088	5776	5925	5396	4448	4299	-728	-1933	-1443	-11.9	-30.3	-25.1
Nuclear	3105	4255	4573	4071	4931	7017	0	0	-180	0.0	0.0	-2.5
Electricity	447	-232	-281	-55	-43	-245	0	0	0	0.0	0.0	0.0
Renewable energy forms	328	498	858	1539	2636	3708	346	1207	1422	29.0	84.4	62.2
as % in Gross Inland Consumption												
Solids	37.1	24.4	22.1	23.9	22.4	18.7	0.7	0.0	-2.4			
Oil	20.2	16.7	20.8	18.1	17.0	15.2	-1.2	-0.5	-0.5			
Natural gas	24.3	33.0	30.5	28.6	22.5	19.2	-2.5	-7.7	-5.0			
Nuclear	14.8	24.3	23.6	21.6	25.0	31.3	0.9	1.6	1.0			
Renewable energy forms	1.6	2.8	4.4	8.2	13.3	16.6	2.1	6.6	6.9			
Gross Electricity Generation in GWh_e	23428	30431	31346	35092	40794	56845	-2622	-2288	156	-7.0	-5.3	0.3
Self consumption and grid losses	4853	5235	4704	3780	4517	7091	-292	-112	518	-7.2	-2.4	7.9
Fuel Inputs to Thermal Power Generation	3232	2656	2622	2689	2954	3693	-432	-449	116	-13.8	-13.2	3.2
Solids	2054	1617	1638	1506	1603	1561	-164	-184	-798	-9.8	-10.3	-33.8
Oil (including refinery gas)	243	37	99	25	0	0	-1	-46	0	-4.6	-100.0	
Gas (including derived gases)	936	1002	845	867	209	251	-308	-1015	-2	-26.2	-82.9	-0.7
Biomass & Waste	0	0	40	292	1142	1881	41	796	916	16.4	229.9	94.8
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	9009	8020	9335	9169	9131	9006	-320	-393	-455	-3.4	-4.1	-4.8
Refineries	6314	5410	6374	6130	6144	6282	-340	-286	-290	-5.2	-4.5	-4.4
Biofuels and hydrogen production	0	0	11	118	213	290	-10	-29	-47	-7.9	-11.9	-14.0
District heating	237	584	717	567	568	481	-75	1	-22	-11.8	0.2	-4.3
Derived gases, cokeries etc.	2458	2026	2233	2354	2206	1954	105	-79	-96	4.7	-3.5	-4.7
Energy Branch Consumption	1154	905	2482	1945	1841	1921	-102	-234	-140	-5.0	-11.3	-6.8
Non-Energy Uses	1203	1109	1239	1331	1479	1717	-4	-3	-7	-0.3	-0.2	-0.4
Final Energy Demand	14893	10822	10560	11697	11973	12821	-541	-861	-1197	-4.4	-6.7	-8.5
by sector												
Industry	6706	3953	4413	5173	5130	5226	-3	-239	-251	-0.1	-4.5	-4.6
- energy intensive industries	4081	3145	3590	4237	4118	4122	28	-189	-170	0.7	-4.4	-4.0
- other industrial sectors	2626	808	823	936	1012	1105	-32	-50	-81	-3.3	-4.7	-6.8
Residential	2275	2822	2533	2453	2645	3059	-211	-149	-188	-7.9	-5.3	-5.8
Tertiary	4473	2498	1809	1883	1984	2188	-193	-284	-537	-9.3	-12.5	-19.7
Transport	1440	1549	1805	2188	2213	2348	-134	-189	-222	-5.8	-7.9	-8.6
by fuel												
Solids	4319	1511	1455	1981	1807	1690	68	-113	-20	3.6	-5.9	-1.2
Oil	3294	1870	2195	2383	2278	2293	-127	-193	-233	-5.1	-7.8	-9.2
Gas	4319	4537	3651	3446	3291	3202	-194	-450	-981	-5.3	-12.0	-23.5
Electricity	2013	1893	1965	2560	2989	3918	-199	-185	-27	-7.2	-5.8	-0.7
Heat (from CHP and District Heating)	781	1011	951	1053	1118	1034	-120	-30	-115	-10.2	-2.6	-10.0
Renewable energy forms	166	1	344	273	488	683	31	110	179	12.9	29.1	35.5
Other	0	0	0	0	1	1	0	0	0	4.6	-5.8	-7.4
RES in Gross Final Energy Consumption ^(A)		407	761	1048	2242	3270	180	1140	1262	20.7	103.3	62.8
TOTAL GHGs Emissions (Mt of CO₂ eq.)	69.0	47.1	50.5	50.3	47.8	41.9	-4.1	-8.2	-12.9	-7.5	-14.7	-23.6
CO₂ Emissions (energy related)	53.3	35.1	37.1	36.4	33.3	27.8	-3.0	-6.6	-11.4	-7.7	-16.6	-29.1
Power generation/District heating	12.1	10.6	10.5	9.4	8.2	3.7	-1.8	-3.5	-7.1	-16.2	-29.9	-65.5
Energy Branch	2.5	1.5	5.0	3.1	2.7	2.5	-0.7	-1.0	-1.1	-17.8	-26.6	-31.5
Industry	17.8	10.3	10.4	12.4	11.2	10.0	0.4	-0.8	-0.9	3.0	-6.6	-7.8
Residential	4.4	4.1	3.5	3.3	3.4	4.1	-0.3	-0.4	-0.8	-8.8	-11.3	-17.1
Tertiary	12.6	4.2	2.5	2.0	1.9	1.4	-0.2	-0.4	-0.8	-8.9	-16.7	-37.8
Transport	4.0	4.4	5.2	6.1	5.9	6.1	-0.4	-0.5	-0.6	-5.9	-8.2	-9.3
CO₂ Emissions (non energy related)	3.5	3.3	3.7	5.1	5.7	6.3	0.0	-0.1	-0.1	0.2	-1.3	-2.1
Non-CO₂ GHGs Emissions	12.3	8.8	9.7	8.9	8.8	7.8	-1.1	-1.5	-1.4	-10.8	-14.8	-15.3
TOTAL GHGs Emissions Index (1990=100)	100.0	68.3	73.2	72.9	69.3	60.7	-5.9	-11.9	-18.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovak Republic: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	5.288	5.399	5.385	5.309	5.271	5.186	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	26.3	30.5	38.1	62.8	77.6	105.7	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	797.9	574.0	509.2	300.9	254.7	211.7	-13.2	-17.4	-12.8	-4.2	-6.4	-5.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.54	2.01	1.91	1.93	1.69	1.24	-0.07	-0.21	-0.41	-3.6	-10.9	-24.8
Import Dependency %	76.7	66.5	67.8	65.5	60.8	53.3	-2.2	-3.7	-2.1			
Total Energy-related Costs ^(B) (in 000 M€05)		7.1	7.4	12.9	15.7	19.9	0.4	0.5	0.7	3.4	3.1	3.4
as % of GDP		23.3	19.5	20.5	20.2	18.9	0.7	0.6	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				0.4	0.5	0.7						
as % of GDP				0.71	0.64	0.65						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	193.1	100.0	67.5	45.7	37.1	29.8	0.0	-1.7	-1.4	-0.1	-4.5	-4.6
Residential (Energy on Private Income, index 2000=100)	82.4	100.0	72.6	45.1	39.9	34.4	-3.9	-2.2	-2.1	-7.9	-5.3	-5.8
Tertiary (Energy on Value added, index 2000=100)	178.8	100.0	68.4	44.1	37.8	29.7	-4.5	-5.4	-7.3	-9.3	-12.5	-19.7
Passenger transport (toe/Mpkm)	19.3	27.6	29.6	27.4	26.1	25.1	-1.1	-1.0	-0.7	-3.7	-3.8	-2.8
Freight transport (toe/Mtkm)	17.9	21.9	22.7	22.6	20.9	19.0	-1.4	-2.2	-2.7	-5.6	-9.5	-12.5
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.34	0.23	0.23	0.18	0.14	0.05	-0.02	-0.05	-0.09	-9.5	-27.6	-65.3
Final energy demand (t of CO ₂ /toe)	2.60	2.13	2.05	2.04	1.87	1.68	0.05	-0.04	-0.08	2.3	-2.1	-4.6
Industry	2.65	2.61	2.37	2.40	2.18	1.92	0.07	-0.05	-0.07	3.1	-2.3	-3.4
Residential	1.93	1.46	1.39	1.35	1.30	1.33	-0.01	-0.09	-0.18	-0.9	-6.3	-12.0
Tertiary	2.81	1.69	1.37	1.08	0.94	0.63	0.00	-0.05	-0.18	0.4	-4.8	-22.6
Transport	2.80	2.82	2.89	2.79	2.68	2.59	-0.01	-0.01	-0.02	-0.2	-0.3	-0.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		3.6	6.9	8.6	18.0	24.3	1.8	9.7	10.5			
Biofuels share in transport gasoline and diesel (%)		0.0	0.7	4.6	8.3	10.8	-0.1	-0.4	-0.6			
Gross Electricity generation by source (in GWh_e)												
	30431	31346	35092	40794	56845	56845	-2622	-2288	156	-7.0	-5.3	0.3
Nuclear energy	16491	17724	16180	19990	30497	30497	0	0	-824	0.0	0.0	-2.6
Solids	4969	4825	6155	7163	8817	8817	-754	-289	-3451	-10.9	-3.9	-28.1
Oil (including refinery gas)	144	455	486	0	0	0	-16	-210	0	-3.1	-100.0	
Gas (including derived gases)	4102	3527	5742	1710	1949	1949	-2143	-6974	-959	-27.2	-80.3	-33.0
Biomass-waste	0	172	1259	5598	8953	8953	113	4091	4309	9.9	271.6	92.8
Hydro (pumping excluded)	4725	4637	5030	5056	5094	5094	71	37	0	1.4	0.7	0.0
Wind	0	7	230	1258	1487	1487	107	1058	1083	86.4	527.5	267.9
Solar	0	0	9	18	49	49	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	6795	7307	8225	9260	10790	10790	-422	976	344	-4.9	11.8	3.3
<u>Nuclear energy</u>	2326	2439	2119	2572	3654	3654	0	0	-95	0.0	0.0	-2.5
<u>Renewable energy</u>	1669	1838	2188	2938	3130	3130	91	767	773	4.3	35.3	32.8
Hydro (pumping excluded)	1668	1832	2017	2025	2029	2029	15	12	0	0.7	0.6	0.0
Wind	1	5	164	898	1062	1062	76	755	773	87.2	529.6	267.5
Solar	0	0	7	15	40	40	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	2800	3031	3918	3750	4005	4005	-513	209	-334	-11.6	5.9	-7.7
of which cogeneration units	1220	1400	1745	1791	2205	2205	-49	-145	-282	-2.7	-7.5	-11.3
Solids fired	1598	1661	1678	1267	927	927	-232	-256	-946	-12.1	-16.8	-50.5
Gas fired	1184	1221	1918	1328	1370	1370	-355	-359	-320	-15.6	-21.3	-18.9
Oil fired	18	115	114	114	114	114	0	0	0	0.0	0.0	0.0
Biomass-waste fired	1	34	208	1041	1594	1594	74	824	932	55.5	380.4	141.0
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	45.5	44.3	46.4	47.7	56.1	56.1	-1.1	-9.0	-2.4			
Efficiency of gross thermal power generation (%)	29.8	29.4	43.6	42.1	45.9	45.9	-1.7	-3.0	-1.7			
% of gross electricity from CHP	26.0	15.8	30.4	26.2	23.8	23.8	2.0	-1.3	-0.1			
Carbon free gross electricity generation (%)	69.7	71.9	64.7	78.2	81.1	81.1	5.3	16.2	7.8			
- nuclear	54.2	56.5	46.1	49.0	53.6	53.6	3.2	2.6	-1.6			
- renewable energy forms	15.5	15.4	18.6	29.2	27.4	27.4	2.1	13.6	9.4			
Transport sector												
Passenger transport activity (Gpkm)												
	41.5	35.8	36.4	41.6	46.1	54.7	-0.4	-0.6	-0.9	-1.0	-1.4	-1.6
Public road transport	19.5	8.4	8.1	7.9	7.9	7.9	0.1	0.1	0.2	1.5	1.8	1.9
Private cars and motorcycles	15.6	24.1	25.6	31.0	35.2	43.4	-0.6	-0.8	-1.1	-1.9	-2.3	-2.5
Rail	6.4	3.2	2.5	2.5	2.6	2.9	0.0	0.1	0.1	1.8	2.8	3.4
Aviation	0.0	0.0	0.1	0.3	0.4	0.6	0.0	0.0	0.0	-2.9	-2.8	-3.3
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	35.6	25.6	32.0	46.3	48.4	51.4	-0.6	-0.8	-0.9	-1.3	-1.6	-1.7
Trucks	14.2	14.3	22.6	34.6	35.9	38.1	-1.1	-1.5	-1.7	-3.1	-3.9	-4.2
Rail	21.4	11.2	9.5	11.7	12.6	13.3	0.5	0.7	0.8	4.5	5.7	6.2
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	1440	1549	1805	2188	2213	2348	-134	-189	-222	-5.8	-7.9	-8.6
Public road transport	96	70	59	51	48	40	0	-1	-2	-0.9	-2.7	-5.8
Private cars and motorcycles	671	886	964	1028	1088	1247	-36	-55	-53	-3.4	-4.8	-4.1
Trucks	572	510	693	1011	974	940	-78	-124	-159	-7.1	-11.3	-14.5
Rail	100	83	49	51	49	46	0	-1	-1	-0.5	-1.8	-1.8
Aviation	0	0	39	48	55	74	-19	-8	-6	-28.5	-12.2	-7.7
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Slovenia: Cost Efficiency Scenario with high prices						SUMMARY ENERGY BALANCE AND INDICATORS (A)							
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Primary Production	2902	3020	3085	3492	3637	3364	3823	4506	5510	0.6	1.7	0.5	3.7
Solids	1432	1216	1062	1184	1221	736	753	465	1091	-2.9	1.4	-4.7	3.8
Oil	3	2	1	0	0	0	0	0	0	-10.4			
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.7		
Nuclear	1192	1245	1228	1518	1483	1483	1483	2225	2453	0.3	1.9	0.0	5.2
Renewable energy sources	254	542	788	787	929	1145	1587	1816	1967	12.0	1.7	5.5	2.2
Hydro	254	279	330	298	337	341	347	359	371	2.7	0.2	0.3	0.7
Biomass & Waste	0	263	458	489	581	703	1045	1223	1303	2.4	6.1	2.2	
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4
Solar and others	0	0	0	0	11	100	193	233	290			33.1	4.1
Geothermal	0	0	0	0	0	0	0	0	0			5.1	1.6
Net Imports	2567	3056	3369	3810	4286	4652	4468	4110	3859	2.8	2.4	0.4	-1.5
Solids	130	187	245	323	306	334	331	320	320	6.5	2.3	0.8	-0.4
Oil	1798	2231	2418	2589	2816	2925	2879	2847	2846	3.0	1.5	0.2	-0.1
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	1	-12.8	-38.6	0.3	-0.1
- Oil products	1202	1644	2267	2589	2814	2924	2878	2846	2844	6.5	2.2	0.2	-0.1
Natural gas	723	750	820	925	1112	1167	1041	890	780	1.3	3.1	-0.7	-2.8
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Gross Inland Consumption	5517	6103	6415	7305	7923	8016	8292	8616	9369	1.5	2.1	0.5	1.2
Solids	1645	1402	1306	1539	1527	1070	1084	796	1410	-2.3	1.6	-3.4	2.7
Oil	1748	2281	2381	2560	2816	2925	2879	2847	2846	3.1	1.7	0.2	-0.1
Natural gas	763	746	826	929	1116	1167	1041	890	780	0.8	3.1	-0.7	-2.8
Nuclear	1192	1245	1228	1518	1483	1483	1483	2225	2453	0.3	1.9	0.0	5.2
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Renewable energy forms	254	571	788	787	929	1145	1587	1816	1967	12.0	1.7	5.5	2.2
as % in Gross Inland Consumption													
Solids	29.8	23.0	20.4	21.1	19.3	13.3	13.1	9.2	15.1				
Oil	31.7	37.4	37.1	35.0	35.5	36.5	34.7	33.0	30.4				
Natural gas	13.8	12.2	12.9	12.7	14.1	14.6	12.5	10.3	8.3				
Nuclear	21.6	20.4	19.1	20.8	18.7	18.5	17.9	25.8	26.2				
Renewable energy forms	4.6	9.3	12.3	10.8	11.7	14.3	19.1	21.1	21.0				
Gross Electricity Generation in GWh_e	12440	12652	13622	15114	15746	14911	16355	21416	26544	0.9	1.5	0.4	5.0
Self consumption and grid losses	1516	1427	1625	1908	2091	1963	2077	2910	4255	0.7	2.6	-0.1	7.4
Fuel Inputs to Thermal Power Generation	1543	1523	1342	1507	1478	1070	1251	1068	1701	-1.4	1.0	-1.7	3.1
Solids	1296	1315	1253	1411	1404	933	931	628	1218	-0.3	1.1	-4.0	2.7
Oil (including refinery gas)	155	119	12	9	1	1	1	0	1	-22.8	-19.8	-5.1	-2.6
Gas (including derived gases)	92	90	62	58	42	65	29	0	2	-3.8	-3.8	-3.7	-24.3
Biomass & Waste	0	0	15	30	31	71	291	440	481		7.2	25.2	5.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input to other conversion processes	594	580	253	90	194	258	302	296	310	-8.2	-2.6	4.5	0.2
Refineries	540	503	169	1	1	1	1	1	1	-11.0	-39.3	0.3	-0.1
Biofuels and hydrogen production	0	0	0	0	44	116	202	237	279			16.5	3.3
District heating	53	76	83	89	149	141	99	58	29	4.7	6.0	-4.0	-11.4
Derived gases, cokeries etc.	1	1	0	0	0	0	0	0	0				
Energy Branch Consumption	122	121	112	104	120	101	107	169	263	-0.9	0.7	-1.2	9.4
Non-Energy Uses	6	121	234	305	371	413	435	448	465	43.5	4.7	1.6	0.7
Final Energy Demand	3368	3940	4431	4880	5445	5827	6047	6187	6380	2.8	2.1	1.1	0.5
by sector													
Industry	1468	1179	1423	1655	1828	1919	1997	2042	2094	-0.3	2.5	0.9	0.5
- energy intensive industries	728	587	839	1036	1143	1221	1281	1317	1347	1.4	3.1	1.1	0.5
- other industrial sectors	740	593	584	619	685	697	716	726	747	-2.3	1.6	0.4	0.4
Residential	850	1176	1122	1183	1204	1283	1347	1345	1358	2.8	0.7	1.1	0.1
Tertiary	122	259	578	573	573	562	549	545	538	16.9	-0.1	-0.4	-0.2
Transport	928	1326	1309	1469	1840	2064	2154	2255	2390	3.5	3.5	1.6	1.0
by fuel													
Solids	243	115	97	80	86	94	105	114	133	-8.8	-1.1	2.0	2.4
Oil	1507	2098	2231	2392	2622	2712	2655	2619	2606	4.0	1.6	0.1	-0.2
Gas	603	468	569	665	794	825	769	687	597	-0.6	3.4	-0.3	-2.5
Electricity	837	807	905	1096	1213	1325	1432	1616	1812	0.8	3.0	1.7	2.4
Heat (from CHP and District Heating)	177	192	195	196	191	185	198	202	187	1.0	-0.2	0.3	-0.5
Renewable energy forms	0	260	435	452	539	686	887	949	1043	2.2	5.1	1.6	
Other	0	0	0	0	0	0	0	1	1			11.8	7.7
RES in Gross Final Energy Consumption ^(A)			780	767	914	1109	1508	1712	1851		1.6	5.1	2.1
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0		18.5	19.8	20.6	19.0	18.4	15.0	14.7	0.3	1.1	-1.2	-2.2
CO₂ Emissions (energy related)	13.2	14.1	14.0	15.2	16.3	14.7	14.3	10.9	10.7	0.6	1.5	-1.3	-2.9
Power generation/District heating	6.2	6.2	5.5	6.2	6.2	4.3	4.1	1.0	0.9	-1.1	1.2	-4.1	-13.9
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9			
Industry	2.5	1.8	2.3	2.3	2.4	2.5	2.4	2.1	2.0	-0.7	0.4	-0.3	-1.6
Residential	1.7	2.1	1.3	1.4	1.3	1.3	1.2	1.1	1.1	-2.5	0.3	-0.5	-1.9
Tertiary	0.0	0.0	1.0	1.0	0.9	0.8	0.7	0.5	0.4	46.9	0.0	-3.1	-6.2
Transport	2.7	3.9	3.8	4.3	5.3	5.8	5.8	6.0	6.3	3.5	3.5	1.0	0.8
CO₂ Emissions (non energy related)	1.1	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2	-1.2	0.3	1.3	0.7
Non-CO₂ GHGs Emissions	3.8		3.5	3.6	3.4	3.2	3.0	3.0	2.9	-0.6	-0.4	-1.2	-0.4
TOTAL GHGs Emissions Index (1990=100)	100.0		102.6	109.8	114.7	105.3	102.1	83.4	81.8				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Slovenia: Cost Efficiency Scenario with high prices										Annual % Change			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
Main Energy System Indicators														
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1	
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9	
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	235.2	206.7	190.8	179.1	179.0	-0.3	-1.5	-2.1	-0.6	
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.30	2.18	2.08	2.05	1.83	1.72	1.27	1.14	-0.9	-0.6	-1.8	-4.1	
Import Dependency %	46.5	50.1	52.5	52.2	54.1	58.0	53.9	47.7	41.2					
Total Energy-related Costs ^(B) (in 000 M€05)			3.6	4.0	5.5	6.9	8.4	9.4	10.3		4.3	4.2	2.1	
as % of GDP			15.6	14.5	16.4	17.9	19.3	19.6	19.7					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	109.4	109.3	100.0	95.0	86.0	79.2	74.3	70.1	67.7	-0.9	-1.5	-1.5	-0.9	
Residential (Energy on Private Income, index 2000=100)	97.8	122.0	100.0	92.6	77.9	72.5	68.3	61.9	57.6	0.2	-2.5	-1.3	-1.7	
Tertiary (Energy on Value added, index 2000=100)	26.5	53.6	100.0	82.6	68.6	58.4	50.8	45.2	40.7	14.2	-3.7	-2.9	-2.2	
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.5	43.3	40.1	38.5	39.4	5.3	-1.5	-1.2	-0.2	
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.3	46.1	45.7	44.5	42.8	2.3	-1.0	0.3	-0.7	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.34	0.34	0.33	0.24	0.21	0.04	0.03	-2.0	-0.2	-4.4	-17.4	
Final energy demand (t of CO ₂ /toe)	2.05	1.99	1.89	1.85	1.85	1.79	1.68	1.60	1.53	-0.8	-0.2	-0.9	-1.0	
Industry	1.72	1.55	1.65	1.38	1.34	1.32	1.18	1.04	0.96	-0.4	-2.1	-1.2	-2.1	
Residential	1.98	1.80	1.17	1.21	1.12	1.02	0.95	0.90	0.78	-5.2	-0.4	-1.6	-1.9	
Tertiary	0.17	0.13	1.65	1.76	1.66	1.41	1.26	1.01	0.68	25.7	0.1	-2.7	-6.0	
Transport	2.88	2.91	2.89	2.94	2.89	2.81	2.72	2.68	2.64	0.0	0.0	-0.6	-0.3	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			17.0	15.1	16.1	18.4	24.1	26.5	27.4					
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.0	4.7	8.0	8.9	9.9					
Gross Electricity generation by source (in GWh)														
			13622	15114	15746	14911	16355	21416	26544		1.5	0.4	5.0	
Nuclear energy			4760	5883	5751	5751	5751	10075	11114		1.9	0.0	6.8	
Solids			4484	5229	5631	4040	4148	4042	7898		2.3	-3.0	6.7	
Oil (including refinery gas)			106	36	6	4	4	1	4		-25.4	-3.0	0.6	
Gas (including derived gases)			321	324	207	642	758	729	377		-4.3	13.9	-6.7	
Biomass-waste			117	181	229	497	1639	2372	2799		6.9	21.8	5.5	
Hydro (pumping excluded)			3833	3460	3921	3970	4035	4169	4319		0.2	0.3	0.7	
Wind			0	0	2	6	19	25	30			27.1	4.4	
Solar			0	0	0	1	1	2	3			11.2	8.2	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			2861	3188	3259	3379	3247	3764	4280		1.3	0.0	2.8	
<u>Nuclear energy</u>			656	656	666	666	666	1164	1284		0.2	0.0	6.8	
<u>Renewable energy</u>			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3	
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2	
Wind			0	0	2	7	22	29	34			27.1	4.4	
Solar			0	0	0	1	1	1	2			11.2	8.2	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			1241	1557	1611	1672	1520	1531	1904		2.6	-0.6	2.3	
of which cogeneration units			244	363	331	379	583	693	764		3.1	5.8	2.7	
Solids fired			996	1013	1029	1085	751	781	849		0.3	-3.1	1.2	
Gas fired			81	374	375	370	407	303	565		16.6	0.8	3.3	
Oil fired			142	99	100	73	37	0	0		-3.4	-9.4	-39.7	
Biomass-waste fired			21	71	106	144	325	447	491		17.6	11.8	4.2	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			51.1	50.7	51.5	47.6	54.4	60.2	63.7					
Efficiency of gross thermal power generation (%)			32.2	32.9	35.3	41.7	45.0	57.5	56.0					
% of gross electricity from CHP			3.5	3.2	5.0	13.5	21.1	19.3	15.5					
Carbon free gross electricity generation (%)			63.9	63.0	62.9	68.6	70.0	77.7	68.8					
- nuclear			34.9	38.9	36.5	38.6	35.2	47.0	41.9					
- renewable energy forms			29.0	24.1	26.4	30.0	34.8	30.7	26.9					
Transport sector														
Passenger transport activity (Gpkm)														
	18.1	15.5	17.2	18.7	21.1	23.0	24.8	26.9	28.8	-0.5	2.1	1.6	1.5	
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.2	-13.1	-5.4	1.3	1.3	
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.0	20.6	22.0	23.7	25.2	3.9	2.6	1.5	1.4	
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.3	1.5	1.7	-6.8	2.6	3.5	2.6	
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.7	3.1	1.8	4.6	4.6	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Freight transport activity (Gtkm)														
	9.1	6.4	8.2	14.3	19.9	23.2	25.3	27.4	29.3	-1.1	9.3	2.4	1.5	
Trucks	4.9	3.3	5.3	11.0	15.4	17.8	19.5	21.1	22.2	0.8	11.2	2.4	1.3	
Rail	4.2	3.1	2.9	3.2	4.5	5.3	5.8	6.4	7.1	-3.8	4.8	2.5	2.0	
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Energy demand in transport (ktoe)														
	928	1326	1309	1469	1840	2064	2154	2255	2390	3.5	3.5	1.6	1.0	
Public road transport	43	58	15	7	8	8	8	7	7	-10.0	-6.6	0.1	-0.4	
Private cars and motorcycles	498	727	867	828	924	957	952	986	1092	5.7	0.6	0.3	1.4	
Trucks	330	492	368	582	846	1026	1117	1181	1223	1.1	8.7	2.8	0.9	
Rail	29	29	34	29	38	44	43	42	33	1.4	1.3	1.1	-2.6	
Aviation	27	20	25	23	24	29	33	39	34	-0.8	-0.1	3.1	0.3	
Inland navigation	0	0	0	0	0	0	0	0	0					

Source: PRIMES

Slovenia: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	2902	3085	3492	3364	3823	5510	-332	-74	598	-9.0	-1.9	12.2
Solids	1432	1062	1184	736	753	1091	-468	-452	-203	-38.9	-37.5	-15.7
Oil	3	1	0	0	0	0	0	0	0			
Natural gas	20	6	3	0	0	0	0	0	0			
Nuclear	1192	1228	1518	1483	1483	2453	0	0	389	0.0	0.0	18.9
Renewable energy sources	254	788	787	1145	1587	1967	137	378	412	13.5	31.3	26.5
Hydro	254	330	298	341	347	371	29	23	0	9.2	7.2	0.0
Biomass & Waste	0	458	489	703	1045	1303	43	233	230	6.5	28.6	21.4
Wind	0	0	0	1	2	3	0	0	0	0.0	0.0	0.0
Solar and others	0	0	0	100	193	290	65	122	182	183.1	171.6	168.8
Geothermal	0	0	0	0	0	0	0	0	0	39.3	55.7	63.1
Net Imports	2567	3369	3810	4652	4468	3859	-344	-656	-1065	-6.9	-12.8	-21.6
Solids	130	245	323	334	331	320	-55	-143	-99	-14.1	-30.1	-23.7
Oil	1798	2418	2589	2925	2879	2846	-220	-351	-574	-7.0	-10.9	-16.8
- Crude oil and Feedstocks	596	151	0	1	1	1	0	0	0	-6.7	-9.7	-15.0
- Oil products	1202	2267	2589	2924	2878	2844	-220	-351	-574	-7.0	-10.9	-16.8
Natural gas	723	820	925	1167	1041	780	-69	-163	-391	-5.6	-13.5	-33.4
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	5517	6415	7305	8016	8292	9369	-676	-730	-467	-7.8	-8.1	-4.7
Solids	1645	1306	1539	1070	1084	1410	-523	-595	-302	-32.8	-35.4	-17.7
Oil	1748	2381	2560	2925	2879	2846	-220	-351	-574	-7.0	-10.9	-16.8
Natural gas	763	826	929	1167	1041	780	-69	-163	-391	-5.6	-13.5	-33.4
Nuclear	1192	1228	1518	1483	1483	2453	0	0	389	0.0	0.0	18.9
Electricity	-85	-114	-28	224	218	-86	0	0	0	0.0	0.0	0.0
Renewable energy forms	254	788	787	1145	1587	1967	137	378	412	13.5	31.3	26.5
as % in Gross Inland Consumption												
Solids	29.8	20.4	21.1	13.3	13.1	15.1	-5.0	-5.5	-2.4			
Oil	31.7	37.1	35.0	36.5	34.7	30.4	0.3	-1.1	-4.4			
Natural gas	13.8	12.9	12.7	14.6	12.5	8.3	0.3	-0.8	-3.6			
Nuclear	21.6	19.1	20.8	18.5	17.9	26.2	1.4	1.4	5.2			
Renewable energy forms	4.6	12.3	10.8	14.3	19.1	21.0	2.7	5.7	5.2			
Gross Electricity Generation in GWh_e	12440	13622	15114	14911	16355	26544	-1830	-2004	1792	-10.9	-10.9	7.2
Self consumption and grid losses	1516	1625	1908	1963	2077	4255	-390	-475	1030	-16.6	-18.6	31.9
Fuel Inputs to Thermal Power Generation	1543	1342	1507	1070	1251	1701	-495	-388	-101	-31.6	-23.7	-5.6
Solids	1296	1253	1411	933	931	1218	-522	-602	-332	-35.9	-39.3	-21.4
Oil (including refinery gas)	155	12	9	1	1	1	0	0	-1	-33.0	-39.3	-60.0
Gas (including derived gases)	92	62	58	65	29	2	-13	-15	-20	-16.4	-34.7	-91.8
Biomass & Waste	0	15	30	71	291	481	40	230	252	126.8	377.7	109.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	594	253	90	258	302	310	-23	-60	-82	-8.2	-16.5	-20.9
Refineries	540	169	1	1	1	1	0	0	0	-6.7	-9.7	-15.0
Biofuels and hydrogen production	0	0	0	116	202	279	-12	-32	-45	-9.3	-13.5	-13.8
District heating	53	83	89	141	99	29	-11	-28	-37	-7.2	-22.1	-55.8
Derived gases, cokeries etc.	1	0	0	0	0	0	0	0	0			
Energy Branch Consumption	122	112	104	101	107	263	-21	-26	82	-17.0	-19.8	45.6
Non-Energy Uses	6	234	305	413	435	465	0	0	0	0.0	0.0	0.0
Final Energy Demand	3368	4431	4880	5827	6047	6380	-342	-473	-657	-5.5	-7.2	-9.3
by sector												
Industry	1468	1423	1655	1919	1997	2094	-39	-61	-88	-2.0	-3.0	-4.0
- energy intensive industries	728	839	1036	1221	1281	1347	-11	-24	-38	-0.9	-1.9	-2.7
- other industrial sectors	740	584	619	697	716	747	-28	-37	-50	-3.9	-4.9	-6.2
Residential	850	1122	1183	1283	1347	1358	-57	-56	-138	-4.3	-4.0	-9.2
Tertiary	122	578	573	562	549	538	-111	-136	-192	-16.5	-19.9	-26.3
Transport	928	1309	1469	2064	2154	2390	-135	-219	-240	-6.1	-9.2	-9.1
by fuel												
Solids	243	97	80	94	105	133	-1	7	30	-1.3	7.7	28.8
Oil	1507	2231	2392	2712	2655	2606	-220	-350	-573	-7.5	-11.7	-18.0
Gas	603	569	665	825	769	597	-45	-120	-333	-5.2	-13.5	-35.8
Electricity	837	905	1096	1325	1432	1812	-124	-131	64	-8.5	-8.4	3.7
Heat (from CHP and District Heating)	177	195	196	185	198	187	-22	-10	-12	-10.8	-4.7	-6.1
Renewable energy forms	0	435	452	686	887	1043	70	131	168	11.4	17.3	19.2
Other	0	0	0	0	0	1	0	0	0	1.4	-5.0	-4.4
RES in Gross Final Energy Consumption ^(A)		780	767	1109	1508	1851	133	355	387	13.6	30.7	26.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	18.0	18.5	19.8	19.0	18.4	14.7	-3.2	-4.2	-8.4	-14.5	-18.5	-36.2
CO₂ Emissions (energy related)	13.2	14.0	15.2	14.7	14.3	10.7	-3.0	-3.9	-8.0	-16.9	-21.4	-43.0
Power generation/District heating	6.2	5.5	6.2	4.3	4.1	0.9	-2.2	-2.6	-5.6	-34.2	-38.7	-86.1
Energy Branch	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.8	-18.9	-39.7
Industry	2.5	2.3	2.3	2.5	2.4	2.0	0.0	-0.2	-0.5	-1.1	-6.8	-20.0
Residential	1.7	1.3	1.4	1.3	1.3	1.1	-0.2	-0.3	-0.6	-12.0	-17.3	-37.0
Tertiary	0.0	1.0	1.0	0.8	0.7	0.4	-0.2	-0.3	-0.6	-19.1	-27.9	-61.8
Transport	2.7	3.8	4.3	5.8	5.8	6.3	-0.4	-0.6	-0.7	-6.2	-9.4	-9.8
CO₂ Emissions (non energy related)	1.1	0.9	0.9	1.0	1.1	1.2	0.0	0.0	0.0	-0.6	-1.5	-3.3
Non-CO₂ GHGs Emissions	3.8	3.5	3.6	3.2	3.0	2.9	-0.2	-0.3	-0.3	-6.2	-8.6	-9.0
TOTAL GHGs Emissions Index (1990=100)	100.0	102.6	109.8	105.3	102.1	81.8	-17.8	-23.2	-46.5			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Slovenia: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	1.996	1.988	1.998	2.019	2.017	2.006	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	19.4	23.3	27.6	38.8	43.5	52.3	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	284.7	274.9	264.3	206.7	190.8	179.0	-17.4	-16.8	-8.9	-7.8	-8.1	-4.7
Carbon intensity (t of CO ₂ /toe of GIC)	2.38	2.18	2.08	1.83	1.72	1.14	-0.20	-0.29	-0.76	-9.9	-14.5	-40.2
Import Dependency %	46.5	52.5	52.2	58.0	53.9	41.2	0.6	-2.9	-8.9			
Total Energy-related Costs ^(B) (in 000 M€05)		3.6	4.0	6.9	8.4	10.3	0.2	0.4	0.5	2.7	4.6	5.5
as % of GDP		15.6	14.5	17.9	19.3	19.7	0.5	0.8	1.0			
Total Compliance Costs ^(D) (in 000 M€05)				0.2	0.4	0.5						
as % of GDP				0.47	0.86	1.04						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	109.4	100.0	95.0	79.2	74.3	67.7	-1.6	-2.3	-2.8	-2.0	-3.0	-4.0
Residential (Energy on Private Income, index 2000=100)	97.8	100.0	92.6	72.5	68.3	57.6	-3.2	-2.9	-5.9	-4.3	-4.0	-9.2
Tertiary (Energy on Value added, index 2000=100)	26.5	100.0	82.6	58.4	50.8	40.7	-11.5	-12.6	-14.5	-16.5	-19.9	-26.3
Passenger transport (toe/Mpkm)	31.6	52.9	46.0	43.3	40.1	39.4	-0.9	-1.2	-1.0	-1.9	-3.0	-2.6
Freight transport (toe/Mtkm)	39.1	48.9	42.6	46.1	45.7	42.8	-2.9	-4.7	-4.4	-5.9	-9.4	-9.4
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.34	0.34	0.24	0.21	0.03	-0.09	-0.10	-0.21	-26.2	-31.8	-86.9
Final energy demand (t of CO ₂ /toe)	2.05	1.89	1.85	1.79	1.68	1.53	-0.03	-0.08	-0.20	-1.5	-4.5	-11.5
Industry	1.72	1.65	1.38	1.32	1.18	0.96	0.01	-0.05	-0.19	0.9	-4.0	-16.6
Residential	1.98	1.17	1.21	1.02	0.95	0.78	-0.09	-0.15	-0.34	-8.1	-13.8	-30.6
Tertiary	0.17	1.65	1.76	1.41	1.26	0.68	-0.05	-0.14	-0.63	-3.1	-10.0	-48.2
Transport	2.88	2.89	2.94	2.81	2.72	2.64	0.00	0.00	-0.02	0.0	-0.2	-0.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)	17.0	15.1	18.4	24.1	27.4	27.4	3.2	7.1	7.4			
Biofuels share in transport gasoline and diesel (%)		0.0	0.0	4.7	8.0	9.9	-0.2	-0.4	-0.5			
Gross Electricity generation by source (in GWh_e)												
	13622	15114	14911	16355	26544	26544	-1830	-2004	1792	-10.9	-10.9	7.2
Nuclear energy	4760	5883	5751	5751	11114	11114	0	0	1758	0.0	0.0	18.8
Solids	4484	5229	4040	4148	7898	7898	-2244	-3474	-1198	-35.7	-45.6	-13.2
Oil (including refinery gas)	106	36	4	4	4	4	-2	-3	-6	-35.7	-45.6	-55.9
Gas (including derived gases)	321	324	642	758	377	377	-71	65	-262	-10.0	9.4	-40.9
Biomass-waste	117	181	497	1639	2799	2799	152	1136	1499	44.2	226.0	115.3
Hydro (pumping excluded)	3833	3460	3970	4035	4319	4319	335	272	0	9.2	7.2	0.0
Wind	0	0	6	19	30	30	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	3	3	0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	2861	3188	3379	3247	4280	4280	-179	-353	151	-5.0	-9.8	3.7
<u>Nuclear energy</u>	656	656	666	666	1284	1284	0	0	203	0.0	0.0	18.8
<u>Renewable energy</u>	964	975	1041	1061	1092	1092	0	0	0	0.0	0.0	0.0
Hydro (pumping excluded)	964	975	1033	1038	1056	1056	0	0	0	0.0	0.0	0.0
Wind	0	0	7	22	34	34	0	0	0	0.0	0.0	0.0
Solar	0	0	1	1	2	2	0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	1241	1557	1672	1520	1904	1904	-179	-353	-52	-9.7	-18.9	-2.7
of which cogeneration units	244	363	379	583	764	764	-62	88	156	-14.1	17.9	25.6
Solids fired	996	1013	1085	751	849	849	-107	-491	-367	-9.0	-39.5	-30.2
Gas fired	81	374	370	407	565	565	-127	-67	4	-25.5	-14.1	0.7
Oil fired	142	99	73	37	0	0	0	0	0	0.0	0.0	-42.3
Biomass-waste fired	21	71	144	325	491	491	55	204	311	62.3	169.2	172.5
Fuel Cells	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	51.1	50.7	47.6	54.4	63.7	63.7	-2.7	-0.1	-0.1			
Efficiency of gross thermal power generation (%)	32.2	32.9	41.7	45.0	56.0	56.0	1.3	-1.3	3.3			
% of gross electricity from CHP	3.5	3.2	13.5	21.1	15.5	15.5	-0.8	4.8	2.0			
Carbon free gross electricity generation (%)	63.9	63.0	68.6	70.0	68.8	68.8	10.4	15.3	8.2			
- nuclear	34.9	38.9	38.6	35.2	41.9	41.9	4.2	3.8	4.1			
- renewable energy forms	29.0	24.1	30.0	34.8	26.9	26.9	6.2	11.5	4.1			
Transport sector												
Passenger transport activity (Gpkm)												
	18.1	17.2	18.7	23.0	24.8	28.8	-0.3	-0.4	-0.5	-1.4	-1.7	-1.8
Public road transport	6.4	1.6	0.9	0.9	1.0	1.2	0.0	0.0	0.0	1.7	2.1	2.3
Private cars and motorcycles	10.0	14.7	16.8	20.6	22.0	25.2	-0.4	-0.5	-0.6	-1.7	-2.1	-2.3
Rail	1.4	0.7	0.8	1.1	1.3	1.7	0.0	0.0	0.1	2.4	2.9	3.2
Aviation	0.2	0.2	0.3	0.4	0.5	0.7	0.0	0.0	0.0	-2.8	-3.8	-4.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Freight transport activity (Gtkm)												
	9.1	8.2	14.3	23.2	25.3	29.3	-0.7	-1.0	-1.2	-3.0	-3.8	-4.0
Trucks	4.9	5.3	11.0	17.8	19.5	22.2	-0.9	-1.2	-1.5	-4.6	-5.7	-6.2
Rail	4.2	2.9	3.2	5.3	5.8	7.1	0.1	0.2	0.2	2.9	3.3	3.6
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Energy demand in transport (ktoe)												
	928	1309	1469	2064	2154	2390	-135	-219	-240	-6.1	-9.2	-9.1
Public road transport	43	15	7	8	8	7	0	0	-1	-1.0	-3.6	-13.6
Private cars and motorcycles	498	867	828	957	952	1092	-33	-46	-44	-3.3	-4.6	-3.9
Trucks	330	368	582	1026	1117	1223	-102	-172	-190	-9.1	-13.4	-13.5
Rail	29	34	29	44	43	33	1	2	2	1.9	4.9	7.5
Aviation	27	25	23	29	33	34	-1	-2	-7	-3.8	-5.9	-16.6
Inland navigation	0	0	0	0	0	0	0	0	0			

Source: PRIMES

Spain: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	33724	31355	31345	30126	35325	38422	43049	46312	58609	-0.7	1.2	2.0	3.1	
Solids	11679	10170	7740	6265	5856	4664	4251	3062	2577	-4.0	-2.8	-3.2	-4.9	
Oil	794	779	225	165	163	150	100	0	0	-11.8	-3.2	-4.7		
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3			
Nuclear	13701	14305	16046	14842	15753	14989	14989	14504	23079	1.6	-0.2	-0.5	4.4	
Renewable energy sources	6276	5722	7185	8710	13423	18519	23709	28745	32952	1.4	6.4	5.9	3.3	
Hydro	2184	1987	2534	1681	2454	2395	2423	2484	2552	1.5	-0.3	-0.1	0.5	
Biomass & Waste	4067	3684	4205	5129	7520	9617	12021	15026	17332	0.3	6.0	4.8	3.7	
Wind	1	23	406	1825	3032	5186	6868	8081	9093	79.0	22.3	8.5	2.8	
Solar and others	21	25	33	68	407	1308	2381	3137	3956	4.5	28.7	19.3	5.2	
Geothermal	2	3	8	8	11	13	16	18	19	12.3	3.3	4.3	1.6	
Net Imports	59857	75415	98351	122830	125130	125512	119738	113275	102718	5.1	2.4	-0.4	-1.5	
Solids	7038	9146	12636	14418	15686	17181	19234	19349	14293	6.0	2.2	2.1	-2.9	
Oil	49166	58363	69866	78279	76715	76423	74757	70929	68365	3.6	0.9	-0.3	-0.9	
- Crude oil and Feedstocks	53256	55362	58393	59850	59998	59745	59041	57523	56449	0.9	0.3	-0.2	-0.4	
- Oil products	-4091	3001	11473	18429	16717	16678	15717	13407	11916			3.8	-0.6	
Natural gas	3690	7521	15467	30248	32465	29262	19915	15919	11869	15.4	7.7	-4.8	-5.0	
Electricity	-36	386	382	-115	264	334	225	-20	3			-3.6	-1.6	
Gross Inland Consumption	89401	102207	122698	143487	151939	155056	153690	150350	152151	3.2	2.2	0.1	-0.1	
Solids	18942	19515	20643	20698	21542	21845	23485	22411	16871	0.9	0.4	0.9	-3.3	
Oil	45547	54556	63223	69507	68362	67695	65761	61693	59189	3.3	0.8	-0.4	-1.0	
Natural gas	4970	7722	15219	29844	32595	29362	19915	15919	11869	11.8	7.9	-4.8	-5.0	
Nuclear	13701	14305	16046	14842	15753	14989	14989	14504	23079	1.6	-0.2	-0.5	4.4	
Electricity	-36	385	382	-115	264	334	225	-20	3			-3.6	-1.6	
Renewable energy forms	6276	5723	7185	8711	13423	20831	29315	35844	41140	1.4	6.4	8.1	3.4	
as % in Gross Inland Consumption														
Solids	21.2	19.1	16.8	14.4	14.2	14.1	15.3	14.9	11.1					
Oil	50.9	53.4	51.5	48.4	45.0	43.7	42.8	41.0	38.9					
Natural gas	5.6	7.6	12.4	20.8	21.5	18.9	13.0	10.6	7.8					
Nuclear	15.3	14.0	13.1	10.3	10.4	9.7	9.8	9.6	15.2					
Renewable energy forms	7.0	5.6	5.9	6.1	8.8	13.4	19.1	23.8	27.0					
Gross Electricity Generation in GWh_e	150944	165585	222776	290555	310364	323418	348064	385063	415273	4.0	3.4	1.2	1.8	
Self consumption and grid losses	21388	24573	32539	40790	39159	40056	44300	51085	53984	4.3	1.9	1.2	2.0	
Fuel Inputs to Thermal Power Generation	16682	18603	26461	35416	33634	31436	29132	28116	21935	4.7	2.4	-1.4	-2.8	
Solids	13881	13585	18249	17641	18879	19082	20920	19928	14569	2.8	0.3	1.0	-3.6	
Oil (including refinery gas)	2170	3654	4442	5246	2006	691	839	839	848	7.4	-7.6	-8.4	0.1	
Gas (including derived gases)	486	987	3075	11140	10890	8390	2222	1010	74	20.3	13.5	-14.7	-28.8	
Biomass & Waste	145	377	694	1389	1859	3273	5151	6339	6444	16.9	10.4	10.7	2.3	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	57883	58965	63144	63843	64152	65753	65893	64252	63114	0.9	0.2	0.3	-0.4	
Refineries	53753	56041	60048	60507	59707	59682	59056	57506	56467	1.1	-0.1	-0.1	-0.4	
Biofuels and hydrogen production	0	0	65	259	2195	4069	5354	5516	5707			42.2	9.3	
District heating	0	0	0	0	0	0	0	0	0			-0.8	-2.4	
Derived gases, cokeries etc.	4131	2924	3031	3077	2250	2001	1483	1230	941	-3.0	-2.9	-4.1	-4.4	
Energy Branch Consumption	4757	5473	6118	6397	5682	5701	5776	5949	6024	2.5	-0.7	0.2	0.4	
Non-Energy Uses	5847	8006	9094	7823	8087	8491	8750	9003	9085	4.5	-1.2	0.8	0.4	
Final Energy Demand	56647	63536	79422	97170	106065	110357	110688	109488	109337	3.4	2.9	0.4	-0.1	
by sector														
Industry	20014	20476	25474	31036	33908	36108	36844	37290	37632	2.4	2.9	0.8	0.2	
- energy intensive industries	13069	13620	17260	20421	22103	23465	23429	23520	23645	2.8	2.5	0.6	0.1	
- other industrial sectors	6945	6856	8213	10615	11805	12643	13414	13770	13987	1.7	3.7	1.3	0.4	
Residential	9266	9986	11871	15150	16410	16483	15978	15469	14928	2.5	3.3	-0.3	-0.7	
Tertiary	5041	7007	9219	11556	11653	11298	11055	10861	10582	6.2	2.4	-0.5	-0.4	
Transport	22326	26069	32858	39428	44094	46467	46811	45869	46195	3.9	3.0	0.6	-0.1	
by fuel														
Solids	3524	2235	1671	1782	1664	1918	1899	1937	1880	-7.2	0.0	1.3	-0.1	
Oil	33488	38971	45784	52776	54279	54489	52315	49080	47619	3.2	1.7	-0.4	-0.9	
Gas	4873	6841	12141	17978	21467	20676	17322	13539	11164	9.6	5.9	-2.1	-4.3	
Electricity	10817	12116	16205	20827	23029	24145	25807	28165	30469	4.1	3.6	1.1	1.7	
Heat (from CHP and District Heating)	0	39	74	0	20	21	27	26	27			-12.1	2.9	
Renewable energy forms	3945	3335	3547	3806	5602	9100	13308	16726	18161	-1.1	4.7	9.0	3.2	
Other	0	0	0	0	3	7	10	16	17			11.0	6.1	
RES in Gross Final Energy Consumption ^(A)			6709	8189	12565	19597	27686	34041	37396		6.5	8.2	3.1	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1		388.0	449.5	456.0	441.2	416.0	391.0	353.1	3.1	1.6	-0.9	-1.6	
CO₂ Emissions (energy related)	203.3	225.7	283.2	339.4	343.6	334.0	312.0	285.4	246.3	3.4	2.0	-1.0	-2.3	
Power generation/District heating	63.6	68.2	94.1	113.2	106.9	97.6	90.7	83.9	60.4	4.0	1.3	-1.6	-4.0	
Energy Branch	11.5	13.1	13.6	14.7	13.3	13.3	12.8	11.8	6.6	1.6	-0.2	-0.4	-6.5	
Industry	41.9	43.4	48.9	58.2	61.6	62.0	54.3	44.0	38.3	1.6	2.3	-1.2	-3.4	
Residential	12.9	13.6	16.4	20.4	20.3	18.4	15.1	11.5	8.8	2.5	2.1	-2.9	-5.3	
Tertiary	7.7	10.5	12.9	16.2	15.4	14.2	13.0	11.9	10.7	5.3	1.8	-1.7	-1.9	
Transport	65.6	76.9	97.3	116.7	126.1	128.5	126.0	122.3	121.5	4.0	2.6	0.0	-0.4	
CO₂ Emissions (non energy related)	24.9	24.4	29.2	36.5	38.6	39.4	38.0	37.1	36.2	1.6	2.8	-0.1	-0.5	
Non-CO₂ GHGs Emissions	58.8		75.5	73.7	73.9	67.8	66.1	68.4	70.6	2.5	-0.2	-1.1	0.7	
TOTAL GHGs Emissions Index (1990=100)	100.0		135.1	156.6	158.8	153.7	144.9	136.2	123.0					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	Spain: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	142.7	124.8	108.9	96.6	90.9	0.2	-1.1	-2.7	-1.8
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.21	2.31	2.37	2.26	2.15	2.03	1.90	1.62	0.1	-0.2	-1.1	-2.2
Import Dependency %	64.2	71.6	76.5	81.2	78.0	76.6	73.6	71.0	63.7				
Total Energy-related Costs ^(B) (in 000 M€05)			71.4	82.6	109.8	134.3	159.7	177.9	192.4		4.4	3.8	1.9
as % of GDP			9.2	9.1	10.3	10.8	11.3	11.4	11.5				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	96.6	97.9	100.0	114.8	107.8	97.8	87.2	80.7	77.0	0.3	0.8	-2.1	-1.2
Residential (Energy on Private Income, index 2000=100)	103.7	102.8	100.0	107.5	99.8	86.7	74.5	65.8	59.3	-0.4	0.0	-2.9	-2.3
Tertiary (Energy on Value added, index 2000=100)	68.6	89.1	100.0	106.9	92.6	77.0	66.3	59.4	54.1	3.8	-0.8	-3.3	-2.0
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.7	38.6	36.0	32.8	33.1	0.6	-0.4	-1.2	-0.9
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	60.7	58.1	54.3	51.5	48.7	-2.3	-1.3	-1.1	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.41	0.42	0.39	0.34	0.30	0.26	0.22	0.15	0.0	-2.0	-2.8	-5.7
Final energy demand (t of CO ₂ /toe)	2.26	2.27	2.21	2.18	2.11	2.02	1.88	1.73	1.64	-0.2	-0.5	-1.1	-1.4
Industry	2.10	2.12	1.92	1.87	1.82	1.72	1.48	1.18	1.02	-0.9	-0.6	-2.1	-3.6
Residential	1.39	1.36	1.39	1.34	1.24	1.12	0.94	0.74	0.59	0.0	-1.1	-2.7	-4.6
Tertiary	1.53	1.50	1.40	1.40	1.32	1.26	1.17	1.10	1.01	-0.9	-0.6	-1.2	-1.5
Transport	2.94	2.95	2.96	2.96	2.86	2.77	2.69	2.67	2.63	0.1	-0.3	-0.6	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			8.2	8.2	11.5	17.2	24.2	29.9	32.8				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.8	8.6	11.4	11.8	12.3				
Gross Electricity generation by source (in GWh)													
			222776	290555	310364	323418	348064	385063	415273		3.4	1.2	1.8
Nuclear energy			62195	57529	61059	58096	58096	63119	104812		-0.2	-0.5	6.1
Solids			78694	77443	81164	84154	103617	112486	85242		0.3	2.5	-1.9
Oil (including refinery gas)			19567	23770	9674	4040	4997	5237	5383		-6.8	-6.4	0.7
Gas (including derived gases)			24741	85513	85768	69896	24392	12905	1058		13.2	-11.8	-26.9
Biomass-waste			3374	5457	8243	17537	41877	54117	60633		9.3	17.6	3.8
Hydro (pumping excluded)			29465	19549	28532	27849	28170	28884	29674		-0.3	-0.1	0.5
Wind			4723	21215	35251	60297	79860	93965	105734		22.3	8.5	2.8
Solar			18	78	674	1549	6715	13960	22315		43.7	25.9	12.8
Geothermal and other renewables			0	0	0	0	340	389	424				2.2
Net Generation Capacity in MW_e			60718	80297	92490	101773	118168	131735	152551		4.3	2.5	2.6
<u>Nuclear energy</u>			7579	7579	7434	6986	6986	7361	12105		-0.2	-0.6	5.7
<u>Renewable energy</u>			14974	22714	30615	40536	51617	62873	79982		7.4	5.4	4.5
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25718	33311	39826	51460		22.0	7.4	4.4
Solar			14	52	435	998	4308	9023	14480		41.5	25.8	12.9
Other renewables (tidal etc.)			0	0	0	0	176	202	220				2.2
<u>Thermal power</u>			38166	50004	54441	54251	59565	61501	60465		3.6	0.9	0.2
of which cogeneration units			5017	7578	8534	9703	11047	11489	11349		5.5	2.6	0.3
Solids fired			11352	11485	11277	10727	14136	16350	15653		-0.1	2.3	1.0
Gas fired			19801	32257	35545	34173	32649	30887	30404		6.0	-0.8	-0.7
Oil fired			6518	5375	5978	5630	4339	3636	2893		-0.9	-3.2	-4.0
Biomass-waste fired			495	887	1641	3722	8442	10627	11514		12.7	17.8	3.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			40.0	39.6	37.0	35.0	32.3	31.9	29.8				
Efficiency of gross thermal power generation (%)			41.1	46.7	47.3	48.0	51.6	56.5	59.7				
% of gross electricity from CHP			7.4	13.5	13.8	14.8	18.2	18.0	16.8				
Carbon free gross electricity generation (%)			44.8	35.7	43.1	51.1	61.8	66.1	77.9				
- nuclear			27.9	19.8	19.7	18.0	16.7	16.4	25.2				
- renewable energy forms			16.9	15.9	23.4	33.2	45.1	49.7	52.7				
Transport sector													
Passenger transport activity (Gpkm)	276.7	372.3	461.8	535.3	612.7	683.1	739.7	787.6	818.4	5.3	2.9	1.9	1.0
Public road transport	33.4	39.6	50.3	54.6	57.8	60.8	64.6	67.6	70.1	4.2	1.4	1.1	0.8
Private cars and motorcycles	182.0	258.4	310.7	369.2	423.6	467.7	498.7	521.7	532.0	5.5	3.1	1.6	0.6
Rail	19.9	20.8	25.4	27.2	29.7	32.5	36.6	42.6	49.7	2.5	1.6	2.1	3.1
Aviation	39.5	51.4	73.6	82.2	99.3	119.8	137.4	153.4	164.3	6.4	3.0	3.3	1.8
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.3	2.4	2.4	2.4	-0.7	1.8	0.4	0.1
Freight transport activity (Gtkm)	128.0	150.5	191.3	276.4	315.4	346.0	371.1	389.0	392.8	4.1	5.1	1.6	0.6
Trucks	83.8	101.6	148.7	233.2	267.4	292.0	311.2	326.5	329.1	5.9	6.0	1.5	0.6
Rail	11.2	11.0	11.6	11.1	12.8	14.5	16.1	17.3	17.9	0.4	1.0	2.3	1.0
Inland navigation	33.0	38.0	31.0	32.0	35.2	39.5	43.8	45.3	45.9	-0.6	1.3	2.2	0.5
Energy demand in transport (ktoe)	22326	26069	32858	39428	44094	46467	46811	45869	46195	3.9	3.0	0.6	-0.1
Public road transport	224	221	275	284	283	279	281	271	272	2.1	0.3	-0.1	-0.3
Private cars and motorcycles	7830	10598	14286	16266	17636	18201	18119	18248	19314	6.2	2.1	0.3	0.6
Trucks	9634	9647	11587	14854	16954	17677	17530	17404	16843	1.9	3.9	0.3	-0.4
Rail	528	626	847	1166	1219	1287	1348	1340	1038	4.8	3.7	1.0	-2.6
Aviation	2456	3105	4486	5323	6330	7218	7603	6654	6784	6.2	3.5	1.8	-1.1
Inland navigation	1655	1871	1378	1534	1673	1805	1929	1952	1945	-1.8	2.0	1.4	0.1

Source: PRIMES

Spain: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	33724	31345	30126	38422	43049	58609	926	1855	6886	2.5	4.5	13.3
Solids	11679	7740	6265	4664	4251	2577	0	0	0	0.0	0.0	0.0
Oil	794	225	165	150	100	0	0	0	0	0.0	0.0	9.3
Natural gas	1273	148	144	100	0	0	0	0	0	0.0	0.0	0.0
Nuclear	13701	16046	14842	14989	14989	23079	0	0	1795	0.0	0.0	8.4
Renewable energy sources	6276	7185	8710	18519	23709	32952	926	1855	5091	5.3	8.5	18.3
Hydro	2184	2534	1681	2395	2423	2552	151	124	0	6.7	5.4	0.0
Biomass & Waste	4067	4205	5129	9617	12021	17332	0	61	760	0.0	0.5	4.6
Wind	1	406	1825	5186	6868	9093	0	118	1692	0.0	1.7	22.9
Solar and others	21	33	68	1308	2381	3956	772	1547	2632	143.7	185.4	198.8
Geothermal	2	8	8	13	16	19	4	6	8	36.6	56.4	72.0
Net Imports	59857	98351	122830	125512	119738	102718	-10149	-15010	-22502	-7.5	-11.1	-18.0
Solids	7038	12636	14418	17181	19234	14293	-2571	-3430	-12796	-13.0	-15.1	-47.2
Oil	49166	69866	78279	76423	74757	68365	-2883	-4581	-7885	-3.6	-5.8	-10.3
- Crude oil and Feedstocks	53256	58393	59850	59745	59041	56449	-1787	-2494	-3870	-2.9	-4.1	-6.4
- Oil products	-4091	11473	18429	16678	15717	11916	-1096	-2087	-4014	-6.2	-11.7	-25.2
Natural gas	3690	15467	30248	29262	19915	11869	-5493	-10722	-7400	-15.8	-35.0	-38.4
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	89401	122698	143487	150556	153690	152151	-9224	-13157	-15619	-5.6	-7.9	-9.3
Solids	18942	20643	20698	21845	23485	16871	-2571	-3430	-12796	-10.5	-12.7	-43.1
Oil	45547	63223	69507	67695	65761	59189	-2884	-4584	-7888	-4.1	-6.5	-11.8
Natural gas	4970	15219	29844	29362	19915	11869	-5493	-10722	-7400	-15.8	-35.0	-38.4
Nuclear	13701	16046	14842	14989	14989	23079	0	0	1795	0.0	0.0	8.4
Electricity	-36	382	-115	334	225	3	0	0	0	0.0	0.0	0.0
Renewable energy forms	6276	7185	8711	20831	29315	41140	1724	5578	10669	9.0	23.5	35.0
as % in Gross Inland Consumption												
Solids	21.2	16.8	14.4	14.1	15.3	11.1	-0.8	-0.9	-6.6			
Oil	50.9	51.5	48.4	43.7	42.8	38.9	0.7	0.6	-1.1			
Natural gas	5.6	12.4	20.8	18.9	13.0	7.8	-2.3	-5.4	-3.7			
Nuclear	15.3	13.1	10.3	9.7	9.8	15.2	0.5	0.8	2.5			
Renewable energy forms	7.0	5.9	6.1	13.4	19.1	27.0	1.8	4.8	8.9			
Gross Electricity Generation in GWh_e	150944	222776	290555	323418	348064	415273	-39902	-37279	-4974	-11.0	-9.7	-1.2
Self consumption and grid losses	21388	32539	40790	40056	44300	53984	-6266	-5006	-3959	-13.5	-10.2	-6.8
Fuel Inputs to Thermal Power Generation	16682	26461	35416	31436	29132	21935	-6668	-8081	-10139	-17.5	-21.7	-31.6
Solids	13881	18249	17641	19082	20920	14569	-2921	-3591	-12843	-13.3	-14.7	-46.9
Oil (including refinery gas)	2170	4442	5246	691	839	848	218	336	618	46.2	66.9	268.6
Gas (including derived gases)	486	3075	11140	8390	2222	74	-3170	-5976	-59	-27.4	-72.9	-44.2
Biomass & Waste	145	694	1389	3273	5151	6444	-794	1150	2145	-19.5	28.7	49.9
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	57883	63144	63843	65753	65893	63114	-1888	-3152	-4767	-2.8	-4.6	-7.0
Refineries	53753	60048	60507	59682	59056	56467	-1786	-2494	-3870	-2.9	-4.1	-6.4
Biofuels and hydrogen production	0	65	259	4069	5354	5707	-315	-654	-846	-7.2	-10.9	-12.9
District heating	0	0	0	0	0	0	0	0	0	-4.7	-0.2	-13.5
Derived gases, cokeries etc.	4131	3031	3077	2001	1483	941	213	-4	-51	11.9	-0.3	-5.1
Energy Branch Consumption	4757	6118	6397	5701	5776	6024	-320	-356	-510	-5.3	-5.8	-7.8
Non-Energy Uses	5847	9094	7823	8491	8750	9085	-9	-27	-5	-0.1	-0.3	-0.1
Final Energy Demand	56647	79422	97170	110357	110688	109337	-5384	-7965	-10004	-4.7	-6.7	-8.4
by sector												
Industry	20014	25474	31036	36108	36844	37632	-708	-1520	-1440	-1.9	-4.0	-3.7
- energy intensive industries	13069	17260	20421	23465	23429	23645	-190	-839	-671	-0.8	-3.5	-2.8
- other industrial sectors	6945	8213	10615	12643	13414	13987	-517	-681	-769	-3.9	-4.8	-5.2
Residential	9266	11871	15150	16483	15978	14928	-850	-1148	-2065	-4.9	-6.7	-12.2
Tertiary	5041	9219	11556	11298	11055	10582	-1719	-1939	-2635	-13.2	-14.9	-19.9
Transport	22326	32858	39428	46467	46811	46195	-2108	-3357	-3864	-4.3	-6.7	-7.7
by fuel												
Solids	3524	1671	1782	1918	1899	1880	282	149	56	17.2	8.5	3.1
Oil	33488	45784	52776	54489	52315	47619	-2943	-4632	-6346	-5.1	-8.1	-11.8
Gas	4873	12141	17978	20676	17322	11164	-2254	-4666	-7292	-9.8	-21.2	-39.5
Electricity	10817	16205	20827	24145	25807	30469	-2886	-2755	-73	-10.7	-9.6	-0.2
Heat (from CHP and District Heating)	0	74	0	21	27	27	-4	2	5	-14.4	6.2	21.7
Renewable energy forms	3945	3547	3806	9100	13308	18161	2421	3938	3647	36.2	42.0	25.1
Other	0	0	0	7	10	17	0	-1	-1	3.7	-5.1	-5.9
RES in Gross Final Energy Consumption ^(A)		6709	8189	19597	27686	37396	2118	5563	8699	12.1	25.1	30.3
TOTAL GHGs Emissions (Mt of CO₂ eq.)	287.1	368.0	449.5	441.2	416.0	353.1	-38.9	-62.9	-103.3	-8.1	-13.1	-22.6
CO₂ Emissions (energy related)	203.3	283.2	339.4	334.0	312.0	246.3	-31.7	-52.2	-91.4	-8.7	-14.3	-27.1
Power generation/District heating	63.6	94.1	113.2	97.6	90.7	60.4	-18.3	-27.2	-49.0	-15.8	-23.0	-44.8
Energy Branch	11.5	13.6	14.7	13.3	12.8	6.6	-0.4	-0.8	-6.4	-3.0	-5.5	-49.5
Industry	41.9	48.9	58.2	62.0	54.3	38.3	-3.7	-9.3	-13.0	-5.7	-14.6	-25.4
Residential	12.9	16.4	20.4	18.4	15.1	8.8	-2.0	-3.9	-8.9	-9.6	-20.8	-50.5
Tertiary	7.7	12.9	16.2	14.2	13.0	10.7	-1.6	-2.1	-2.9	-10.3	-14.2	-21.2
Transport	65.6	97.3	116.7	128.5	126.0	121.5	-5.7	-8.9	-11.1	-4.2	-6.6	-8.4
CO₂ Emissions (non energy related)	24.9	29.2	36.5	39.4	38.0	36.2	-0.2	-1.0	-1.0	-0.6	-2.5	-2.6
Non-CO₂ GHGs Emissions	58.8	75.5	73.7	67.8	66.1	70.6	-6.9	-9.7	-10.9	-9.2	-12.8	-13.4
TOTAL GHGs Emissions Index (1990=100)	100.0	135.1	156.6	153.7	144.9	123.0	-13.5	-21.9	-36.0			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Spain: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	38.826	40.050	43.047	45.264	45.559	45.379	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	573.7	772.2	905.5	1242.2	1410.8	1674.6	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	155.8	158.9	158.5	124.8	108.9	90.9	-7.4	-9.3	-9.3	-5.6	-7.9	-9.3
Carbon intensity (t of CO ₂ /toe of GIC)	2.27	2.31	2.37	2.15	2.03	1.62	-0.07	-0.15	-0.39	-3.2	-7.0	-19.6
Import Dependency %	64.2	76.5	81.2	76.6	73.6	63.7	-1.8	-3.0	-7.1			
Total Energy-related Costs ^(B) (in 000 M€05)		71.4	82.6	134.3	159.7	192.4	3.4	4.6	11.5	2.6	3.0	6.4
as % of GDP		9.2	9.1	10.8	11.3	11.5	0.3	0.3	0.7			
Total Compliance Costs ^(D) (in 000 M€05)				3.5	4.8	11.8						
as % of GDP				0.28	0.34	0.70						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	96.6	100.0	114.8	97.8	87.2	77.0	-1.9	-3.6	-2.9	-1.9	-4.0	-3.7
Residential (Energy on Private Income, index 2000=100)	103.7	100.0	107.5	86.7	74.5	59.3	-4.5	-5.4	-8.2	-4.9	-6.7	-12.2
Tertiary (Energy on Value added, index 2000=100)	68.6	100.0	106.9	77.0	66.3	54.1	-11.7	-11.6	-13.5	-13.2	-14.9	-19.9
Passenger transport (toe/Mpkm)	40.0	42.4	42.1	38.6	36.0	33.1	-0.8	-1.1	-1.0	-2.0	-3.1	-2.9
Freight transport (toe/Mtkm)	87.8	69.3	61.1	58.1	54.3	48.7	-2.4	-4.1	-5.2	-4.0	-7.0	-9.6
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.42	0.42	0.39	0.30	0.26	0.15	-0.02	-0.05	-0.11	-5.4	-14.8	-44.1
Final energy demand (t of CO ₂ /toe)	2.26	2.21	2.18	2.02	1.88	1.64	-0.02	-0.08	-0.16	-0.9	-4.0	-9.1
Industry	2.10	1.92	1.87	1.72	1.48	1.02	-0.07	-0.18	-0.30	-3.8	-11.1	-22.5
Residential	1.39	1.39	1.34	1.12	0.94	0.59	-0.06	-0.17	-0.45	-5.0	-15.1	-43.7
Tertiary	1.53	1.40	1.40	1.26	1.17	1.01	0.04	0.01	-0.02	3.4	0.8	-1.6
Transport	2.94	2.96	2.96	2.77	2.69	2.63	0.00	0.00	-0.02	0.1	0.1	-0.7
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		8.2	8.2	17.2	24.2	32.8	2.6	6.2	9.7			
Biofuels share in transport gasoline and diesel (%)		0.2	0.8	8.6	11.4	12.3	-0.2	-0.5	-0.6			
Gross Electricity generation by source (in GWh_e)												
	222776	290555	323418	348064	415273	39902	-37279	-4974		-11.0	-9.7	-1.2
Nuclear energy	62195	57529	58096	58096	104812		0	0	8129	0.0	0.0	8.4
Solids	78694	77443	84154	103617	85242	-17591	-20482	-71450		-17.3	-16.5	-45.6
Oil (including refinery gas)	19567	23770	4040	4997	5383	375	1161	2843		10.2	30.3	111.9
Gas (including derived gases)	24741	85513	69896	24392	1058	-23612	-44822	-5597		-25.3	-64.8	-84.1
Biomass-waste	3374	5457	17537	41877	60633	-837	19885	25010		-4.6	90.4	70.2
Hydro (pumping excluded)	29465	19549	27849	28170	29674	1754	1445	0		6.7	5.4	0.0
Wind	4723	21215	60297	79860	105734	3	1367	19671		0.0	1.7	22.9
Solar	18	78	1549	6715	22315	5	3828	15996		0.3	132.6	253.1
Geothermal and other renewables	0	0	0	340	424	0	340	424				
Net Generation Capacity in MW_e												
	60718	80297	101773	118168	152551	-2025	4341	21585		-2.0	3.8	16.5
<u>Nuclear energy</u>	7579	7579	6986	6986	12105	0	0	939		0.0	0.0	8.4
<u>Renewable energy</u>	14974	22714	40536	51617	79982	5	2089	22973		0.0	4.2	40.3
Hydro (pumping excluded)	12725	12725	13820	13822	13822	0	0	0		0.0	0.0	0.0
Wind	2235	9937	25718	33311	51460	1	-538	12337		0.0	-1.6	31.5
Solar	14	52	998	4308	14480	3	2451	10416		0.3	132.0	256.3
Other renewables (tidal etc.)	0	0	0	176	220	0	176	220				
<u>Thermal power</u>	38166	50004	54251	59565	60465	-2030	2252	-2327		-3.6	3.9	-3.7
of which cogeneration units	5017	7578	9703	11047	11349	-299	1687	1348		-3.0	18.0	13.5
Solids fired	11352	11485	10727	14136	15653	-2304	-1525	-6266		-17.7	-9.7	-28.6
Gas fired	19801	32257	34173	32649	30404	-49	-63	-3		-0.1	-0.2	0.0
Oil fired	6518	5375	5630	4339	2893	-44	-44	-894		-0.8	-1.0	-23.6
Biomass-waste fired	495	887	3722	8442	11514	368	3884	4837		11.0	85.2	72.4
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	40.0	39.6	35.0	32.3	29.8	-3.5	-4.9	-5.0				
Efficiency of gross thermal power generation (%)	41.1	46.7	48.0	51.6	59.7	-1.0	1.0	5.7				
% of gross electricity from CHP	7.4	13.5	14.8	18.2	16.8	0.8	4.6	5.0				
Carbon free gross electricity generation (%)	44.8	35.7	51.1	61.8	77.9	5.9	12.9	17.4				
- nuclear	27.9	19.8	18.0	16.7	25.2	2.0	1.6	2.2				
- renewable energy forms	16.9	15.9	33.2	45.1	52.7	3.9	11.3	15.2				
Transport sector												
Passenger transport activity (Gpkm)												
	276.7	461.8	535.3	683.1	739.7	818.4	-8.1	-11.5	-12.7	-1.2	-1.5	-1.5
Public road transport	33.4	50.3	54.6	60.8	64.6	70.1	1.2	1.7	1.9	2.1	2.6	2.7
Private cars and motorcycles	182.0	310.7	369.2	467.7	498.7	532.0	-6.6	-8.7	-11.1	-1.4	-1.7	-2.0
Rail	19.9	25.4	27.2	32.5	36.6	49.7	0.4	0.4	2.2	1.3	1.0	4.5
Aviation	39.5	73.6	82.2	119.8	137.4	164.3	-3.1	-4.8	-5.5	-2.5	-3.4	-3.3
Inland navigation	2.1	1.9	2.1	2.3	2.4	2.4	0.0	0.0	0.0	-0.7	-0.9	-1.2
Freight transport activity (Gtkm)												
	128.0	191.3	276.4	346.0	371.1	392.8	-7.2	-9.7	-11.0	-2.0	-2.6	-2.7
Trucks	83.8	148.7	233.2	292.0	311.2	329.1	-8.3	-11.2	-12.9	-2.8	-3.5	-3.8
Rail	11.2	11.6	11.1	14.5	16.1	17.9	0.6	0.8	1.1	4.3	5.1	6.6
Inland navigation	33.0	31.0	32.0	39.5	43.8	45.9	0.5	0.7	0.7	1.2	1.5	1.6
Energy demand in transport (ktoe)												
	22326	32858	39428	46467	46811	46195	-2108	-3357	-3864	-4.3	-6.7	-7.7
Public road transport	224	275	284	279	281	272	-1	-5	-14	-0.2	-1.7	-4.8
Private cars and motorcycles	7830	14286	16286	18201	18119	19314	-558	-799	-706	-3.0	-4.2	-3.5
Trucks	9634	11587	14854	17677	17530	16843	-1308	-2155	-2750	-6.9	-10.9	-14.0
Rail	528	847	1166	1287	1348	1038	27	59	128	2.1	4.6	14.1
Aviation	2456	4486	5323	7218	7603	6784	-268	-447	-488	-3.6	-5.6	-6.7
Inland navigation	1655	1378	1534	1805	1929	1945	-1	-11	-34	0.0	-0.6	-1.7

Source: PRIMES

Sweden: Cost Efficiency Scenario with high prices					SUMMARY ENERGY BALANCE AND INDICATORS (A)									
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Primary Production	29728	31514	30077	34378	35791	37234	37745	38608	39352	0.1	1.8	0.5	0.4	
Solids	216	321	231	302	299	166	76	72	51	0.7	2.6	-12.8	-3.9	
Oil	3	4	0	0	0	0	0	0	0					
Natural gas	0	0	0	0	0	0	0	0	0					
Nuclear	17764	18040	14781	18670	19475	19476	19710	19523	19004	-1.8	2.8	0.1	-0.4	
Renewable energy sources	11745	13149	15065	15406	16016	17593	17959	19012	20297	2.5	0.6	1.2	1.2	
Hydro	6234	5856	6757	6260	6253	6266	6280	6280	6280	0.8	-0.8	0.0	0.0	
Biomass & Waste	5507	7279	8264	9059	9132	10605	10921	11309	12117	4.1	1.0	1.8	1.0	
Wind	1	9	39	80	599	601	607	1264	1722	54.2	31.3	0.1	11.0	
Solar and others	3	5	5	6	32	121	150	159	178	5.3	19.8	16.6	1.7	
Geothermal	0	0	0	0	0	0	0	0	0			4.2	-1.1	
Net Imports	17923	19281	19172	19867	20368	19179	18133	17358	15916	0.7	0.6	-1.2	-1.3	
Solids	2329	2657	2340	2462	2887	3460	3279	2926	2036	0.0	2.1	1.3	-4.7	
Oil	15169	16014	15654	17198	17411	15839	14809	14382	13994	0.3	1.1	-1.6	-0.6	
- Crude oil and Feedstocks	16989	17815	20372	19825	20195	19190	18498	18183	17892	1.8	-0.1	-0.9	-0.3	
- Oil products	-1820	-1801	-4718	-2626	-2784	-3351	-3690	-3801	-3898					
Natural gas	577	755	776	843	997	1343	1456	1373	1244	3.0	2.5	3.9	-1.6	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Gross Inland Consumption	47166	50446	47849	51555	54122	54326	53743	53768	53013	0.1	1.2	-0.1	-0.1	
Solids	2677	2893	2442	2626	3187	3626	3355	2999	2087	-0.9	2.7	0.5	-4.6	
Oil	14555	15754	14382	14646	15374	13751	12674	12185	11740	-0.1	0.7	-1.9	-0.8	
Natural gas	577	755	776	843	997	1343	1456	1373	1244	3.0	2.5	3.9	-1.6	
Nuclear	17764	18040	14781	18670	19475	19476	19710	19523	19004	-1.8	2.8	0.1	-0.4	
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358					
Renewable energy forms	11745	13149	15065	15406	16016	17593	17959	19012	20297	2.5	0.6	1.2	1.2	
as % in Gross Inland Consumption														
Solids	5.7	5.7	5.1	5.1	5.9	6.7	6.2	5.6	3.9					
Oil	30.9	31.2	30.1	28.4	28.4	25.3	23.6	22.7	22.1					
Natural gas	1.2	1.5	1.6	1.6	1.8	2.5	2.7	2.6	2.3					
Nuclear	37.7	35.8	30.9	36.2	36.0	35.9	36.7	36.3	35.8					
Renewable energy forms	24.9	26.1	31.5	29.9	29.6	32.4	33.4	35.4	38.3					
Gross Electricity Generation in GWh_e	145958	148264	145524	158341	167860	181002	182978	194002	202653	0.0	1.4	0.9	1.0	
Self consumption and grid losses	13436	14222	14818	15557	17047	17888	17708	19553	20519	1.0	1.4	0.4	1.5	
Fuel Inputs to Thermal Power Generation	1491	3245	3239	4465	3885	4150	3744	3603	3009	8.1	1.8	-0.4	-2.2	
Solids	558	705	467	494	543	39	0	2	0	-1.8	1.5	-53.8	-0.7	
Oil (including refinery gas)	253	737	276	316	44	13	22	3	3	0.9	-16.8	-6.5	-18.6	
Gas (including derived gases)	253	406	414	490	4	22	7	17	131	5.0	-37.5	5.7	35.0	
Biomass & Waste	427	1398	2083	3166	3295	4075	3715	3580	2875	17.2	4.7	1.2	-2.5	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	20579	23463	25294	24304	24114	23079	22304	21616	20826	2.1	-0.5	-0.8	-0.7	
Refineries	18041	19475	21618	20537	20173	19180	18494	18181	17892	1.8	-0.7	-0.9	-0.3	
Biofuels and hydrogen production	0	0	0	210	438	694	952	1019	1107			8.1	1.5	
District heating	1123	2373	1973	1722	1586	1360	1174	861	659	5.8	-2.2	-3.0	-5.6	
Derived gases, cokeries etc.	1415	1615	1704	1835	1917	1845	1684	1555	1169	1.9	1.2	-1.3	-3.6	
Energy Branch Consumption	1758	1629	1532	1424	1535	1588	1577	1628	1608	-1.4	0.0	0.3	0.2	
Non-Energy Uses	1769	1772	1771	2344	2517	2535	2488	2494	2501	0.0	3.6	-0.1	0.1	
Final Energy Demand	30514	32602	33302	33145	34355	35196	34867	35131	35860	0.9	0.3	0.1	0.3	
by sector														
Industry	11857	11527	12047	12042	13164	14396	14927	15469	16401	0.2	0.9	1.3	0.9	
- energy intensive industries	8574	8572	9161	9204	9944	10898	11266	11683	12480	0.7	0.8	1.3	1.0	
- other industrial sectors	3283	2955	2886	2838	3220	3498	3661	3786	3922	-1.3	1.1	1.3	0.7	
Residential	6840	8032	7546	7882	7810	7340	6626	6268	6061	1.0	0.3	-1.6	-0.9	
Tertiary	4555	5378	5581	4577	4482	4481	4352	4344	4281	2.1	-2.2	-0.3	-0.2	
Transport	7263	7666	8128	8643	8899	8979	8961	9050	9117	1.1	0.9	0.1	0.2	
by fuel														
Solids	1231	1192	1141	1345	1621	2589	2433	2181	1486	-0.8	3.6	4.1	-4.8	
Oil	12004	12567	12341	11087	11174	9991	9491	9235	9012	0.3	-1.0	-1.6	-0.5	
Gas	587	611	673	746	1510	1581	1564	1406	932	1.4	8.4	0.4	-5.1	
Electricity	10348	10711	11068	11382	11770	12293	12530	13409	14042	0.7	0.6	0.6	1.1	
Heat (from CHP and District Heating)	1706	3540	3550	4174	3737	3272	2820	2136	1911	7.6	0.5	-2.8	-3.8	
Renewable energy forms	4639	3981	4528	4410	4541	5468	6026	6759	8474	-0.2	0.0	2.9	3.5	
Other	0	0	0	0	1	2	3	4	4			14.3	2.2	
RES in Gross Final Energy Consumption ^(A)			14717	14682	14708	16274	16691	17812	19340	0.0	1.3	1.5		
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0		72.3	70.1	70.9	67.8	63.7	60.5	55.4	-0.1	-0.2	-1.1	-1.4	
CO₂ Emissions (energy related)	50.5	54.0	50.5	48.5	50.4	48.5	45.0	42.4	37.6	0.0	0.0	-1.1	-1.8	
Power generation/District heating	6.3	7.9	5.1	5.5	3.6	1.4	0.4	0.1	0.5	-2.0	-3.5	-19.4	2.4	
Energy Branch	1.5	1.8	1.9	2.3	2.2	2.2	2.0	1.9	1.7	2.3	1.2	-1.0	-1.7	
Industry	11.6	12.5	11.0	12.2	15.9	17.0	15.9	14.1	9.5	-0.5	3.7	0.0	-5.0	
Residential	4.8	4.6	3.7	1.4	1.5	1.2	1.0	0.7	0.5	-2.6	-9.0	-3.7	-6.9	
Tertiary	5.6	5.4	5.6	3.1	2.9	2.7	2.5	2.4	2.3	0.0	-6.4	-1.2	-0.9	
Transport	20.7	21.8	23.2	24.0	24.3	23.9	23.1	23.2	23.1	1.1	0.5	-0.5	0.0	
CO₂ Emissions (non energy related)	6.6	7.3	6.4	6.7	6.8	6.6	6.2	6.0	5.9	-0.3	0.6	-1.0	-0.4	
Non-CO₂ GHGs Emissions	15.9		15.3	14.8	13.7	12.7	12.6	12.1	11.9	-0.4	-1.1	-0.9	-0.6	
TOTAL GHGs Emissions Index (1990=100)	100.0		99.0	96.0	97.1	92.8	87.3	82.8	75.9					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)					Sweden: Cost Efficiency Scenario with high prices									
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
	Annual % Change													
Main Energy System Indicators														
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3	
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8	
Gross Int. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	161.1	143.5	127.6	115.9	105.5	-1.9	-1.5	-2.3	-1.9	
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.07	1.06	0.94	0.93	0.89	0.84	0.79	0.71	-0.1	-1.3	-1.1	-1.6	
Import Dependency %	37.5	37.5	39.0	37.2	36.3	34.0	32.5	31.0	28.8					
Total Energy-related Costs ^(B) (in 000 M€05)			24.2	30.8	36.7	42.0	46.8	51.2	55.5		4.2	2.5	1.7	
as % of GDP			9.5	10.7	10.9	11.1	11.1	11.0	11.0					
Energy intensity indicators														
Industry (Energy on Value added, index 2000=100)	177.2	136.0	100.0	82.4	74.8	71.3	65.7	61.7	60.5	-5.6	-2.9	-1.3	-0.8	
Residential (Energy on Private Income, index 2000=100)	106.8	124.4	100.0	96.2	83.8	71.0	58.4	50.6	45.5	-0.7	-1.8	-3.5	-2.5	
Tertiary (Energy on Value added, index 2000=100)	94.9	109.2	100.0	75.3	63.2	56.1	48.9	44.1	39.9	0.5	-4.5	-2.5	-2.0	
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	36.9	35.2	33.5	31.8	30.4	-0.6	-0.9	-1.0	-1.0	
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	42.9	39.4	36.0	34.3	33.2	1.3	-0.3	-1.7	-0.8	
Carbon Intensity indicators														
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.00	-3.1	-4.6			
Final energy demand (t of CO ₂ /toe)	1.40	1.36	1.31	1.23	1.30	1.27	1.22	1.15	0.99	-0.7	-0.1	-0.6	-2.1	
Industry	0.97	1.08	0.91	1.01	1.21	1.18	1.07	0.91	0.58	-0.6	2.8	-1.2	-5.9	
Residential	0.70	0.57	0.49	0.18	0.19	0.17	0.15	0.11	0.08	-3.5	-9.3	-2.1	-6.0	
Tertiary	1.23	1.00	1.00	0.68	0.64	0.60	0.59	0.56	0.54	-2.0	-4.4	-0.9	-0.8	
Transport	2.85	2.85	2.85	2.77	2.74	2.66	2.58	2.56	2.53	0.0	-0.4	-0.6	-0.2	
Indicators for renewables														
Share of RES in Gross Final Energy Consumption ^(C) (%)			42.3	42.4	41.0	44.2	45.8	48.4	51.4					
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.3	7.0	9.9	10.7	11.7					
Gross Electricity generation by source (in GWh)														
			145524	158341	167860	181002	182978	194002	202653		1.4	0.9	1.0	
Nuclear energy			57306	72364	75517	75881	76470	75772	73741		2.8	0.1	-0.4	
Solids			1141	1241	791	527	101	112	17		-3.6	-18.6	-16.4	
Oil (including refinery gas)			1828	1004	263	151	150	20	19		-17.6	-5.5	-18.8	
Gas (including derived gases)			1714	1394	154	135	87	91	727		-21.4	-5.6	23.7	
Biomass-waste			4508	8607	11459	24455	26077	30276	35090		9.8	8.6	3.0	
Hydro (pumping excluded)			78570	72795	72708	72865	73023	73023	73023		-0.8	0.0	0.0	
Wind			457	936	6965	6983	7063	14698	20024		31.3	0.1	11.0	
Solar			0	0	2	5	7	11	14			11.9	6.7	
Geothermal and other renewables			0	0	0	0	0	0	0					
Net Generation Capacity in MW_e			32460	33376	36201	36736	36459	42574	47212		1.1	0.1	2.6	
<u>Nuclear energy</u>			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0	
<u>Renewable energy</u>			15856	16148	18368	18386	18423	21018	23367		1.5	0.0	2.4	
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0	
Wind			231	493	2707	2713	2740	5397	7730		27.9	0.1	10.9	
Solar			0	4	10	22	32	45	61			11.9	6.7	
Other renewables (tidal etc.)			0	0	0	0	0	0	0					
<u>Thermal power</u>			7021	7598	8788	8904	8587	12107	14396		2.3	-0.2	5.3	
of which cogeneration units			3791	4762	3322	4569	4729	4764	5674		-1.3	3.6	1.8	
Solids fired			847	868	675	290	232	214	133		-2.2	-10.1	-5.4	
Gas fired			514	522	583	573	776	3289	5183		1.3	2.9	20.9	
Oil fired			4271	4366	4135	3022	1819	1806	1527		-0.3	-7.9	-1.7	
Biomass-waste fired			1389	1842	3395	5020	5761	6797	7554		9.3	5.4	2.7	
Fuel Cells			0	0	0	0	0	0	0					
Geothermal heat			0	0	0	0	0	0	0					
Avg. Load factor of net power capacity (%)			49.9	52.8	51.5	54.5	55.5	50.3	47.3					
Efficiency of gross thermal power generation (%)			24.4	23.6	28.0	52.4	60.7	72.8	102.5					
% of gross electricity from CHP			5.9	7.5	6.1	12.3	13.0	12.1	14.3					
Carbon free gross electricity generation (%)			96.8	97.7	99.3	99.6	99.8	99.9	99.6					
- nuclear			39.4	45.7	45.0	41.9	41.8	39.1	36.4					
- renewable energy forms			57.4	52.0	54.3	57.6	58.0	60.8	63.2					
Transport sector														
Passenger transport activity (Gpkm)														
	120.6	123.8	134.0	142.2	154.4	164.7	174.1	184.2	193.1	1.1	1.4	1.2	1.0	
Public road transport	8.0	8.5	9.5	9.0	9.2	9.4	9.9	10.3	10.7	1.7	-0.3	0.7	0.8	
Private cars and motorcycles	87.6	88.1	93.3	99.4	107.0	112.4	117.1	123.0	127.9	0.6	1.4	0.9	0.9	
Rail	8.6	8.8	10.2	11.0	12.2	14.0	15.9	17.1	18.5	1.7	1.8	2.7	1.5	
Aviation	8.1	10.8	13.8	15.6	18.8	21.5	23.6	25.9	28.0	5.4	3.1	2.3	1.7	
Inland navigation	8.3	7.7	7.2	7.2	7.2	7.3	7.6	7.8	7.9	-1.3	0.0	0.5	0.4	
Freight transport activity (Gtkm)														
	53.9	58.9	62.0	67.3	74.6	80.8	86.8	92.8	98.0	1.4	1.9	1.5	1.2	
Trucks	26.5	31.6	35.6	38.6	42.3	44.4	46.3	49.4	52.0	3.0	1.7	0.9	1.2	
Rail	19.1	19.4	19.5	21.7	25.1	28.7	32.1	34.7	37.1	0.2	2.6	2.5	1.4	
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.3	8.8	8.9	-1.8	0.6	1.3	0.7	
Energy demand in transport (ktoe)														
	7263	7666	8128	8643	8899	8979	8961	9050	9117	1.1	0.9	0.1	0.2	
Public road transport	230	275	189	156	146	143	141	138	138	-2.0	-2.5	-0.4	-0.2	
Private cars and motorcycles	4004	4099	4086	4472	4440	4433	4402	4323	4237	0.2	0.8	-0.1	-0.4	
Trucks	1872	2066	2471	2695	2864	2823	2753	2821	2883	2.8	1.5	-0.4	0.5	
Rail	252	273	299	332	368	387	398	395	401	1.7	2.1	0.8	0.1	
Aviation	760	849	928	846	938	1045	1116	1219	1305	2.0	0.1	1.8	1.6	
Inland navigation	143	103	154	141	143	147	150	153	153	0.8	-0.8	0.5	0.2	

Source: PRIMES

Sweden: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	29728	30077	34378	37234	37745	39352	244	-850	-960	0.7	-2.2	-2.4
Solids	216	231	302	166	76	51	-140	-194	-113	-45.9	-71.9	-68.7
Oil	3	0	0	0	0	0	0	0	0	-169.6	59.0	-111.0
Natural gas	0	0	0	0	0	0	0	0	0			
Nuclear	17764	14781	18670	19476	19710	19004	0	-548	-1255	0.0	-2.7	-6.2
Renewable energy sources	11745	15065	15406	17593	17959	20297	384	-108	408	2.2	-0.6	2.1
Hydro	6234	6757	6260	6266	6280	6280	14	1	1	0.2	0.0	0.0
Biomass & Waste	5507	8264	9059	10605	10921	12117	222	-231	-619	2.1	-2.1	-4.9
Wind	1	39	80	601	607	1722	65	19	912	12.2	3.2	112.5
Solar and others	3	5	6	121	150	178	83	103	115	223.2	216.5	181.3
Geothermal	0	0	0	0	0	0	0	0	0	37.2	47.2	29.0
Net Imports	17923	19172	19867	19179	18133	15916	-2999	-3074	-4700	-13.5	-14.5	-22.8
Solids	2329	2340	2462	3460	3279	2036	-1349	-1736	-2130	-28.1	-34.6	-51.1
Oil	15169	15654	17198	15839	14809	13994	-1015	-973	-1762	-6.0	-6.2	-11.2
- Crude oil and Feedstocks	16989	20372	19825	19190	18498	17892	-639	-628	-1243	-3.2	-3.3	-6.5
- Oil products	-1820	-4718	-2626	-3351	-3690	-3898	-377	-345	-519	12.7	10.3	15.4
Natural gas	577	776	843	1343	1456	1244	-635	-365	-808	-32.1	-20.1	-39.4
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	47166	47849	51555	54326	53743	53013	-2756	-3925	-5661	-4.8	-6.8	-9.6
Solids	2677	2442	2626	3626	3355	2087	-1489	-1930	-2243	-29.1	-36.5	-51.8
Oil	14555	14382	14646	13751	12674	11740	-1016	-973	-1763	-6.9	-7.1	-13.1
Natural gas	577	776	843	1343	1456	1244	-635	-365	-808	-32.1	-20.1	-39.4
Nuclear	17764	14781	18670	19476	19710	19004	0	-548	-1255	0.0	-2.7	-6.2
Electricity	-152	402	-636	-1463	-1411	-1358	0	0	0	0.0	0.0	0.0
Renewable energy forms	11745	15065	15406	17593	17959	20297	384	-108	408	2.2	-0.6	2.1
as % in Gross Inland Consumption												
Solids	5.7	5.1	5.1	6.7	6.2	3.9	-2.3	-2.9	-3.4			
Oil	30.9	30.1	28.4	25.3	23.6	22.1	-0.6	-0.1	-0.9			
Natural gas	1.2	1.6	1.6	2.5	2.7	2.3	-1.0	-0.4	-1.2			
Nuclear	37.7	30.9	36.2	35.9	36.7	35.8	1.7	1.5	1.3			
Renewable energy forms	24.9	31.5	29.9	32.4	33.4	38.3	2.2	2.1	4.4			
Gross Electricity Generation in GWh_e	145958	145524	158341	181002	182978	202653	-5850	-7991	7458	-3.1	-4.2	3.8
Self consumption and grid losses	13436	14818	15557	17888	17708	20519	-894	-1559	706	-4.8	-8.1	3.6
Fuel Inputs to Thermal Power Generation	1491	3239	4465	4150	3744	3009	-2022	-1549	-2344	-32.8	-29.3	-43.8
Solids	558	467	494	39	0	0	-967	-610	-145	-96.1	-100.0	-99.8
Oil (including refinery gas)	253	276	316	13	22	3	-10	-13	2	-42.7	-36.2	290.1
Gas (including derived gases)	253	414	490	22	7	131	-352	-355	-262	-94.0	-98.2	-66.7
Biomass & Waste	427	2083	3166	4075	3715	2875	-694	-571	-1940	-14.5	-13.3	-40.3
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	20579	25294	24304	23079	22304	20826	-1034	-1404	-2638	-4.3	-5.9	-11.2
Refineries	18041	21618	20537	19180	18494	17892	-639	-628	-1243	-3.2	-3.3	-6.5
Biofuels and hydrogen production	0	0	210	694	952	1107	-53	-117	-228	-7.2	-10.9	-17.1
District heating	1123	1973	1722	1360	1174	659	-353	-561	-795	-20.6	-32.3	-54.7
Derived gases, cokeries etc.	1415	1704	1835	1845	1684	1169	11	-98	-372	0.6	-5.5	-24.1
Energy Branch Consumption	1758	1532	1424	1588	1577	1608	-54	-99	-118	-3.3	-5.9	-6.8
Non-Energy Uses	1769	1771	2344	2535	2488	2501	0	0	0	0.0	0.0	0.0
Final Energy Demand	30514	33302	33145	35196	34867	35860	-1527	-2925	-3376	-4.2	-7.7	-8.6
by sector												
Industry	11857	12047	12042	14396	14927	16401	217	-56	644	1.5	-0.4	4.1
- energy intensive industries	8574	9161	9204	10898	11266	12480	284	76	785	2.7	0.7	6.7
- other industrial sectors	3283	2886	2838	3498	3661	3922	-68	-132	-141	-1.9	-3.5	-3.5
Residential	6840	7546	7882	7340	6626	6061	-842	-1508	-1990	-10.3	-18.5	-24.7
Tertiary	4555	5581	4577	4481	4352	4281	-445	-659	-791	-9.0	-13.1	-15.6
Transport	7263	8128	8643	8979	8961	9117	-457	-702	-1240	-4.8	-7.3	-12.0
by fuel												
Solids	1231	1141	1345	2589	2433	1486	-61	-664	-1334	-2.3	-21.4	-47.3
Oil	12004	12341	11087	9991	9491	9012	-629	-935	-1737	-5.9	-9.0	-16.2
Gas	587	673	746	1581	1564	932	-492	83	-547	-23.7	5.6	-37.0
Electricity	10348	11068	11382	12293	12530	14042	-424	-543	601	-3.3	-4.2	4.5
Heat (from CHP and District Heating)	1706	3550	4174	3272	2820	1911	-697	-1188	-2001	-17.6	-29.6	-51.1
Renewable energy forms	4639	4528	4410	5468	6026	8474	776	323	1642	16.5	5.7	24.0
Other	0	0	0	2	3	4	0	0	0	3.7	-3.1	-8.8
RES in Gross Final Energy Consumption ^(A)		14717	14682	16274	16691	19340	715	-117	839	4.6	-0.7	4.5
TOTAL GHGs Emissions (Mt of CO₂ eq.)	73.0	72.3	70.1	67.8	63.7	55.4	-11.6	-13.3	-18.2	-14.7	-17.3	-24.7
CO₂ Emissions (energy related)	50.5	50.5	48.5	48.5	45.0	37.6	-10.5	-11.4	-15.9	-17.7	-20.2	-29.8
Power generation/District heating	6.3	5.1	5.5	1.4	0.4	0.5	-7.0	-6.3	-3.8	-83.1	-93.8	-87.8
Energy Branch	1.5	1.9	2.3	2.2	2.0	1.7	-0.2	-0.1	-0.3	-9.4	-3.5	-13.2
Industry	11.6	11.0	12.2	17.0	15.9	9.5	-1.3	-2.1	-6.6	-7.1	-11.7	-41.1
Residential	4.8	3.7	1.4	1.2	1.0	0.5	-0.3	-0.5	-1.2	-19.4	-33.0	-71.7
Tertiary	5.6	5.6	3.1	2.7	2.5	2.3	-0.4	-0.5	-0.7	-11.6	-15.1	-22.9
Transport	20.7	23.2	24.0	23.9	23.1	23.1	-1.3	-1.9	-3.4	-5.0	-7.7	-12.7
CO₂ Emissions (non energy related)	6.6	6.4	6.7	6.6	6.2	5.9	-0.2	-0.5	-0.7	-2.4	-6.9	-10.2
Non-CO₂ GHGs Emissions	15.9	15.3	14.8	12.7	12.6	11.9	-1.0	-1.5	-1.5	-7.4	-10.5	-11.5
TOTAL GHGs Emissions Index (1990=100)	100.0	99.0	96.0	92.8	87.3	75.9	-15.9	-18.3	-24.9			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							Sweden: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	8.527	8.861	9.011	9.373	9.575	9.911	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	208.1	256.1	287.7	378.5	421.2	502.5	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	226.6	186.8	179.2	143.5	127.6	105.5	-7.3	-9.3	-11.3	-4.8	-6.8	-9.6
Carbon intensity (t of CO ₂ /toe of GIC)	1.07	1.06	0.94	0.89	0.84	0.71	-0.14	-0.14	-0.20	-13.6	-14.4	-22.3
Import Dependency %	37.5	39.0	37.2	34.0	32.5	28.8	-3.5	-3.0	-5.0			
Total Energy-related Costs ^(B) (in 000 M€05)		24.2	30.8	42.0	46.8	55.5	1.0	1.5	3.1	2.4	3.4	6.0
as % of GDP		9.5	10.7	11.1	11.1	11.0	0.3	0.4	0.6			
Total Compliance Costs ^(D) (in 000 M€05)				1.0	1.6	3.2						
as % of GDP				0.26	0.37	0.63						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	177.2	100.0	82.4	71.3	65.7	60.5	1.1	-0.2	2.4	1.5	-0.4	4.1
Residential (Energy on Private Income, index 2000=100)	106.8	100.0	96.2	71.0	58.4	45.5	-8.1	-13.3	-14.9	-10.3	-18.5	-24.7
Tertiary (Energy on Value added, index 2000=100)	94.9	100.0	75.3	56.1	48.9	39.9	-5.6	-7.4	-7.4	-9.0	-13.1	-15.6
Passenger transport (toe/Mpkm)	42.9	40.2	39.7	35.2	33.5	30.4	-0.7	-1.2	-2.9	-2.0	-3.4	-8.8
Freight transport (toe/Mtkm)	38.8	44.2	44.6	39.4	36.0	33.2	-2.5	-3.9	-4.9	-5.9	-9.9	-13.0
Carbon Intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.04	0.03	0.03	0.01	0.00	0.00	-0.03	-0.03	-0.02	-82.0	-93.2	-86.9
Final energy demand (t of CO ₂ /toe)	1.40	1.31	1.23	1.27	1.22	0.99	-0.03	-0.04	-0.22	-2.6	-3.0	-18.1
Industry	0.97	0.91	1.01	1.18	1.07	0.58	-0.11	-0.14	-0.44	-8.5	-11.4	-43.4
Residential	0.70	0.49	0.18	0.17	0.15	0.08	-0.02	-0.03	-0.13	-10.1	-17.7	-62.3
Tertiary	1.23	1.00	0.68	0.60	0.59	0.54	-0.02	-0.01	-0.05	-2.8	-2.3	-8.7
Transport	2.85	2.85	2.77	2.66	2.58	2.53	-0.01	-0.01	-0.02	-0.2	-0.4	-0.8
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		42.3	42.4	44.2	45.8	51.4	3.7	3.3	6.2			
Biofuels share in transport gasoline and diesel (%)		0.0	2.8	7.0	9.9	11.7	-0.2	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
	145524	158341	181002	182978	202653		-5850	-7991	7458	-3.1	-4.2	3.8
Nuclear energy	57306	72364	75881	76470	73741		0	-2441	-5178	0.0	-3.1	-6.6
Solids	1141	1241	527	101	17		-3256	-2301	-924	-86.1	-95.8	-98.2
Oil (including refinery gas)	1828	1004	151	150	19		-113	-81	15	-42.7	-35.2	411.5
Gas (including derived gases)	1714	1394	135	87	727		-2784	-2222	-1567	-95.4	-96.3	-68.3
Biomass-waste	4508	8607	24455	26077	35090		-615	-1172	4502	-2.5	-4.3	14.7
Hydro (pumping excluded)	78570	72795	72865	73023	73023		160	9	9	0.2	0.0	0.0
Wind	457	936	6983	7063	20024		757	218	10601	12.2	3.2	112.5
Solar	0	0	5	7	14		0	0	0	0.0	0.0	0.0
Geothermal and other renewables	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Net Generation Capacity in MW_e												
	32460	33376	36736	36459	47212		-465	-1525	5318	-1.3	-4.0	12.7
<u>Nuclear energy</u>	9584	9630	9446	9449	9449		0	0	0	0.0	0.0	0.0
<u>Renewable energy</u>	15856	16148	18386	18423	23367		327	121	4185	1.8	0.7	21.8
Hydro (pumping excluded)	15625	15651	15651	15651	15576		0	0	0	0.0	0.0	0.0
Wind	231	493	2713	2740	7730		327	121	4185	13.7	4.6	118.0
Solar	0	4	22	32	61		0	0	0	0.0	0.0	0.0
Other renewables (tidal etc.)	0	0	0	0	0		0	0	0	0.0	0.0	0.0
<u>Thermal power</u>	7021	7598	8904	8587	14396		-793	-1646	1133	-8.2	-16.1	8.5
of which cogeneration units	3791	4762	4569	4729	5674		-616	-1110	-748	-11.9	-19.0	-11.6
Solids fired	847	868	290	232	133		-432	-432	-128	-59.9	-65.1	-49.1
Gas fired	514	522	573	776	5183		-992	-1916	53	-63.4	-71.2	1.0
Oil fired	4271	4366	3022	1819	1527		0	136	-429	0.0	8.1	-21.9
Biomass-waste fired	1389	1842	5020	5761	7554		632	566	1636	14.4	10.9	27.7
Fuel Cells	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Geothermal heat	0	0	0	0	0		0	0	0	0.0	0.0	0.0
Avg. Load factor of net power capacity (%)	49.9	52.8	54.5	55.5	47.3		-1.0	0.0	-4.0			
Efficiency of gross thermal power generation (%)	24.4	23.6	52.4	60.7	102.5		7.7	8.4	48.1			
% of gross electricity from CHP	5.9	7.5	12.3	13.0	14.3		-1.2	-2.5	-1.6			
Carbon free gross electricity generation (%)	96.8	97.7	99.6	99.8	99.6		3.3	2.4	1.3			
- nuclear	39.4	45.7	41.9	41.8	36.4		1.3	0.5	-4.0			
- renewable energy forms	57.4	52.0	57.6	58.0	63.2		2.0	1.9	5.3			
Transport sector												
Passenger transport activity (Gpkm)												
	120.6	134.0	142.2	164.7	174.1	193.1	-2.4	-2.9	-3.7	-1.4	-1.7	-1.9
Public road transport	8.0	9.5	9.0	9.4	9.9	10.7	0.1	0.2	0.2	1.4	1.7	1.9
Private cars and motorcycles	87.6	93.3	99.4	112.4	117.1	127.9	-2.1	-2.8	-3.3	-1.8	-2.4	-2.5
Rail	8.6	10.2	11.0	14.0	15.9	18.5	0.3	0.9	0.9	2.4	5.6	5.1
Aviation	8.1	13.8	15.6	21.5	23.6	28.0	-0.7	-1.0	-1.3	-3.0	-4.2	-4.5
Inland navigation	8.3	7.2	7.2	7.3	7.6	7.9	-0.1	-0.1	-0.1	-1.1	-1.5	-1.7
Freight transport activity (Gtkm)												
	53.9	62.0	67.3	80.8	86.8	98.0	-1.2	-1.3	-1.7	-1.5	-1.5	-1.8
Trucks	26.5	35.6	38.6	44.4	46.3	52.0	-2.0	-2.8	-3.4	-4.3	-5.6	-6.1
Rail	19.1	19.5	21.7	28.7	32.1	37.1	0.8	1.5	1.7	3.0	5.0	4.9
Inland navigation	8.3	6.9	7.0	7.8	8.3	8.9	0.0	-0.1	-0.1	-0.6	-1.0	-1.1
Energy demand in transport (ktoe)												
	7263	8128	8643	8979	8961	9117	-457	-702	-1240	-4.8	-7.3	-12.0
Public road transport	230	189	156	143	141	138	-2	-9	-11	-1.2	-5.9	-7.6
Private cars and motorcycles	4004	4086	4472	4433	4402	4237	-165	-232	-576	-3.6	-5.0	-12.0
Trucks	1872	2471	2695	2823	2753	2883	-248	-393	-540	-8.1	-12.5	-15.8
Rail	252	299	332	387	398	401	-3	0	-8	-0.8	-0.1	-1.9
Aviation	760	928	846	1045	1116	1305	-37	-64	-98	-3.4	-5.4	-7.0
Inland navigation	143	154	141	147	150	153	-2	-4	-6	-1.5	-2.5	-3.8

Source: PRIMES

United Kingdom: Cost Efficiency Scenario with high prices										SUMMARY ENERGY BALANCE AND INDICATORS (A)				
ktoe	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30	
											Annual % Change			
Primary Production	205508	249865	268722	202300	170526	113077	81440	85476	90707	2.7	-4.4	-7.1	1.1	
Solids	54125	30516	18577	12172	10500	8995	8000	5951	6000	-10.1	-5.5	-2.7	-2.8	
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2	
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6	
Nuclear	16574	21249	21942	21054	18742	15918	7517	21806	29517	2.8	-1.6	-8.7	14.7	
Renewable energy sources	1070	1996	2635	4048	8284	13164	16924	19720	22190	9.4	12.1	7.4	2.7	
Hydro	436	416	437	427	469	478	487	504	523	0.0	0.7	0.4	0.7	
Biomass & Waste	627	1539	2104	3340	4920	6263	7829	9249	10577	12.9	8.9	4.8	3.1	
Wind	1	34	81	250	2621	4834	6138	7282	7970	59.3	41.5	8.9	2.6	
Solar and others	5	6	11	30	273	1586	2465	2679	3114	8.1	37.6	24.6	2.4	
Geothermal	1	1	1	1	2	3	5	6	7	0.0	7.9	12.3	3.3	
Net Imports	5932	-36021	-39030	32641	47141	94130	111392	110398	110596			9.0	-0.1	
Solids	9122	10493	14577	27467	24600	19705	21247	14820	14968	4.8	5.4	-1.5	-3.4	
Oil	-10396	-48554	-45515	-2171	12341	36686	49656	53112	56326			14.9	1.3	
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	18336	42686	58601	62622	65934			12.3	1.2	
- Oil products	-5858	-12196	-6490	-7027	-5994	-6000	-8945	-9510	-9608					
Natural gas	6178	637	-9311	5973	8384	34966	35093	36373	32718			15.4	-0.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Gross Inland Consumption	211082	218011	231368	232259	215626	205152	190774	193811	199248	0.9	-0.7	-1.2	0.4	
Solids	64305	45866	36816	38186	35100	28699	29247	20770	20968	-5.4	-0.5	-1.8	-3.3	
Oil	80903	82378	81357	82701	80301	79631	72597	71048	72271	0.1	-0.1	-1.0	0.0	
Natural gas	47203	65119	87399	84898	71384	64966	59093	54373	47718	6.4	-2.0	-1.9	-2.1	
Nuclear	16574	21249	21942	21054	18742	15918	7517	21806	29517	2.8	-1.6	-8.7	14.7	
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7	
Renewable energy forms	1070	1996	2635	4704	9251	15012	21488	25112	28356	9.4	13.4	8.8	2.8	
as % in Gross Inland Consumption														
Solids	30.5	21.0	15.9	16.4	16.3	14.0	15.3	10.7	10.5					
Oil	38.3	37.8	35.2	35.6	37.2	38.8	38.1	36.7	36.3					
Natural gas	22.4	29.9	37.8	36.6	33.1	31.7	31.0	28.1	23.9					
Nuclear	7.9	9.7	9.5	9.1	8.7	7.8	3.9	11.3	14.8					
Renewable energy forms	0.5	0.9	1.1	2.0	4.3	7.3	11.3	13.0	14.2					
Gross Electricity Generation in GWh_e	316937	332435	374308	397522	382889	378648	394620	458719	516817	1.7	0.2	0.3	2.7	
Self consumption and grid losses	44516	46573	48246	50822	46355	43847	47037	57300	65291	0.8	-0.4	0.1	3.3	
Fuel Inputs to Thermal Power Generation	56319	49920	55481	61996	51012	45262	48057	41239	41972	-0.1	-0.8	-0.6	-1.3	
Solids	47267	33844	27232	30920	28022	21883	23174	15685	16452	-5.4	0.3	-1.9	-3.4	
Oil (including refinery gas)	7172	3403	806	815	0	0	0	0	0	-19.6				
Gas (including derived gases)	1668	12054	26033	26807	20374	19788	18806	17122	15246	31.6	-2.4	-0.8	-2.1	
Biomass & Waste	212	620	1410	3455	2616	3591	6076	8432	10274	20.9	6.4	8.8	5.4	
Geothermal heat	0	0	0	0	0	0	0	0	0					
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0					
Fuel Input to other conversion processes	99146	102334	100335	94812	93975	95118	92341	91696	93089	0.1	-0.7	-0.2	0.1	
Refineries	89882	94255	89299	87320	86736	87033	83437	82706	84143	-0.1	-0.3	-0.4	0.1	
Biofuels and hydrogen production	0	0	0	80	1480	2830	4603	5025	5433			12.0	1.7	
District heating	0	0	3354	1976	978	785	474	748	632		-11.6	-7.0	2.9	
Derived gases, cokeries etc.	9263	8079	7682	5436	4781	4470	3828	3217	2880	-1.9	-4.6	-2.2	-2.8	
Energy Branch Consumption	12836	14401	15039	15383	13130	12067	11029	10905	10680	1.6	-1.3	-1.7	-0.3	
Non-Energy Uses	11173	12550	11152	11510	11820	12035	12081	12368	12521	0.0	0.6	0.2	0.4	
Final Energy Demand	136947	142429	151665	151500	146440	142935	135239	134401	135390	1.0	-0.3	-0.8	0.0	
by sector														
Industry	34962	35132	35909	33889	33622	33592	33280	33485	33809	0.3	-0.7	-0.1	0.2	
- energy intensive industries	19483	19965	19215	16289	16308	16243	15597	15395	15285	-0.1	-1.6	-0.4	-0.2	
- other industrial sectors	15479	15167	16694	17600	17314	17349	17683	18090	18524	0.8	0.4	0.2	0.5	
Residential	37939	39567	43072	43284	38622	35940	34752	33847	32501	1.3	-1.1	-1.1	-0.7	
Tertiary	18596	20863	20359	19170	17274	15848	15103	14910	14700	0.9	-1.6	-1.3	-0.3	
Transport	45451	46867	52324	55236	56921	57554	52104	52159	54380	1.4	0.8	-0.9	0.4	
by fuel														
Solids	12266	8891	5683	4422	4833	4774	4282	3270	2873	-7.4	-1.6	-1.2	-3.9	
Oil	58770	60197	62437	65731	64741	63893	56939	55453	56691	0.6	0.4	-1.3	0.0	
Gas	41893	47140	52180	49853	44039	39094	35350	32457	28004	2.2	-1.7	-2.2	-2.3	
Electricity	23597	25274	28325	29686	28965	28918	30036	34407	38347	1.8	0.2	0.4	2.5	
Heat (from CHP and District Heating)	0	0	2439	1317	1067	1297	1547	1783	1900		-7.9	3.8	2.1	
Renewable energy forms	421	926	600	572	2791	4951	7071	7016	7557	3.6	16.6	9.7	0.7	
Other	0	0	0	0	4	7	15	16	18			14.5	1.9	
RES in Gross Final Energy Consumption ^(A)			1537	2483	7600	13512	19535	22785	25700		17.3	9.9	2.8	
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5		692.0	703.8	631.1	576.9	540.0	469.5	444.5	-1.1	-0.9	-1.5	-1.9	
CO₂ Emissions (energy related)	566.9	533.4	546.0	559.7	506.0	463.5	431.3	381.5	370.0	-0.4	-0.8	-1.6	-1.5	
Power generation/District heating	214.2	173.6	181.2	193.8	161.2	135.0	137.0	104.6	103.0	-1.7	-1.2	-1.6	-2.8	
Energy Branch	27.9	31.9	33.1	34.6	28.5	26.6	23.9	22.2	20.9	1.7	-1.5	-1.7	-1.4	
Industry	81.8	78.8	70.5	65.5	63.0	63.0	60.0	56.5	55.0	-1.5	-1.1	-0.5	-0.9	
Residential	77.8	77.3	81.9	79.7	68.7	58.4	51.6	42.3	31.9	0.5	-1.7	-2.8	-4.7	
Tertiary	32.9	35.2	26.7	24.3	20.9	17.9	16.8	15.3	13.6	-2.1	-2.4	-2.2	-2.1	
Transport	132.4	136.5	152.7	161.8	163.6	162.6	141.9	140.7	145.7	1.4	0.7	-1.4	0.3	
CO₂ Emissions (non energy related)	27.5	30.0	23.7	26.8	26.9	26.2	25.4	25.2	25.5	-1.5	1.3	-0.6	0.0	
Non-CO₂ GHGs Emissions	181.1		122.2	117.3	98.1	87.2	83.4	62.8	49.0	-3.9	-2.2	-1.6	-5.2	
TOTAL GHGs Emissions Index (1990=100)	100.0		89.2	90.8	81.4	74.4	69.6	60.5	57.3					

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)	United Kingdom: Cost Efficiency Scenario with high prices												
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
	Annual % Change												
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	106.0	89.7	74.5	68.5	65.0	-1.5	-3.1	-3.5	-1.4
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.45	2.36	2.41	2.35	2.26	2.26	1.97	1.86	-1.3	-0.1	-0.4	-1.9
Import Dependency %	2.8	-16.3	-16.7	13.9	21.7	45.4	57.8	56.4	54.9				
Total Energy-related Costs ^(B) (in 000 M€05)			138.8	133.5	162.2	193.0	222.8	245.3	265.4		1.6	3.2	1.8
as % of GDP			8.7	7.4	8.0	8.4	8.7	8.7	8.7				
Energy intensity indicators													
Industry (Energy on Value added, index 2000=100)	106.1	104.6	100.0	97.3	93.1	85.6	78.4	73.1	69.8	-0.6	-0.7	-1.7	-1.1
Residential (Energy on Private Income, index 2000=100)	114.9	112.1	100.0	87.5	69.1	57.5	49.9	44.2	39.2	-1.4	-3.6	-3.2	-2.4
Tertiary (Energy on Value added, index 2000=100)	125.2	126.7	100.0	79.0	61.2	49.1	41.2	36.5	32.9	-2.2	-4.8	-3.9	-2.2
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.4	41.9	35.4	34.1	35.0	0.3	-0.9	-2.0	-0.1
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	57.6	56.0	53.0	50.7	49.2	-0.5	1.1	-0.8	-0.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.52	0.45	0.47	0.41	0.34	0.33	0.22	0.19	-4.0	-1.0	-2.0	-5.4
Final energy demand (t of CO ₂ /toe)	2.37	2.30	2.19	2.19	2.16	2.11	2.00	1.90	1.82	-0.8	-0.1	-0.8	-0.9
Industry	2.34	2.24	1.96	1.93	1.87	1.88	1.80	1.69	1.63	-1.7	-0.5	-0.4	-1.0
Residential	2.05	1.95	1.90	1.84	1.78	1.63	1.48	1.25	0.98	-0.7	-0.7	-1.8	-4.1
Tertiary	1.77	1.69	1.31	1.27	1.21	1.13	1.11	1.03	0.92	-3.0	-0.8	-0.9	-1.8
Transport	2.91	2.91	2.92	2.93	2.87	2.82	2.72	2.70	2.68	0.0	-0.1	-0.5	-0.2
Indicators for renewables													
Share of RES in Gross Final Energy Consumption ^(C) (%)			1.0	1.6	5.0	9.2	14.0	16.3	18.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.7	5.3	8.9	10.0	10.8				
Gross Electricity generation by source (in GWh)													
			374308	397522	382889	378648	394620	458719	516817		0.2	0.3	2.7
Nuclear energy			85048	81603	72657	61709	29140	94506	132626		-1.6	-8.7	16.4
Solids			118129	134618	123296	96290	116509	91994	96579		0.4	-0.6	-1.9
Oil (including refinery gas)			7147	7622	104	104	1092	1008	933		-34.5	26.5	-1.6
Gas (including derived gases)			153298	152495	139144	140866	140382	139144	136967		-1.0	0.1	-0.2
Biomass-waste			4653	13308	11738	16670	26852	36756	44737		9.7	8.6	5.2
Hydro (pumping excluded)			5085	4960	5448	5562	5659	5855	6076		0.7	0.4	0.7
Wind			947	2907	30477	56214	71371	84669	92670		41.5	8.9	2.6
Solar			1	8	24	50	79	141	236		37.7	12.5	11.6
Geothermal and other renewables			0	0	0	1183	3536	4647	5993				5.4
Net Generation Capacity in MW_e			84356	90824	102236	112809	108802	120908	135219		1.9	0.6	2.2
<u>Nuclear energy</u>			13038	11837	10723	9265	4412	11821	15602		-1.9	-8.5	13.5
<u>Renewable energy</u>			1758	3009	12207	22127	30204	35847	40350		21.4	9.5	2.9
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	10717	19972	26776	31749	35412		38.7	9.6	2.8
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	614	1835	2411	3110				5.4
<u>Thermal power</u>			69560	75978	79306	81417	74187	73240	79268		1.3	-0.7	0.7
of which cogeneration units			6116	8041	7158	9426	11500	13068	15135		1.6	4.9	2.8
Solids fired			30684	30627	28669	23771	14258	12023	11654		-0.7	-6.7	-2.0
Gas fired			27319	33944	38268	41675	40660	42020	47945		3.4	0.6	1.7
Oil fired			10540	9879	9357	9164	7729	3409	1817		-1.2	-1.9	-13.5
Biomass-waste fired			1017	1528	3012	6807	11541	15789	17852		11.5	14.4	4.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)			48.4	47.7	41.1	37.1	39.9	41.5	41.8				
Efficiency of gross thermal power generation (%)			43.9	42.7	46.2	48.2	51.0	56.1	57.2				
% of gross electricity from CHP			9.0	8.5	11.2	15.6	18.3	17.8	17.5				
Carbon free gross electricity generation (%)			25.6	25.9	31.4	37.3	34.6	49.4	54.6				
- nuclear			22.7	20.5	19.0	16.3	7.4	20.6	25.7				
- renewable energy forms			2.9	5.3	12.5	21.0	27.2	28.8	29.0				
Transport sector													
Passenger transport activity (Gpkm)	734.6	778.5	839.2	901.9	968.1	1019.6	1065.5	1117.1	1159.3	1.3	1.4	1.0	0.8
Public road transport	46.2	44.3	47.0	48.8	51.1	52.8	55.2	56.8	58.0	0.2	0.8	0.8	0.5
Private cars and motorcycles	591.1	622.0	644.9	684.7	723.3	752.9	779.9	811.7	838.7	0.9	1.2	0.8	0.7
Rail	39.9	37.1	46.7	51.8	57.5	61.9	67.5	74.6	80.9	1.6	2.1	1.6	1.8
Aviation	49.3	66.8	94.0	110.0	129.8	145.5	156.3	167.3	174.9	6.7	3.3	1.9	1.1
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.5	6.6	6.7	6.8	-2.1	-0.1	0.2	0.2
Freight transport activity (Gtkm)	217.5	227.9	243.7	250.8	257.9	265.5	271.8	277.8	280.5	1.1	0.6	0.5	0.3
Trucks	145.7	161.5	165.6	167.5	170.8	177.0	181.3	185.9	187.7	1.3	0.3	0.6	0.3
Rail	16.0	13.3	18.1	22.1	24.8	26.3	27.8	28.9	29.7	1.2	3.2	1.1	0.7
Inland navigation	55.8	53.1	60.0	61.2	62.2	62.2	62.7	63.0	63.2	0.7	0.4	0.1	0.1
Energy demand in transport (ktoe)	45451	46867	52324	55236	56921	57554	52104	52159	54380	1.4	0.8	-0.9	0.4
Public road transport	514	493	518	490	482	483	487	484	480	0.1	-0.7	0.1	-0.1
Private cars and motorcycles	25438	25836	27031	25783	25697	25678	25382	25086	25486	0.6	-0.5	-0.1	0.0
Trucks	10387	10366	11277	13316	13175	13111	12756	12674	12617	0.8	1.6	-0.3	-0.1
Rail	1063	1233	1464	1532	1562	1377	1206	1021	816	3.2	0.7	-2.6	-3.8
Aviation	6779	7822	11115	12847	14727	15642	11033	11682	13790	5.1	2.9	-2.8	2.3
Inland navigation	1269	1117	920	1269	1278	1263	1240	1213	1191	-3.2	3.3	-0.3	-0.4

Source: PRIMES

United Kingdom: Cost Efficiency Scenario with high prices							SUMMARY ENERGY BALANCE AND INDICATORS (A)					
ktoe	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Primary Production	205508	268722	202300	113077	81440	90707	4125	2990	2526	3.8	3.8	2.9
Solids	54125	18577	12172	8995	8000	6000	-5	0	0	-0.1	0.0	0.0
Oil	92813	128014	86203	45000	25000	18000	0	0	0	0.0	0.0	0.0
Natural gas	40925	97554	78823	30000	24000	15000	0	0	162	0.0	0.0	1.1
Nuclear	16574	21942	21054	15918	7517	29517	0	0	7	0.0	0.0	0.0
Renewable energy sources	1070	2635	4048	13164	16924	22190	4131	2990	2356	45.7	21.5	11.9
Hydro	436	437	427	478	487	523	42	34	0	9.7	7.6	0.0
Biomass & Waste	627	2104	3340	6263	7829	10577	0	0	-375	0.0	0.0	-3.4
Wind	1	81	250	4834	6138	7970	2909	1211	681	151.0	24.6	9.3
Solar and others	5	11	30	1586	2465	3114	1179	1742	2046	289.5	240.8	191.6
Geothermal	1	1	1	3	5	7	1	3	4	57.4	98.3	90.6
Net Imports	5932	-39030	32641	94130	111392	110596	-26764	-26412	-18865	-22.1	-19.2	-14.6
Solids	9122	14577	27467	19705	21247	14968	-16699	-12974	-9771	-45.9	-37.9	-39.5
Oil	-10396	-45515	-2171	36686	49656	56326	-2954	-10080	-6820	-7.5	-16.9	-10.8
- Crude oil and Feedstocks	-4537	-39025	4856	42686	58601	65934	-2473	-6661	-4788	-5.5	-10.2	-6.8
- Oil products	-5858	-6490	-7027	-6000	-8945	-9608	-481	-3418	-2032	8.7	61.9	26.8
Natural gas	6178	-9311	5973	34966	35093	32718	-7502	-5470	-5010	-17.7	-13.5	-13.3
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Gross Inland Consumption	211082	231368	232259	205152	190774	199248	-22639	-23424	-16341	-9.9	-10.9	-7.6
Solids	64305	36816	38186	28699	29247	20968	-16704	-12974	-9771	-36.8	-30.7	-31.8
Oil	80903	81357	82701	79631	72597	72271	-2955	-10081	-6822	-3.6	-12.2	-8.6
Natural gas	47203	87399	84898	64966	59093	47718	-7502	-5470	-4848	-10.4	-8.5	-9.2
Nuclear	16574	21942	21054	15918	7517	29517	0	0	7	0.0	0.0	0.0
Electricity	1027	1219	715	925	832	417	0	0	0	0.0	0.0	0.0
Renewable energy forms	1070	2635	4704	15012	21488	28356	4521	5102	5092	43.1	31.1	21.9
as % in Gross Inland Consumption												
Solids	30.5	15.9	16.4	14.0	15.3	10.5	-5.9	-4.4	-3.7			
Oil	38.3	35.2	35.6	38.8	38.1	36.3	2.6	-0.5	-0.4			
Natural gas	22.4	37.8	36.6	31.7	31.0	23.9	-0.1	0.8	-0.4			
Nuclear	7.9	9.5	9.1	7.8	3.9	14.8	0.8	0.4	1.1			
Renewable energy forms	0.5	1.1	2.0	7.3	11.3	14.2	2.7	3.6	3.4			
Gross Electricity Generation in GWh_e	316937	374308	397522	378648	394620	516817	-48562	-47898	39854	-11.4	-10.8	8.4
Self consumption and grid losses	44516	48246	50822	43847	47037	65291	-6412	-8389	3320	-12.8	-15.1	5.4
Fuel Inputs to Thermal Power Generation	56319	55481	61996	45262	48057	41972	-18901	-11437	2135	-29.5	-19.2	5.4
Solids	47267	27232	30920	21883	23174	16452	-16571	-12524	-9269	-43.1	-35.1	-36.0
Oil (including refinery gas)	7172	806	815	0	0	0	0	-80	0		-100.0	
Gas (including derived gases)	1668	26033	26807	19788	18806	15246	-2633	-1199	7905	-11.7	-6.0	107.7
Biomass & Waste	212	1410	3455	3591	6076	10274	303	2365	3499	9.2	63.7	51.6
Geothermal heat	0	0	0	0	0	0	0	0	0			
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0			
Fuel Input to other conversion processes	99146	100335	94812	95118	92341	93089	-2592	-7624	-6017	-2.7	-7.6	-6.1
Refineries	89882	89299	87320	87033	83437	84143	-2473	-6661	-4788	-2.8	-7.4	-5.4
Biofuels and hydrogen production	0	0	80	2830	4603	5433	-188	-488	-1031	-6.2	-9.6	-15.9
District heating	0	3354	1976	785	474	632	-99	-380	-89	-11.2	-44.5	-12.3
Derived gases, cokeries etc.	9263	7682	5436	4470	3828	2880	168	-95	-109	3.9	-2.4	-3.7
Energy Branch Consumption	12836	15039	15383	12067	11029	10680	-1012	-1379	-1003	-7.7	-11.1	-8.6
Non-Energy Uses	11173	11152	11510	12035	12081	12521	-5	-13	3	0.0	-0.1	0.0
Final Energy Demand	136947	151665	151580	142935	135239	135390	-9288	-15034	-14856	-6.1	-10.0	-9.9
by sector												
Industry	34962	35909	33889	33592	33280	33809	-1081	-1498	-1326	-3.1	-4.3	-3.8
- energy intensive industries	19483	19215	16289	16243	15597	15285	-304	-740	-478	-1.8	-4.5	-3.0
- other industrial sectors	15479	16694	17600	17349	17683	18524	-777	-758	-849	-4.3	-4.1	-4.4
Residential	37939	43072	43284	35940	34752	32501	-3441	-2414	-4544	-8.7	-6.5	-12.3
Tertiary	18596	20359	19170	15848	15103	14700	-2251	-2909	-3427	-12.4	-16.1	-18.9
Transport	45451	52324	55236	57554	52104	54380	-2515	-8213	-5559	-4.2	-13.6	-9.3
by fuel												
Solids	12266	5683	4422	4774	4282	2873	118	-155	-515	2.5	-3.5	-15.2
Oil	58770	62437	65731	63893	56939	56691	-2899	-9836	-6590	-4.3	-14.7	-10.4
Gas	41893	52180	49853	39094	35350	28004	-4303	-3434	-12115	-9.9	-8.9	-30.2
Electricity	23597	28325	29686	28918	30036	38347	-3609	-3345	3190	-11.1	-10.0	9.1
Heat (from CHP and District Heating)	0	2439	1317	1297	1547	1900	143	235	155	12.4	17.9	8.9
Renewable energy forms	421	600	572	4951	7071	7557	1262	1502	1020	34.2	27.0	15.6
Other	0	0	0	7	15	18	0	0	-1	1.1	-2.1	-7.7
RES in Gross Final Energy Consumption ^(A)		1537	2483	13512	19535	25700	5275	5442	4831	64.0	38.6	23.2
TOTAL GHGs Emissions (Mt of CO₂ eq.)	775.5	692.0	703.8	576.9	540.0	444.5	-102.5	-108.9	-83.0	-15.1	-16.8	-15.7
CO₂ Emissions (energy related)	566.9	546.0	559.7	463.5	431.3	370.0	-92.1	-94.3	-70.2	-16.6	-17.9	-15.9
Power generation/District heating	214.2	181.2	193.8	135.0	137.0	103.0	-72.1	-53.6	-18.0	-34.8	-28.1	-14.9
Energy Branch	27.9	33.1	34.6	26.6	23.9	20.9	-1.8	-2.3	-2.1	-6.4	-8.9	-9.1
Industry	81.8	70.5	65.5	63.0	60.0	55.0	-0.2	-3.3	-4.1	-0.3	-5.2	-7.0
Residential	77.8	81.9	79.7	58.4	51.6	31.9	-8.7	-8.7	-26.0	-13.0	-14.5	-44.9
Tertiary	32.9	26.7	24.3	17.9	16.8	13.6	-2.3	-2.9	-5.2	-11.5	-14.7	-27.8
Transport	132.4	152.7	161.8	162.6	141.9	145.7	-6.9	-23.4	-14.8	-4.1	-14.2	-9.2
CO₂ Emissions (non energy related)	27.5	23.7	26.8	26.2	25.4	25.5	-0.7	-1.3	-1.5	-2.7	-4.8	-5.5
Non-CO₂ GHGs Emissions	181.1	122.2	117.3	87.2	83.4	49.0	-9.7	-13.3	-11.3	-10.0	-13.7	-18.8
TOTAL GHGs Emissions Index (1990=100)	100.0	89.2	90.8	74.4	69.6	57.3	-13.2	-14.0	-10.7			

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)							United Kingdom: Cost Efficiency Scenario with high prices					
	1990	2000	2005	2015	2020	2030	2015	2020	2030	2015	2020	2030
							Difference from Baseline			% Change from Baseline		
Main Energy System Indicators												
Population (Million)	57.157	58.785	60.060	61.934	62.930	64.388	0.000	0.000	0.000	0.0	0.0	0.0
GDP (in 000 M€05)	1249.5	1587.4	1792.0	2288.1	2560.2	3065.4	0.0	0.0	0.0	0.0	0.0	0.0
Gross Int. Cons./GDP (toe/M€05)	168.9	145.8	129.6	89.7	74.5	65.0	-9.9	-9.1	-5.3	-9.9	-10.9	-7.6
Carbon intensity (t of CO ₂ /toe of GIC)	2.69	2.36	2.41	2.26	2.26	1.86	-0.18	-0.19	-0.18	-7.4	-7.9	-9.1
Import Dependency %	2.8	-16.7	13.9	45.4	57.8	54.9	-7.2	-6.0	-4.5			
Total Energy-related Costs ^(B) (in 000 M€05)		138.8	133.5	193.0	222.8	265.4	7.4	8.0	10.9	4.0	3.7	4.3
as % of GDP		8.7	7.4	8.4	8.7	8.7	0.3	0.3	0.4			
Total Compliance Costs ^(D) (in 000 M€05)				7.6	8.3	11.2						
as % of GDP				0.33	0.32	0.36						
Energy intensity indicators												
Industry (Energy on Value added, index 2000=100)	106.1	100.0	97.3	85.6	78.4	69.8	-2.8	-3.5	-2.7	-3.1	-4.3	-3.8
Residential (Energy on Private Income, index 2000=100)	114.9	100.0	87.5	57.5	49.9	39.2	-5.5	-3.5	-5.5	-8.7	-6.5	-12.3
Tertiary (Energy on Value added, index 2000=100)	125.2	100.0	79.0	49.1	41.2	32.9	-7.0	-7.9	-7.7	-12.4	-16.1	-18.9
Passenger transport (toe/Mpkm)	45.8	47.4	44.6	41.9	35.4	35.0	-1.0	-5.6	-2.3	-2.2	-13.6	-6.2
Freight transport (toe/Mtkm)	54.4	51.5	59.8	56.0	53.0	49.2	-2.4	-4.3	-6.1	-4.1	-7.5	-11.0
Carbon intensity indicators												
Electricity and Steam production (t of CO ₂ /MWh)	0.68	0.45	0.47	0.34	0.33	0.19	-0.13	-0.08	-0.05	-27.1	-20.3	-21.4
Final energy demand (t of CO ₂ /toe)	2.37	2.19	2.19	2.11	2.00	1.82	0.01	-0.06	-0.15	0.4	-2.7	-7.8
Industry	2.34	1.96	1.93	1.88	1.80	1.63	0.05	-0.02	-0.06	2.9	-1.0	-3.3
Residential	2.05	1.90	1.84	1.63	1.48	0.98	-0.08	-0.14	-0.58	-4.7	-8.5	-37.2
Tertiary	1.77	1.31	1.27	1.13	1.11	0.92	0.01	0.02	-0.11	1.1	1.7	-10.9
Transport	2.91	2.92	2.93	2.82	2.72	2.68	0.00	-0.02	0.00	0.1	-0.6	0.0
Indicators for renewables												
Share of RES in Gross Final Energy Consumption ^(C) (%)		1.0	1.6	9.2	14.0	18.2	3.9	4.9	4.8			
Biofuels share in transport gasoline and diesel (%)		0.0	0.2	5.3	8.9	10.8	-0.1	-0.3	-0.4			
Gross Electricity generation by source (in GWh_e)												
Nuclear energy	85048	81603	61709	29140	132626	0	0	0	0	0.0	0.0	0.0
Solids	118129	134618	96290	116509	96579	-72924	-72753	-53390	-43.1	-38.4	-35.6	
Oil (including refinery gas)	7147	7622	104	1092	933	0	791	889	0.0	263.1	2057.3	
Gas (including derived gases)	153298	152495	140866	140382	136967	-12610	-1241	63240	-8.2	-0.9	85.8	
Biomass-waste	4653	13308	16670	26852	44737	1476	8789	19243	9.7	48.7	75.5	
Hydro (pumping excluded)	5085	4960	5562	5659	6076	493	401	0	9.7	7.6	0.0	
Wind	947	2907	56214	71371	92670	33820	14084	7921	151.0	24.6	9.3	
Solar	1	8	50	79	236	0	0	0	0.0	0.0	0.0	
Geothermal and other renewables	0	0	1183	3536	5993	1183	2032	1950		135.1	48.2	
Net Generation Capacity in MW_e	84356	90824	112809	108802	135219	15772	3066	13323	16.3	2.9	10.9	
<u>Nuclear energy</u>	13038	11837	9265	4412	15602	0	0	0	0.0	0.0	0.0	
<u>Renewable energy</u>	1758	3009	22127	30204	40350	12363	6216	3959	126.6	25.9	10.9	
Hydro (pumping excluded)	1350	1437	1475	1489	1514	0	0	0	0.0	0.0	0.0	
Wind	406	1562	19972	26776	35412	11826	5161	2947	145.2	23.9	9.1	
Solar	2	11	66	105	313	0	0	0	0.0	0.0	0.0	
Other renewables (tidal etc.)	0	0	614	1835	3110	537	1054	1012	697.4	135.1	48.2	
<u>Thermal power</u>	69560	75978	81417	74187	79268	3409	-3150	9364	4.4	-4.1	13.4	
of which cogeneration units	6116	8041	9426	11500	15135	1248	2021	2223	15.3	21.3	17.2	
Solids fired	30684	30627	23771	14258	11654	-3	-8410	-7330	0.0	-37.1	-38.6	
Gas fired	27319	33944	41675	40660	47945	-131	-1068	9478	-0.3	-2.6	24.6	
Oil fired	10540	9879	9164	7729	1817	0	-53	-2302	0.0	-0.7	-55.9	
Biomass-waste fired	1017	1528	6807	11541	17852	3542	6381	9518	108.5	123.7	114.2	
Fuel Cells	0	0	0	0	0	0	0	0				
Geothermal heat	0	0	0	0	0	0	0	0				
Avg. Load factor of net power capacity (%)	48.4	47.7	37.1	39.9	41.8	-11.4	-5.8	-0.8				
Efficiency of gross thermal power generation (%)	43.9	42.7	48.2	51.0	57.2	2.9	0.5	3.4				
% of gross electricity from CHP	9.0	8.5	15.6	18.3	17.5	3.5	5.3	4.0				
Carbon free gross electricity generation (%)	25.6	25.9	37.3	34.6	54.6	12.9	9.5	1.5				
- nuclear	22.7	20.5	16.3	7.4	25.7	1.9	0.8	-2.1				
- renewable energy forms	2.9	5.3	21.0	27.2	29.0	11.0	8.7	3.7				
Transport sector												
Passenger transport activity (Gpkm)	734.6	839.2	901.9	1019.6	1065.5	1159.3	-13.0	-16.9	-18.2	-1.3	-1.6	-1.5
Public road transport	46.2	47.0	48.8	52.8	55.2	58.0	1.1	1.4	1.5	2.1	2.6	2.7
Private cars and motorcycles	591.1	644.9	684.7	752.9	779.9	838.7	-10.4	-13.6	-17.2	-1.4	-1.7	-2.0
Rail	39.9	46.7	51.8	61.9	67.5	80.9	0.1	0.9	3.8	0.2	1.3	5.0
Aviation	49.3	94.0	110.0	145.5	156.3	174.9	-3.7	-5.5	-6.3	-2.5	-3.4	-3.5
Inland navigation	8.1	6.6	6.5	6.5	6.6	6.8	0.0	-0.1	-0.1	-0.7	-0.9	-1.2
Freight transport activity (Gtkm)	217.5	243.7	250.8	265.5	271.8	280.5	-5.9	-7.6	-8.6	-2.2	-2.7	-3.0
Trucks	145.7	165.6	167.5	177.0	181.3	187.7	-6.7	-8.6	-9.9	-3.6	-4.6	-5.0
Rail	16.0	18.1	22.1	26.3	27.8	29.7	0.7	0.9	1.3	2.6	3.4	4.7
Inland navigation	55.8	60.0	61.2	62.2	62.7	63.2	0.1	0.1	0.0	0.1	0.1	0.1
Energy demand in transport (ktoe)	45451	52324	55236	57554	52104	54380	-2515	-8213	-5559	-4.2	-13.6	-9.3
Public road transport	514	518	490	483	487	480	-1	-8	-18	-0.2	-1.6	-3.7
Private cars and motorcycles	25438	27031	25783	25678	25382	25486	-819	-1146	-3374	-3.1	-4.3	-11.7
Trucks	10387	11277	13316	13111	12756	12617	-1013	-1594	-2142	-7.2	-11.1	-14.5
Rail	1063	1464	1532	1377	1206	816	-24	-54	-33	-1.7	-4.3	-3.9
Aviation	6779	11115	12847	15642	11033	13790	-645	-5388	45	-4.0	-32.8	0.3
Inland navigation	1269	920	1269	1263	1240	1191	-12	-22	-37	-1.0	-1.7	-3.0

Source: PRIMES

(A) including the part of electricity and heat generated by renewables

(B) excluding payments for auctioned emission allowances (if applicable)

(C) Recently, Eurostat introduced a new indicator termed "share of renewables in Gross Final Energy Consumption", which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

(D) Total Compliance Costs do not include eventual costs associated with JI/CDM nor payments or revenues from possible exchanges of Guarantees of Origin

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption

CHP: combined heat and power

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)

ktoe: 1000 toe

MW: Megawatt or 10^6 watt

MWh: megawatt-hour or 10^6 watt-hours

GWh: gigawatt-hour or 10^9 watt-hours

t: metric tonnes, or 1000 kilogrammes

Mt: Million metric tonnes

km: kilometre

pkm: passenger-kilometre (one passenger transported a distance of one kilometre)

tkm: tonne-kilometre (one tonne transported a distance of one kilometre)

Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre

Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre