



Energy Convention

19th of November

G.Boxhoorn  
The Silicon Mine BV



# Why Solar Energy?

- 40% of mankind do not have energy
- Increasing energy demand
- Climate change

The sun delivers 10.000x our energy needs

Of all energy options solar energy has the highest potential

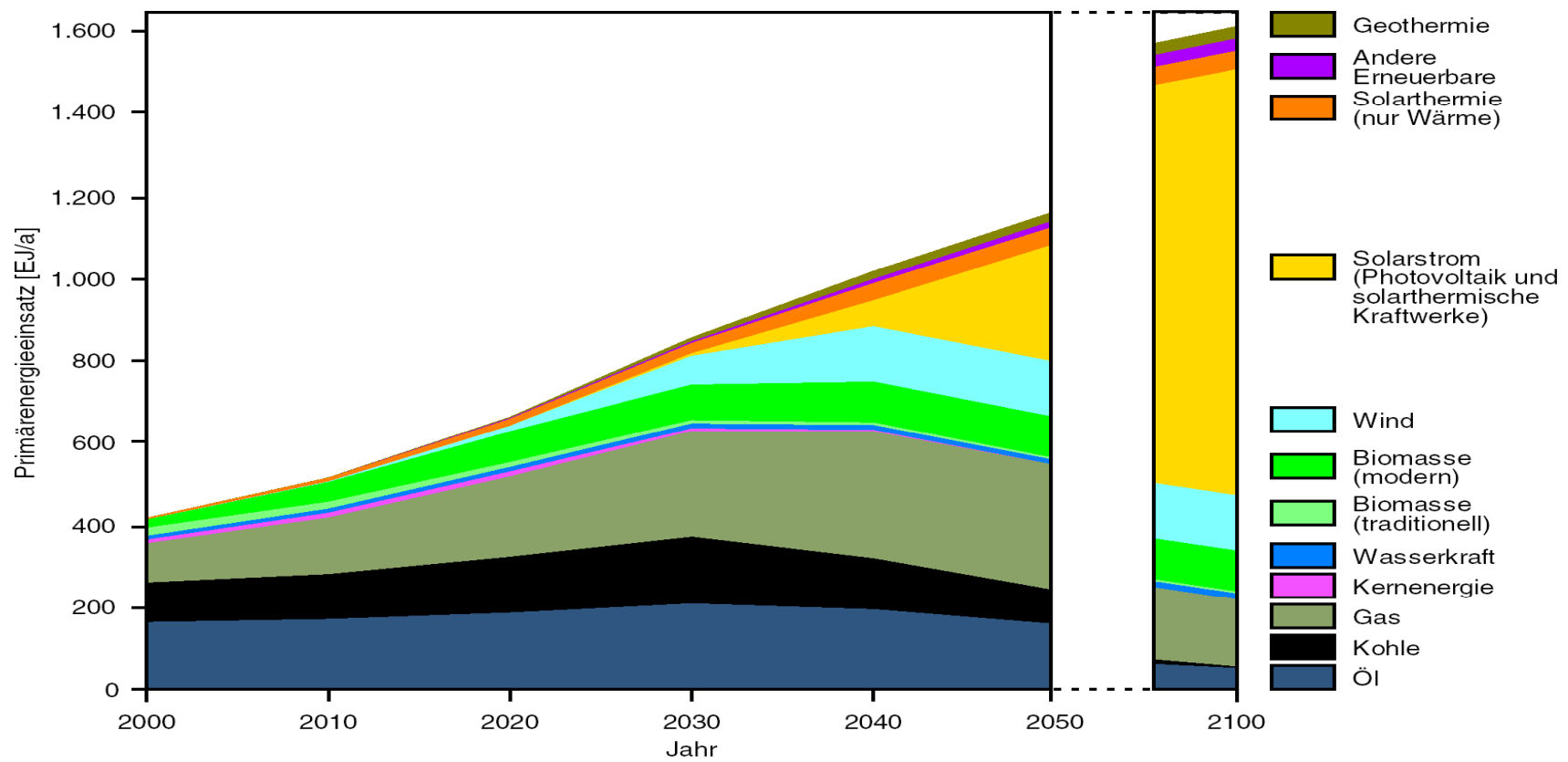
# Abundant solar energy supply



The sun delivers 10,000 times more energy than what is consumed worldwide p.a.

Source: BMWi 2000

# Scenario's



**Abbildung 4.4-3**  
 Energieeinsatz nach Energieträgern für den exemplarischen Transformationspfad. Dieser Pfad demonstriert, dass der nachhaltige Umbau der globalen Energiesysteme technologisch möglich ist. Ein anderer Technologiemit bei den erneuerbaren Energien könnte dies ebenfalls leisten.  
 Quelle: WBGU



# International Energy Agency

- Higher CO2 emissions
- Global warming
- Limited availability of oil



# International Energy Agency

- World energy crisis before 2015
- Europe imports 50%
- The Netherlands imports 70%

All countries need to reduce their imports drastically



# Advantages Solar

- Reliable
- No emissions
- No maintenance
- Small and big installations
- 25 years product guaranty
- Social and geographic acceptance
- Free for all



# Costs of solar energy

- Price is still high, but
  - Price drops with 20% by doubling the market
  - Solar energy within 10 yrs cheaper than the consumer electricity pricing
  - In Spain grid parity within 3-4 yrs





# Market

- Market is booming
- Value of the market will be bigger than the market for consumer electronics
- Now: 20 mlrd EUR/a;  
2020: 200 mlrd EUR/a



# Applications

- Grid connect
- Industrial (oil & gas; telecommunication)
- Rural Electrification
- Consumer products



# Consumer products



# Solar power plant



# Solar architecture





# Technology

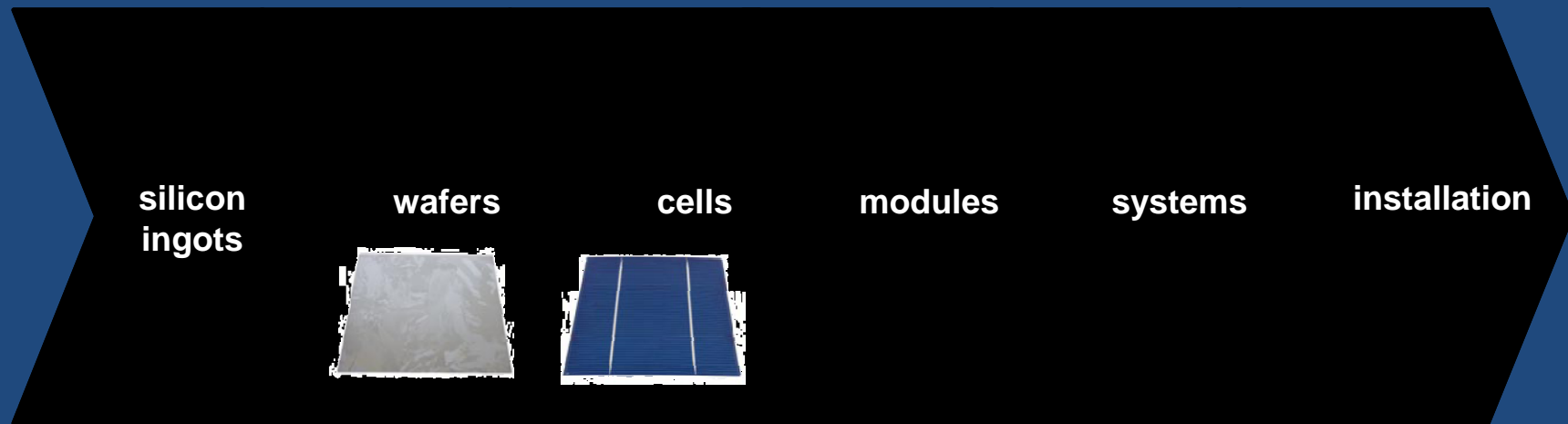
- Silicon based (90%)
- Thin Film

Different in quality (efficiency and durability)

Different product markets possible



# Value Chain





# The Netherlands

Know how on:

- solar equipment
- processes
- applications
- the value chain

Limited solar market





# Limburg

Solar Energy cluster:

Scheuten Solar

Solland Solar

Solar Academy

The Silicon Mine

Within 2-3 yrs 3000 jobs



- Limburg well located

Triangle Leuven-Eindhoven-Aachen

- Availability of labour forces



# Solland

- Solar cells production only
- Capacity 170 MWp; expansion to 320 MWp
- 400 employees; 200 more in 2009

Fastest growing company of  
The Netherlands



# The Silicon Mine

- Silicon production
- DSM, Essent, Liof shareholders
- Startup 2010
- 5000 MT/a



# Next steps The Netherlands

- Solar Energy investment fund
- More startups
- Re-adjust subsidy structures
- (Internal market)



THANK YOU