

Biogas production in Poland – drivers and barriers

Magdalena Rogulska
Grzegorz Kunikowski

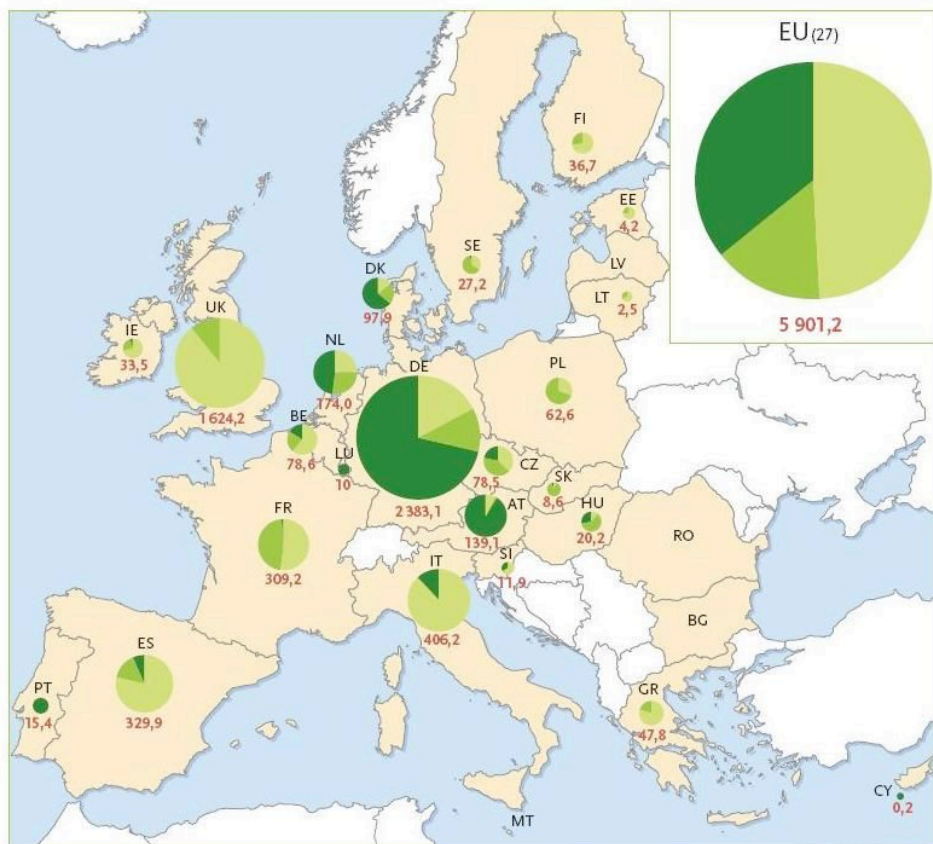
European Conference on Biomethane Fuel
Göteborg, 8 September, 2009

Contents

- Production of biogas in Poland
- Biogas potential in PL
- National legislation
- Barriers and challenges
- Example of projects

Biogas production in PL

PRIMARY ENERGY PRODUCTION OF BIOGAS IN EUROPE IN 2007*



Primary energy production of biogas of the European Union in 2007 (in ktoe)

- Landfill gas
- Sewage sludge gas
- Other biogases (decentralised agricultural plant, etc.)

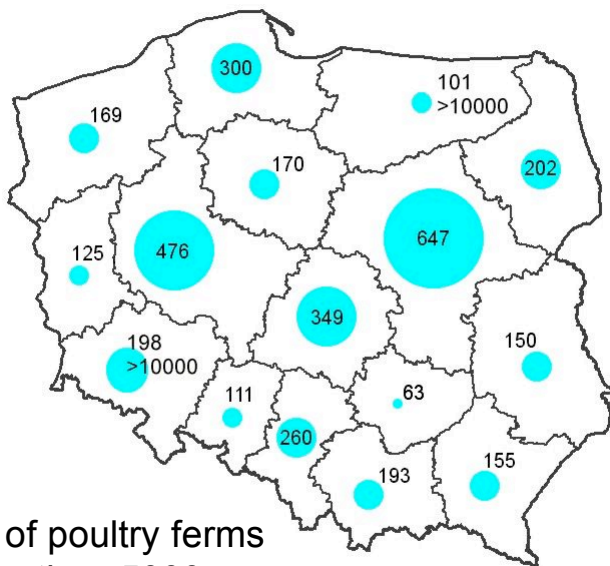
5 901,2 Red figures show total production in ktoe

Primary energy production in ktoe,
source: Biogas Barometer 2008

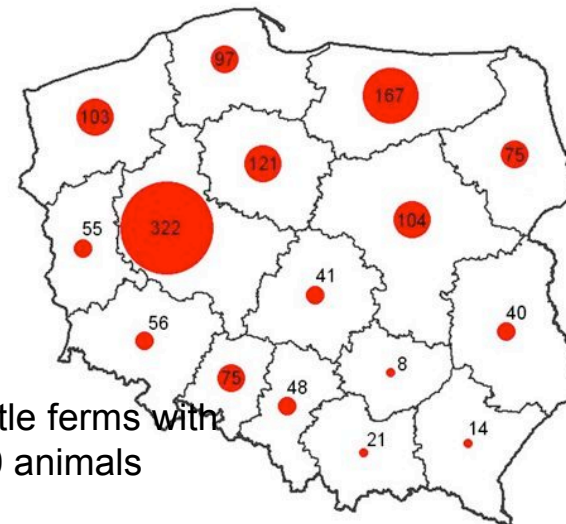
	2006	2007
Landfill gas	18,9	19,1
Sewage sludge gas	43,1	43,0
others	0,5	0,5
TOTAL	62,4	62,6

Technical potential

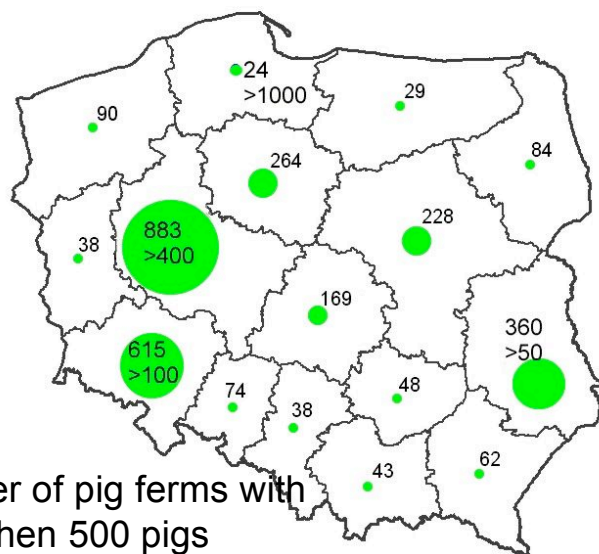
Source: ECBREC/IBMER
2003



Number of poultry farms with more than 5000 pcs

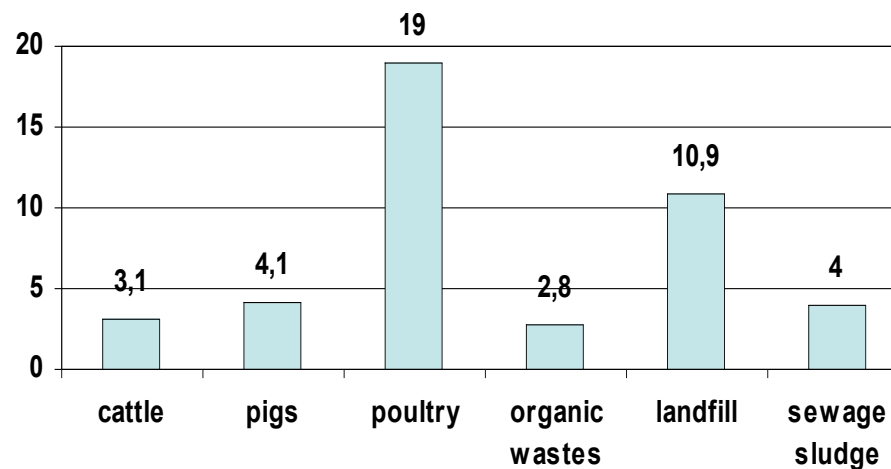


Number of cattle farms with more than 100 animals



Number of pig farms with more than 500 pigs

Technical biogas potential, PJ



Biogas production in PL

- There are working ca. 150 biogas installations
- According to URE (Energy Regulatory Office) 87 installations are producing electricity (CHP), others are producing only heat

In 2006 (source *www.ieo.pl*)

- 78 on landfill gas
- 73 on sewage treatment gas
- 1 agricultural biogas plant

In 2009 there are working 5 big agricultural biogas plants, and ca. 10 small ones at private farms.

The interest in agricultural biogas is rapidly growing. There is a number of biogas projects under development

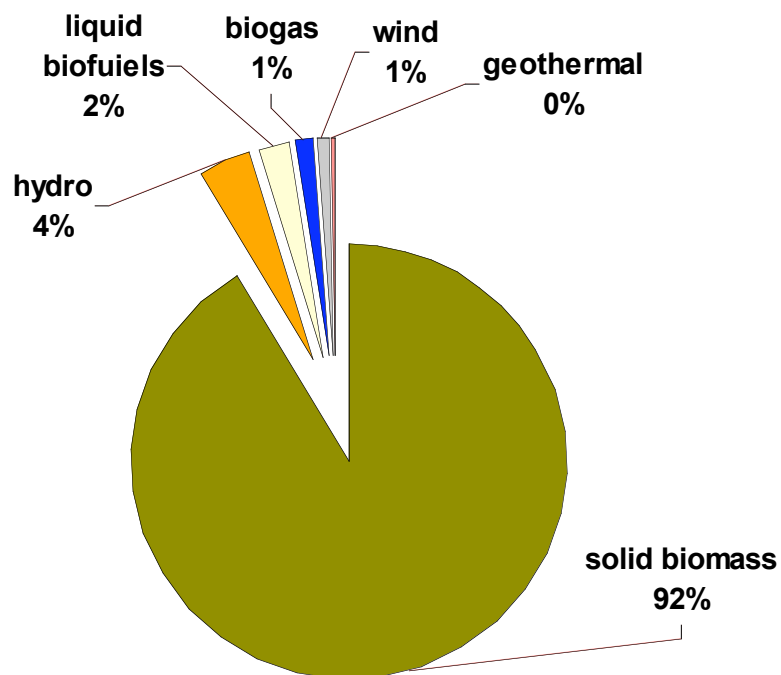
Renewable electricity – installed capacity [MW]

	2005	2006	2007	2008
Biomass	189,8	238,8	255,4	232,0
Biogas	32,0	36,8	45,7	54,6
Hydro	852,5	934,0	934,8	940,6
Wind	83,3	152,6	287,9	451,1
Σ	1 157,5	1 362,1	1 523,8	1 678,3

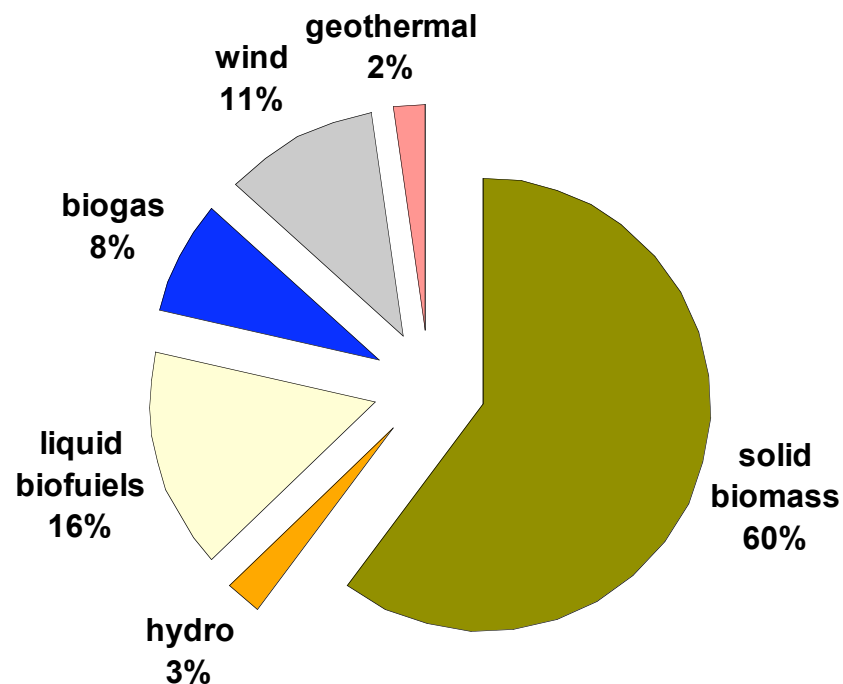
Source: Energy Regulatory Office

RES target for 2020: 15%

Structure of RES production in 2007



Structure of RES production in 2020 – projection from *Energy Policy up to 2030*



208,7 PJ in 2007



442,8 PJ in 2020

Policy documents

Energy Policy up to 2030 → whole energy sector

Ministry of Economy ordinance from 14.08.2008

→ renewable electricity and heat

Long-term programme for promotion of biofuels for 2008-2014

→ transportation biofuels

Programme „Innovative energy. Energy Agriculture”

→ biogas in agriculture

Support measures

Electricity :

- Quota obligation and green certificates
- Purchase obligation for electricity generated from RES

Heat:

- Purchase obligation for heat from RES

Transportation biofuels:

- National indicative targets - imposed on producers and importers of fuels
- Designated fleets
- Possibility of producing liquid biofuels by farmers for own use
- Excise tax relief for biofuels

Energy policy up to 2030 targets for renewable energy

- 15% of RES in final energy consumption in 2020 and 20% in 2030
15% is in line with the RES Directive
- 10% of renewable energy in transportation fuels in 2020,
implementation of 2nd generation biofuels
- Sustainable biomass production from agriculture and forestry (not in
conflict with food production and protection of forest resources from
intensive exploitation for energy)

Energy policy up to 2030: supporting renewable energy

- Maintenance of RE certificates of origin (green certificates)
- Maintenance the tax relief for energy generated from RES
- Implementation of support for RE heating and cooling
- **Implementation of programme for agricultural biogas production**
 - **on average one biogas plant in each municipality till 2020**
- Financial support for new RE plants and electricity network development – EU funds (Cohesion Fund) and environmental protection fund
- Stimulating the development of Polish industry of renewable energy equipment - EU funds (Cohesion Fund)

Challenges

- Development of sustainable biomass production on agriculture land not in competition with food
- Supporting green heat and cooling
- Wider implementation of waste to energy projects
- Strategy from 1st to 2nd generation biofuels
- Adjustment of vehicles to new kinds of fuels, further development of biofuels standardisation
- Promotion of new environmental-friendly lifestyle of the society

Barriers

➤ **Technical**

Lack of Polish companies producing equipment for biogas plants

➤ **Legal**

Lack of clear definitions, standards, environmental regulations etc.

➤ **Administrative**

Too long procedures for getting all permissions, not clear classification of activities (PKD) for farmers, difficulties with getting connections to grid etc.

➤ **Economic**

High investment costs, difficult and not clear procedures of getting financial support, difficulties with getting support for smaller investments, long term contracts for supply of raw materials not always interested for farmers etc.



Biogas Accepted

Biogas Accepted

“Promoting Biogas in European Regions – Transfer of a Supporting Acceptance Tool for Stationary and Mobile Applications”



Biogas in dialogue support acceptance

Independence from imported oil and conserving of limited resources are issues of ever greater importance to a growing number of people. Biogas from local renewable sources offers enormous opportunities for achieving these goals. Conflicts of interest can arise in implementation, however, because people directly affected by biogas projects are eager to discuss and have their voice heard in the development, since they are often unaware of the pros and cons or the context of this major energy issue.

Many project operators are quite simply over-taxed when faced with this situation. BiogasAccepted links the use of biogas into a process that promotes dialogue and creates understanding. The European project BiogasAccepted supports regional operators and initiatives in order to increase acceptance of their biogas projects.

Expected results

- Questionnaire tool, online, with manuals, addressing neighbours of a (prospected) biogas plant – a transferable tool
- Identification of project weaknesses, strengths and acceptance
- Application of the tool in 24 cases, giving support to regional biogas promoters
- Local events: Spreading information, achieving and increasing acceptance at the end-user
- Half-day seminars: Informing counsellors

Do you want to increase the acceptance level for your biogas project?
We will be glad to advise you how.

<p>Udo Jürgens E. Sauerle u.sauerle@studia.at Bettina L. Schneider b.schneider@studia.at STUDIA Schlierbach Pfandkammerweg 1, 4050 Schlierbach AUSTRIA Tel: +43 (0)7582 / 819 51-90 Fax: +43 (0)7582 / 819 51-94</p>		<p>Magdalena Rogulka m.rogulka@ec-brec.eu Olegoryn Kunkowicz o.kunkowicz@ec-brec.eu Anna Wójcik a.wojcik@ec-brec.eu IPIEO U. Jędrzejowska 55, Warsaw, Poland Tel: +48 22 271 210 233 www.ipio.pl</p>	
--	--	---	--

www.biogasaccepted.eu

BIO GAS ACCEPTED

www.biogasaccepted.eu



Parntes

- **STUDIA** – Schlierbach Studienzentrum für internationale Analysen, **Austria**
- **PROFACTOR** GmbH, **Austria**
- **Magyar Biogáz Egyesület**, **Węgry**
- **Fondazione Nord Est Venezia**, **Włochy**
- **Instytut Paliw i Energii Odnawialnej**, **Polska**
- **Research Realization Institute of Renewable Energy Sources, Ltd**, **Słowacja**
- **Universitat de Barcelona**, Dept. Enginyeria Química, **Hiszpania**

Poland – cases



CASE 1: Biogas plant in Liszkowo

Technological details:

- Biogas CHP plant
- Mesophile anaerobic digestion of vegetable (40%) and animal (60%) wastes
- 2,1 MW el

Substrates:

- Vegetable (onion, carrots, potato, pea) wastes 37,2 kt / year
- Distillery wastes 63 kt / year
- Corn chaff 2,5 kt / year
- Whey 11 kt / year

Most substrates have been already contracted as free of charge waste.

CASE 2: Biogas plant in Szarlej

Technological details:

- Biogas CHP plant.
- Mesophile anaerobic digestion of organic and animal wastes
- 1,6 MW el

Substrates:

- Distillery wastes 88 kt / year
- Corn 4,5 kt / year
- Poultry droppings 31 kt / year
- Cattle faeces 11 kt / year

Poland – cases



CASE 3: Biogas plant in Studzianka

Technological details:

- Biogas CHP plant.
- 30 kW el
- Bioreactor volume 61 m³

Substrate:

The annual demand will equal about 1460 tons, mainly poultry droppings and agricultural waste from own sources.

CASE 4: Biogas plant in Wisla Mala

Technological details:

- Agricultural biogas CHP plant in on the early development stage
- Bioreactors are already built but there are no after-fermentation tanks
- 30 kW
- Bioreactor volume 100 m³

Substrate (per year):

- own poultry droppings 164 t,
- neighbour's poultry droppings 440 t,
- silage- about 160 t,
- baking wastes and oil 45 t,
- wastes from the green market 360 t

Invitation



3rd BITES Workshop - European Biofuel Best Practices Workshop in Stockholm:

Creating sustainability in transports – Swedish success stories.

BITES project partners are delighted to invite you to this workshop organized under the supervision of **SVEBIO** (**Swedish Bioenergy Association**).
The participation on the 3rd BITES Workshop is free of charge.

The Workshop will take place next **17th September 2009** in **Stockholm (Sweden)** on the occasion of the **World Bioenergy & Clean Vehicle and Fuels 2009 Conference & Exhibition.**

For further information on the project visit: **www.biofuelshowcase.eu**

Thank you for your attention!

More information

www.biofuelshowcase.eu

www.ipieo.pl

www.biogazownierolnicze.pl

www.biogasaccepted.eu