Biogas and biomethane markets in Eastern Europe

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WIP Renewable Energies

Our mission is to bridge the gap between research and implementation of Renewable Energy systems

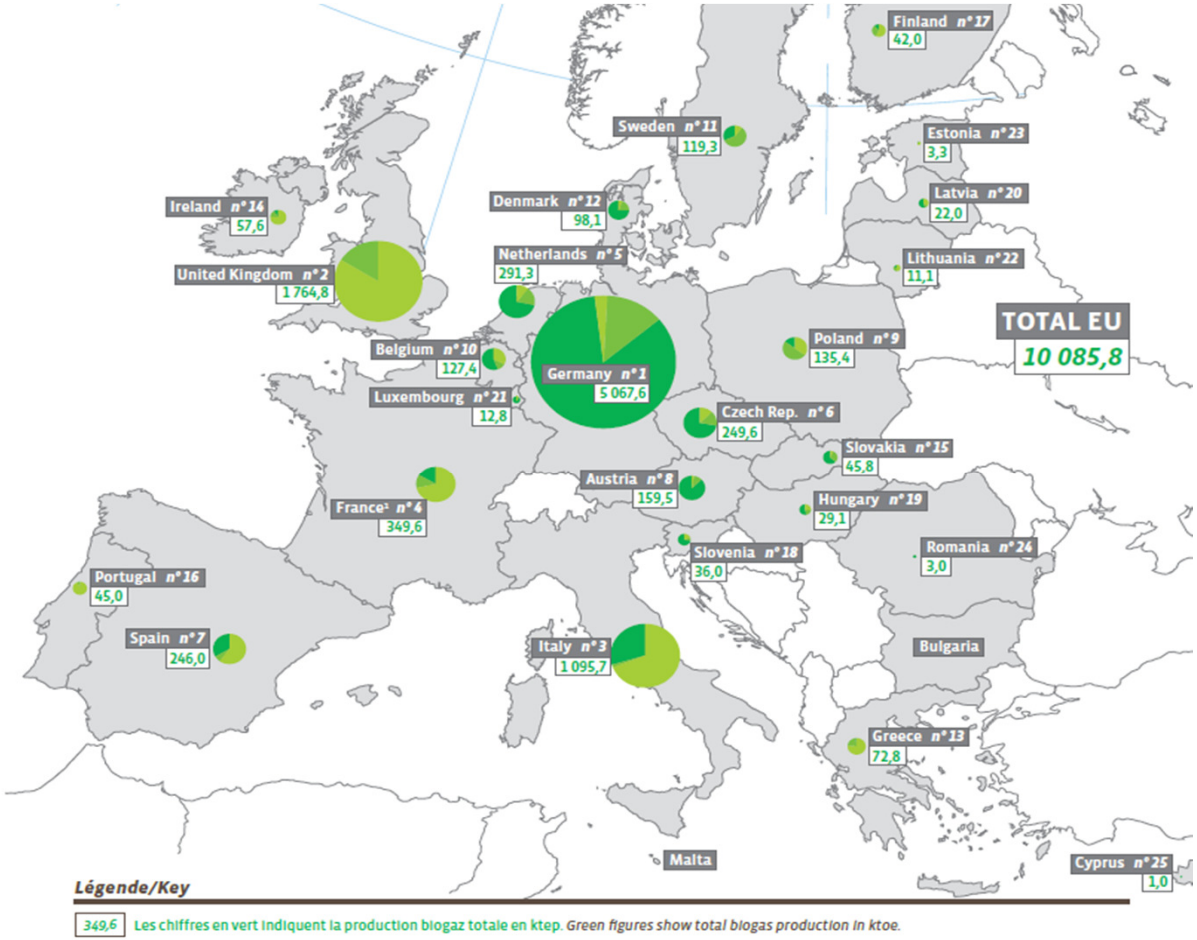
✓ We are an interdisciplinary team of professionals focusing on the successful implementation of Renewable Energy Projects

✓ 30+ years of experience in Renewable Energy Projects

✓ 30+ multinational team members

✓ More than 300 projects accomplished

Primary energy production of biogas in the EU in 2011 (ktoe)



Source: EurObserv'ER
Biogas Barometer 2012

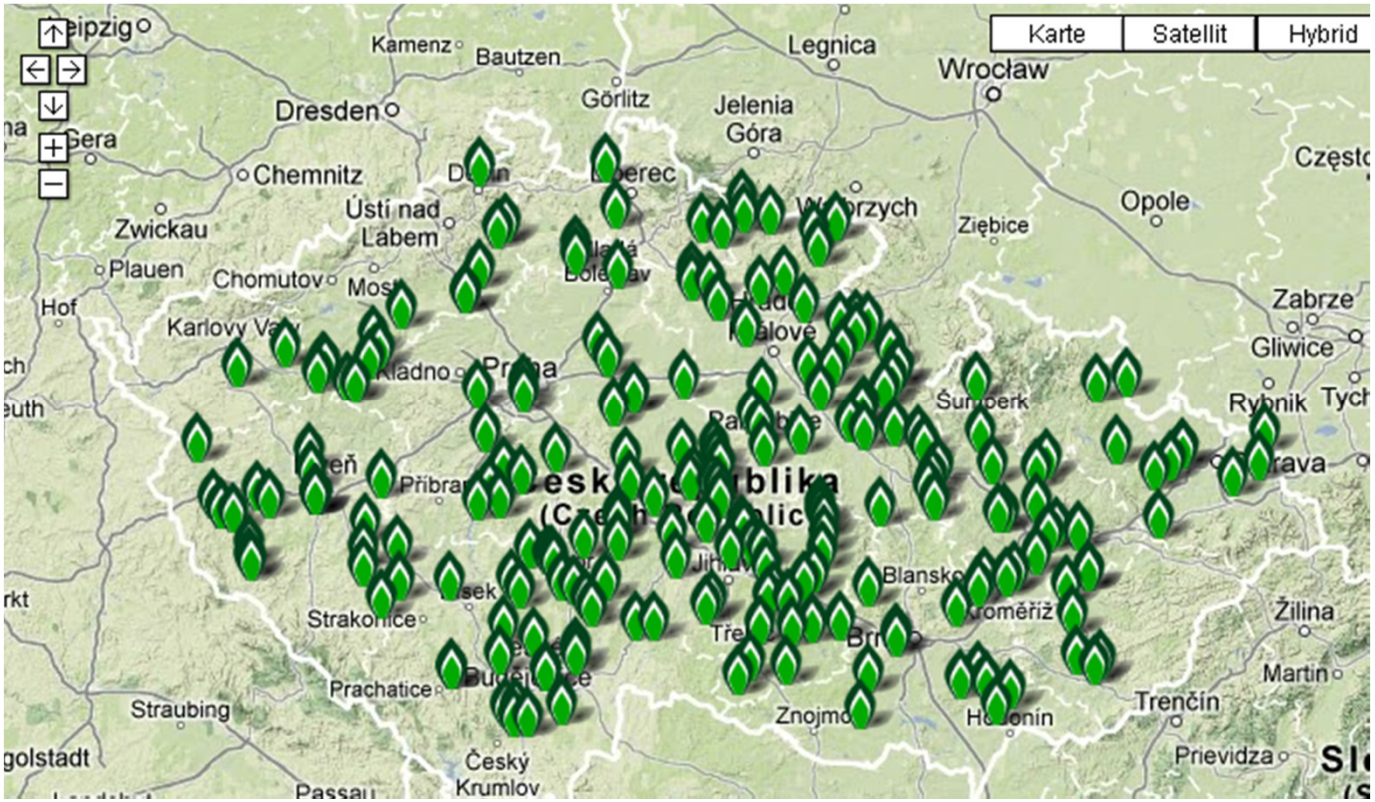
Development of biomethane market in Europe

Source: DENA 2013 www.biogaspartner.de

Czech Republic

Biogas market in Czech Republic

✓250 agricultural biogas plants in Czech Republic



Source: Czech Biogas Association (CZBA)

Renewable Energy Act in Czech Republic

Until 2013 the support for biogas in the Czech Republic was based on the Renewable Energy Act 180/2005 and accomplished in three steps including:

✓ priority grid connection (up to the grid capacity enabling safe and continuous grid operation)

✓ fixed connection fee, based on the installed power

✓ ‘feed-in tariffs’ and ‘green bonuses’

Feed-in tariffs in Czech Republic

✓In January 2013 new support scheme came into force

✓The feed in tariffs were removed for all renewable energy facilities above 100kW (incl. biogas plants). Instead Green Bonus was introduced (a premium paid on top of electricity commodity price)

> 550 kW: 2490 CZK/ MWh (99.6 Euro)
< 550 kW: 1980 CZK/ MWh (79.2 Euro)

✓2020 targets will be met already in 2013

✓‚Biomethane could be worse in the long term than solar power' – official statement of Energy Regulatory Office (ERÚ) director Alena Vitásková

Biomethane potential in Czech Republic

Biomethane potential in Czech Republic

✓ Total expected agricultural biomethane potential is 1 billion m^3
(10 000 GWh of energy and 12% of the entire annual natural gas consumption)

✓ Additional biomethane production potential represents biowaste processing and digestion.

✓ The predicted amounts of biowaste (850 000 tons) directed to biogas production may put additional 600 GWh of energy in biomethane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Poland


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(Denmark)
København
Lietuva
(Lithuania)
Vilnius
Kaunas
Gdańsk
Minsk
(Мінск)
Hamburg
Białystok
Беларусь
(Belarus)
Bremen
Berlin
Polska
(Poland)
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Warszawa
Deutschland
(Germany)
Köln
Wrocław
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(Київ)
Praha
Kraków
Frankfurt
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(Czech Republic)
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(Ukraine)
Slovensko
(Slovakia)
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(Hungary)
Cluj-Napoca
Chişinău
Slovenija
(Slovenia)
Zagreb
România
Odesa
(Одеса)

Biogas market in Poland

✓The are currently around 30 agricultural biogas plants operating in Poland.
The fermentation substrates are slurry, food waste and maize silage

Biogas potential in Poland

✓Theoretical annual biogas potential

Cattle slurry	2,581 million m^3
Poultry manure	717 million m^3
Maize (after seed harvest)	1,044 million m^3
Municipal waste bio-fraction	100 million m^3

✓ By 2020 there should be on average one biogas plant in every community (NREAP)

Renewable Energy Act in Poland

✓The new Renewable Energy Sources Act will introduce feed-in tariffs for the first time. The Law will be reviewed every 3 years

✓The law will enter into force in late 2013 or early 2014

✓New renewable target (15.5% by 2020) for share of energy from renewable sources in gross final consumption of energy from RES was introduced (previously 15%)

New feed in tariffs in Poland

✓Feed in tariff for micro and small agricultural biogas plants

< 40 kW - 0,70 PLN/kWh (0,16 EUR/kWh)

40 kW - 200 kW - 0,65 PLN/kWh (0,15 EUR/kWh)

> 200 kW - current certificate system

✓Landfill gas plants < 200 kW - 0,55 PLN/kWh (0,13 EUR/kWh)

✓Biogas plants running on sewage sludge substrate

< 200 kW - 0,45 PLN/kWh (0,10 EUR/kWh)

Biomethane in Poland

✓Biomethane production is not yet recognized as an attractive clean technology in the legislation

'Using bio-CNG in transport is unfeasible due to technical and economic reasons' (NREAP) -> Biomethane not included in the 2020 targets

✓Quality parameters of natural gas have been set in two standards:

- PN-C-04752:2002 – Natural gas. Quality of gas in transmission network
- PN-C-04753:2002 – Natural gas. Quality of gas supplied to consumers from distribution network


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Romania


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(Czech Republic)
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Brno
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Slovensko
(Slovakia)
Košice
Trnava
Wien
Linz
Miskolc
Bratislava
Budapest
Debrecen
Graz
Oradea
Magyarország
(Hungary)
Cluj-Napoca
Maribor
Pécs
Szeged
Arad
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Zagreb
Timişoara
Trieste
Karlovac
Sisak
Novi Sad
(Нови Сад)
Hrvatska
(Croatia)
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(Београд)
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Sarajevo
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Srbija
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(Montenegro)
Kosova
(Kosovo)
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Rezervația Naturală Bădeana
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Vaslui
Piatra-Neamț
Iași
Suceava
Botoșani
Moldova
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(Чернівці)
Khmel'nyts'kyi
(Хмельницький)
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Lviv
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Rzeszów
Berdychiv
(Бердичів)
(Житомир)
Edirne
Corlu
Gebze

Biogas market in Romania

✓Biogas market is still emerging, there are some plants mainly integrated into waste water treatment plants for treating sewage sludge

✓There is one policy enhancing the development of RES-H infrastructure. Other policies for developing, installing, and using RES installations are not in place

✓Energy policy does not define biogas as a priority source of energy. Biogas sector is rather defined as an environmental sector and not as an energy production sector

Biogas promotion in Romania

✓Renewable energy sources are mainly promoted by a quota system

✓At present, there are no specific measures promoting the production and use of biogas

✓Biogas is supported by the following laws

Law 220/2008 on the establishment of the system for the promotion of energy production from RES

GD 750/2008 for the approval of the Regional State aid scheme on the use of renewable energy resources

Biomethane in Romania

✓There are no technical rules on the grid connection and connection tariffs for biomethane

✓On 16 July 2012 the new Electricity and Natural Gas Law 123/2012 was adopted in Romania and will come into force in March 2013 (Equal treatment of biogas and natural)

✓Corresponding regulations together with implementation rules on the quality of biomethane should be drafted by the responsible authority (ANRE)

Bulgaria


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Oradea
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Piatra-Neamţ
Roman
Bacău
Vaslui
Iaşi
Satellit
Verkehr
Pécs
Szeged
Arad
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România
(Romania)
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Sisak
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Galaţi
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Bosna i
Hercegovina
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Herzegovina)
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(Albania)
Bitola
(Битола)
Thessaloniki
(Θεσσαλονίκη)
Kartal
Taranto
Lecce

Biogas in Bulgaria

✓No operating agricultural biogas plants yet

✓No refuelling stations with biomethane or biomethane mixture with other fuels

✓The first Renewable Energy Law was issued in 2011

Biogas potential in Bulgaria

✓In total biogas potential is estimated 24,923 GWh (Source: Project Big>East)

Agricultural waste	333,082 m^3 10^4
Food industry waste	7,466 m^3 10^4
Organic solid waste	72,323 m^3 10^4
Sewage sludge	2,509 m^3 10^4

RES support in Bulgaria

✓Renewable Energy Action Plan was not accepted by the European Commission (resubmission followed; no improvements for biogas introduced)

✓The policy makers agree that the country has substantial forest resources and well-developed agriculture - sources both of solid biomass, biogas and biofuels

✓Supporting legal framework is missing and the interest from the policy makers is very low

New feed in tariff in Bulgaria

✓ On 29 June 2012 the Bulgarian State Regulatory Energy and Water Commission announced the new feed-in tariff for electricity generated from renewable energy sources (115-129 EUR/MWh)

✓ Available capacity for connection of renewable energy projects to the grid for the period July 2012 to July 2013

Biogas projects

www.big-east.eu

www.biogasin.org

www.urbanbiogas.eu

www.biogasheat.org

Biogas project Urban Biogas

✓Urban waste for biomethane grid injection and transport in urban areas

✓Target cities:

- City of Zagreb (Croatia)
- City of Graz (Austria)
- Municipality of Abrantes (Portugal)
- City of Rzeszów (Poland)
- City of Valmiera (Latvia)

Biogas project Big>East

BiG>East
Biogas for Eastern Europe

✓ Promotion of the production and use of biogas as a secure and sustainable energy source in six target countries of Eastern and Southern Europe

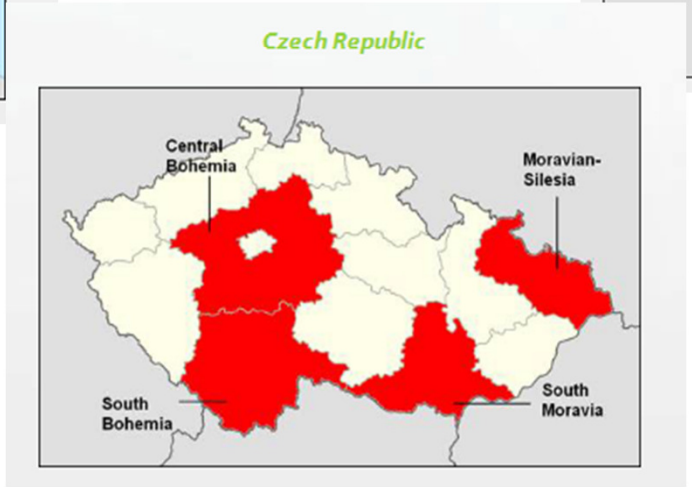
✓Bulgaria, Croatia, Latvia, Romania, Slovenia and Greece

✓Duration: 2007-2010

✓Main outcomes: studies on biogas potential & barriers, training handbook, courses for farmers, mobilization campaigns, technical study tours, show cases

Biogas project BiogasIN

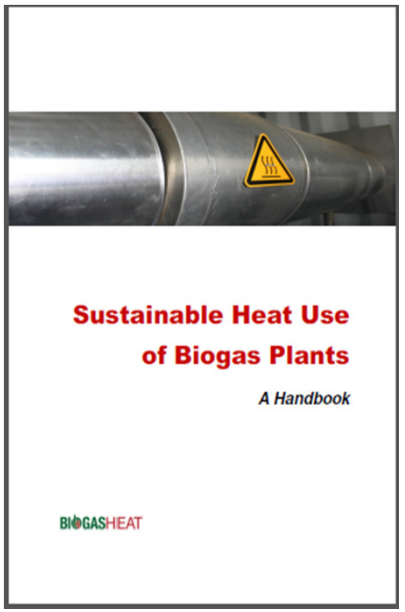
✓Sustainable biogas market development in Central and Eastern Europe



Biogas project BiogasHeat

BIOGASHEAT

- ✓Sustainable use of heat from the existing and future biogas plants in Europe
- ✓Project duration : April 2012 – April 2015
- ✓Enforcement of national and EU biogas heat use policy
- ✓Demonstration of biogas heat use good practice examples
- ✓Implementation of feasibility studies and field tests
- ✓Giving support to real project implementation



Thank You!

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