



Overview on biogas and biomethane markets in Eastern Europe

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Rita Mergner
Dominik Rutz
WIP Renewable Energies, Munich, Germany



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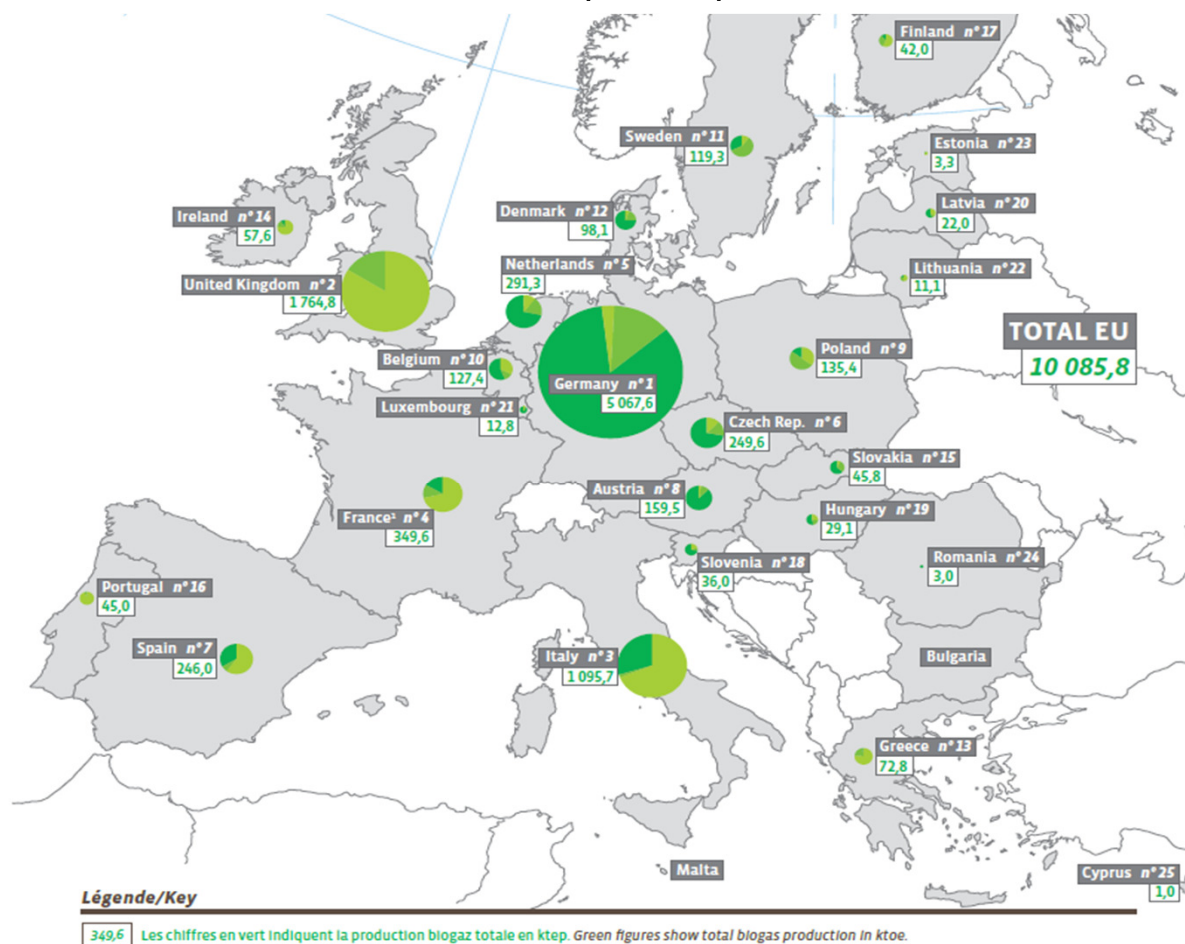
WIP Renewable Energies

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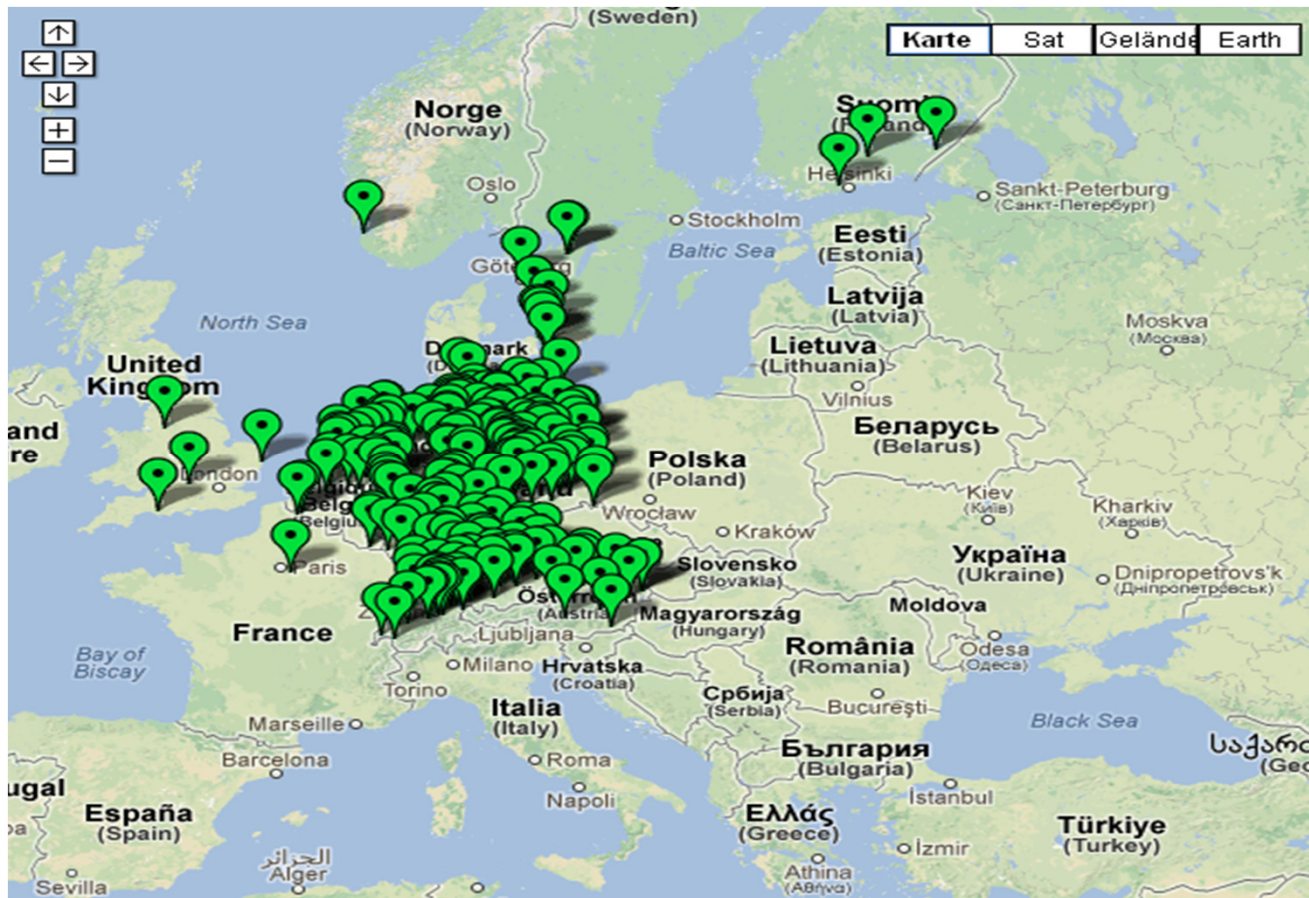
Primary energy production of biogas in the EU in 2011 (ktoe)



Source: EurObserv'ER
Biogas Barometer 2012



Development of biomethane market in Europe



Source: DENA 2013 www.biogaspartner.de



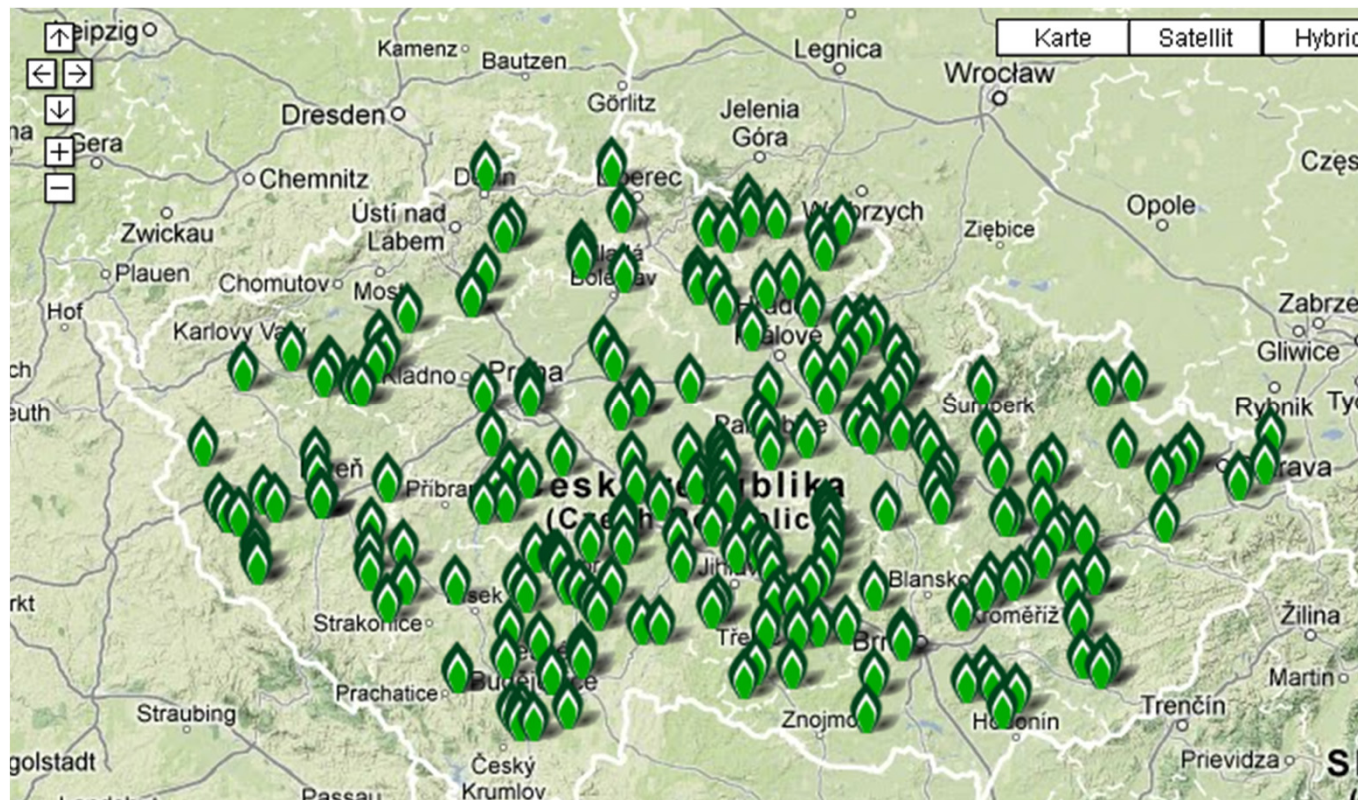
Czech Republic





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'
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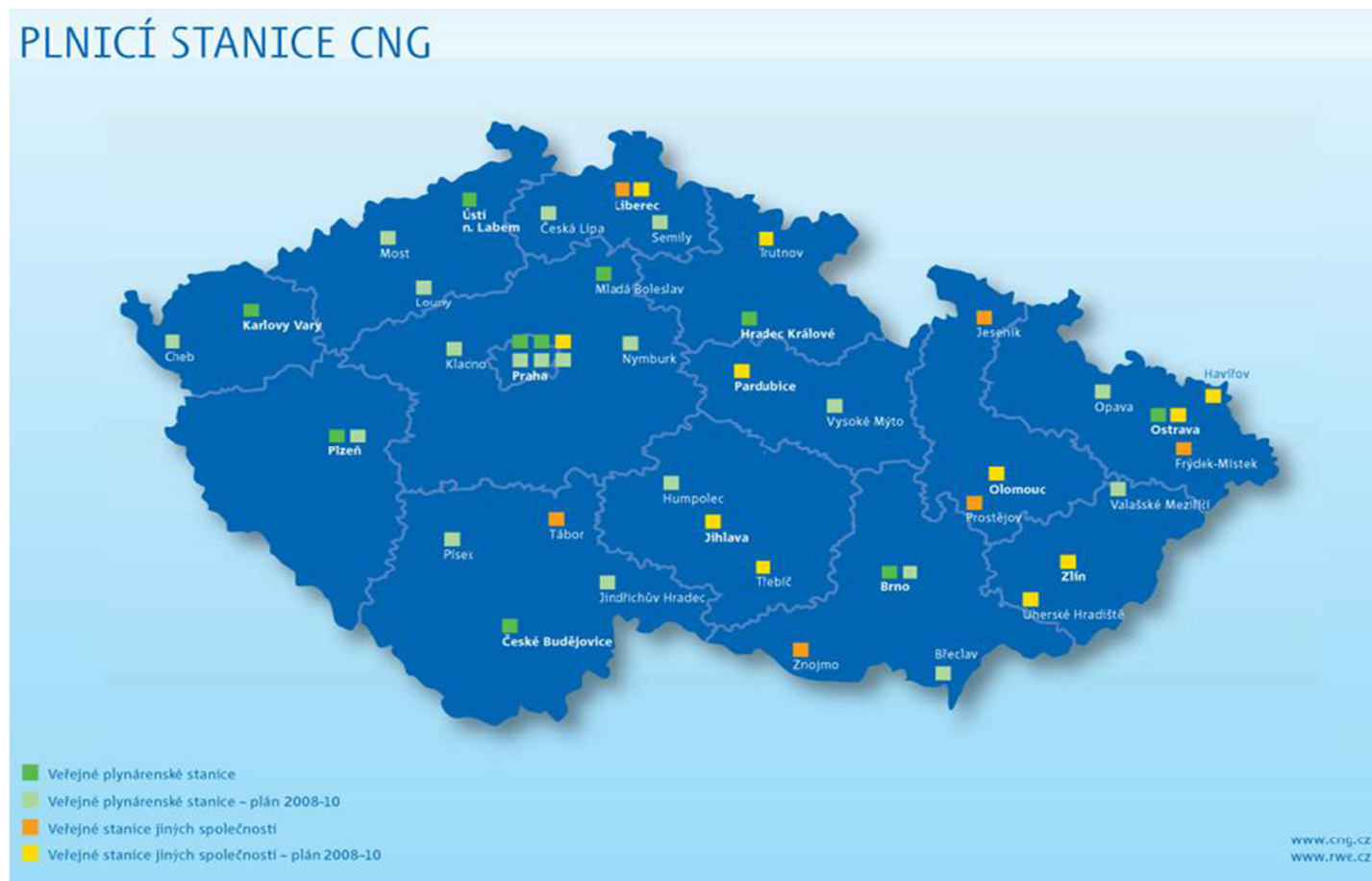


Feed-in tariffs in Czech Republic

- ✓ 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
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Biomethane potential in Czech Republic





Biomethane potential in Czech Republic

- ✓ Total expected agricultural biomethane potential is 1 billion m³
(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





Biogas market in Poland

✓ There 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





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
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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)
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Bulgaria





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
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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:

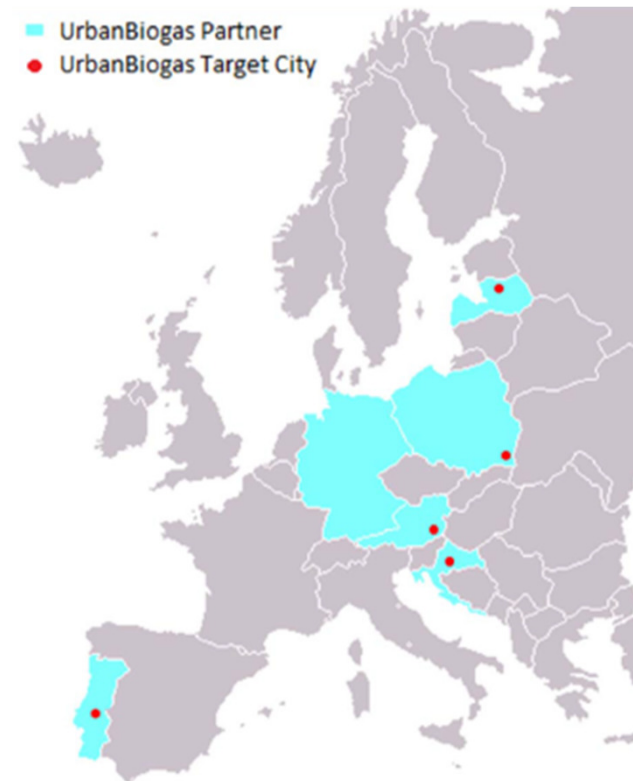
City of Zagreb (Croatia)

City of Graz (Austria)

Municipality of Abrantes (Portugal)

City of Rzeszów (Poland)

City of Valmiera (Latvia)





Biogas project Big>East



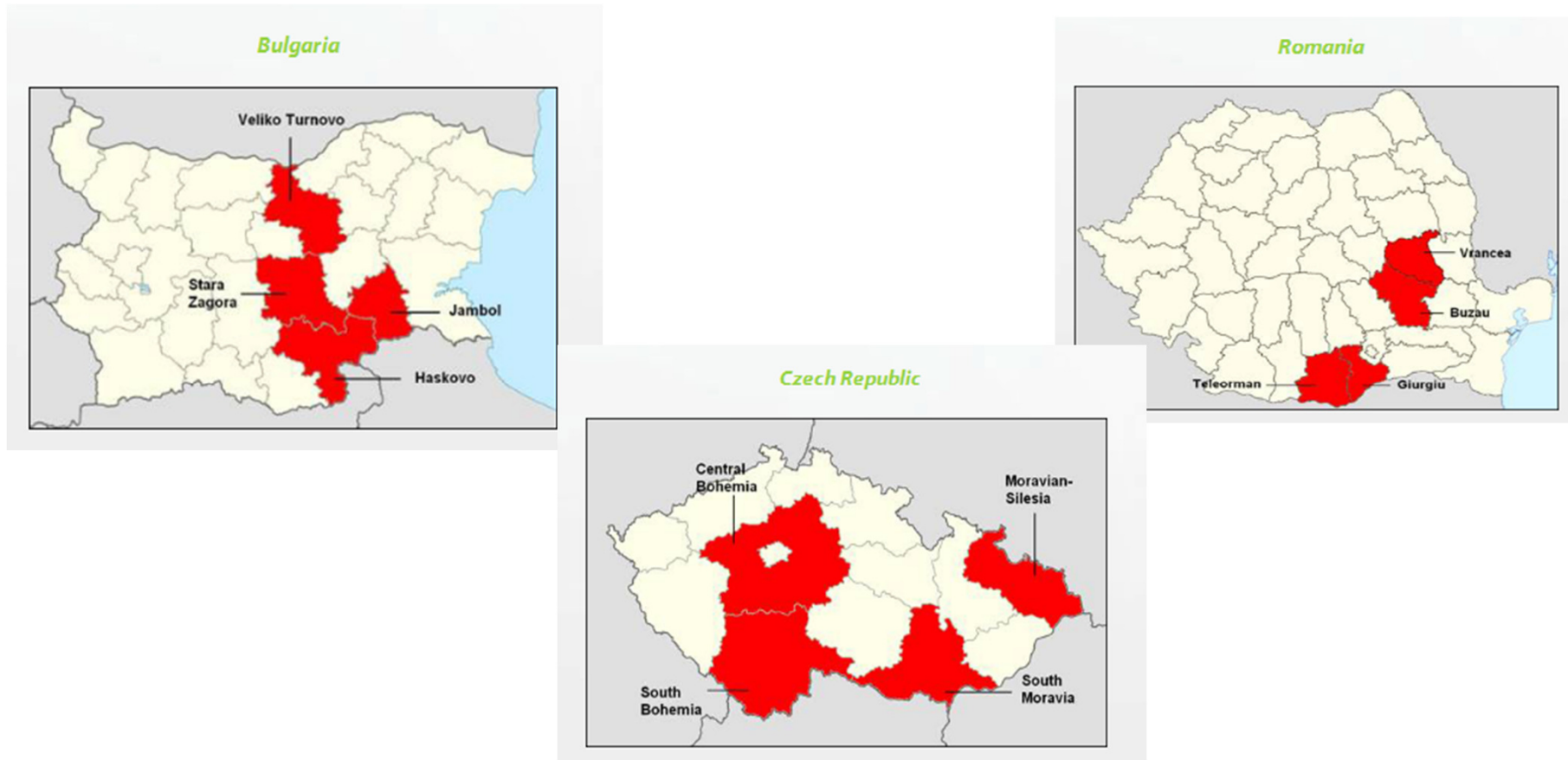
- ✓ Promotion of the production and use of biogas as a secure and sustainable energy source in six target countries of Eastern and Southern Europe
 - ✓ Bulgaria, Croatia, Latvia, Romania, Slovenia and Greece
 - ✓ Duration: 2007-2010
 - ✓ Main outcomes: studies on biogas potential & barriers, training handbook, courses for farmers, mobilization campaigns, technical study tours, show cases
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Biogas project BiogasIN



✓ Sustainable biogas market development in Central and Eastern Europe

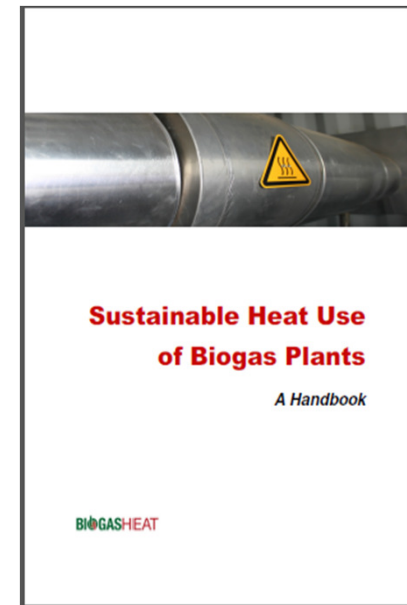




Biogas project BiogasHeat

BIGAS**HEAT**

- ✓ 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!

Rita.Mergner@wip-munich.de

Dominik.Rutz@wip-munich.de

www.wip-munich.de



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