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# The Market for Biogas Plants in Europe

Market volumes – Projects – Strategies – Trends

**Extract**

Cologne / Oberhausen, June 2010

ecoprolog / Fraunhofer UMSICHT

## **The Market for Biogas Plants in Europe**

The generation of biogas is growing as never before – new strong markets emerge in Eastern Europe especially. In early 2010, about 5,900 biogas plants with an installed electrical capacity of 2,300 MW<sub>el</sub> are operational. Within the next five years, more than 3,000 biogas plants with an electrical capacity of more than 1,700 MW<sub>el</sub> will be constructed. Germany remains the driver of growth in the sector of biogas plants.

More and more countries create the necessary general frameworks for a fast growth of the national biogas industries. The prototype for this restructuring is the German Renewable Energy Sources Act. The system of fixed feed-in tariffs for electricity from renewable energies is gradually establishing throughout Europe.

This happens against the background of the Kyoto protocol requirements and the specifications of the EU Renewable Energy Directive. They force the states to drastically increase the share of renewable energies at the total energy consumption. In many countries, biogas has to contribute to this aim.

In the light of this development, ecoprolog GmbH and the institute Fraunhofer UMSICHT analysed the European market for biogas plants in detail. The study is not only based on our market knowledge – public authorities, associations, operators and plant manufacturers were also integrated in elaborating it.

The up to date study also includes an in-depth survey and offers figures, facts, estimations and trends in the European market for biogas plants and is of interest for producers, suppliers, operators, business associations, research institutes and consultants.

### **The study “The Market for Biogas Plants in Europe 2010/2011” includes:**

- A detailed analysis of all essential political, economical, managerial and technical trends within the fields of constructing and operating biogas plants.
- A concrete differentiation of the current and future market volumes by countries – up to and including 2013, based on a transparent and comprehensible methodology.
- A description of more than 1,300 biogas plants with an individual capacity of at least 500 kW<sub>el</sub>, including substantial technical data and contact addresses. These plants represent about 70 per cent of the overall installed electrical capacity in Europe.
- A list of projects with more than 230 planned new constructions (500 kW<sub>el</sub> or larger), of which more than 130 are currently under construction and more than 100 are being planned or discussed.
- An analysis and description of the most important operators and plant manufacturers of biogas plants in Europe.

The study is available in **German and English from 2,900,- euros plus VAT.**

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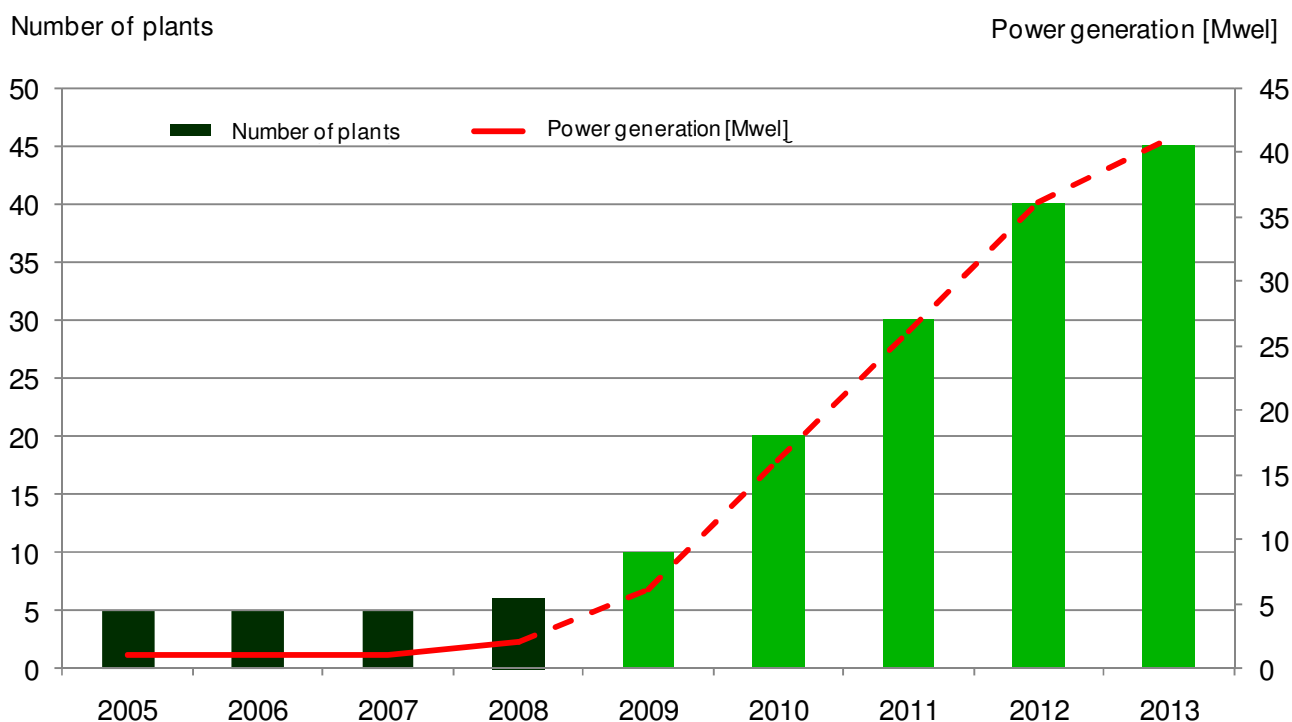
### 6.24 Slovakia

<b>Number of biogas plants</b>	<b>10</b>	<b>Installed electrical capacity [MW<sub>el</sub>]</b>	<b>6</b>
Inhabitants [th.]	5,406	Acreage [th. ha]	4,903
Number of agricultural enterprises	69,000	Utilised agricultural area [th. ha]	1,380
Agr. enterprises > 100 livestock units	1,000	Agricultural enterprises > 100 ha	n/a
Share of renewable energies (2005)	6.7 %	EU goal: Share of renewable energies (2020)	14 %

#### Management summary

The preconditions for a further development are very positive in Slovakia, even though there are only very few biogas plants so far. The market has gained momentum, especially with the introduction of the new feed-in tariff in 2009. We expect the construction of about 40 new plants between 2009 and 2013, with an average electrical capacity of about 1 MW. Hence, Slovakia follows the trend of its neighbouring country Czech Republic, where similar preconditions can be found. However, the Czech Republic introduced a comparable law on feed-in tariffs in 2005 already.

**Figure 67: Market forecast Slovakia**

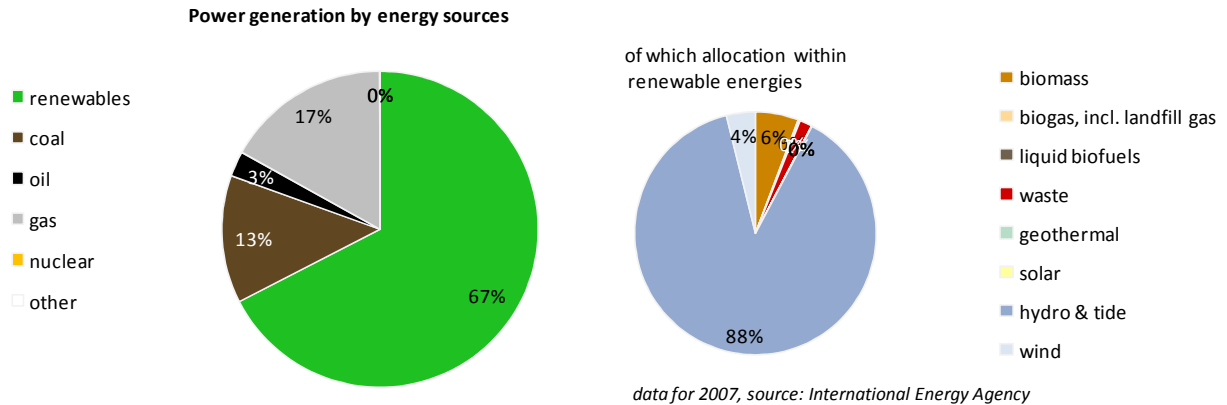


*Data up to 2009 partly estimated, forecast from 2009 on, source: ecoprolog.*

#### Background / market factors / legal framework

Historically, the large share of renewable energies can be ascribed to the river power plants (for example along the Danube). However, the government plans to drastically expand renewable energies in all sectors.

Figure 20: Power generation by energy sources in Austria



Austria has been promoting renewable energies with a feed-in tariff with fixed compensation rates since 2002. However, the budget available for all the projects that generate electricity from renewable energy sources is capped for every year. In 2010, it amounts to EUR 21 million for all renewable technologies – EUR 2 million for photovoltaics and EUR 19 million for all the other technologies. The budget refers to the additional burden by renewable energies; it is calculated from the difference of the average feed-in tariff depending on the technology and the current electricity market price.

Figure 56: Compensation for electricity from biogas in Austria 2010

Electrical capacity of plants	Basic compensation 2010 [€/kWh]	CHP bonus [€/kWh]	Bonus for processing up to natural gas quality [€/kWh]
Plants up to 250 kW	18.50	2.00	2.00
Plants up to 500 kW	16.50		
Plants up to 500 kW	13.00		

Source: e-control (2010).

As the budget for feed-in tariffs is capped, only a limited number of biogas projects can be realised. However, several projects are currently either being planned or approved.

Figure 57: Project outlook Austria

Location/plant	Capacity [kW <sub>el</sub> ]	Status	Start	Remarks
Rohr im Kremstal	500	approved	n/a	
Wiener Neustadt	500	planned	2010	Feeding-in of biomethane into natural gas grid: 120 Nm <sup>3</sup> .
Engerwitzdorf	500	planned	2010	Feeding-in of biomethane into natural gas grid: 125 Nm <sup>3</sup> .

## Biogas plants in Germany

### **Darmstadt**

Status: operational  
 Commissioning: 2007  
 Capacity (kW<sub>el</sub>): 600  
 Feedstocks: pig slurry, renewable resources  
 Plant manufacturer: Novatech GmbH

NATURpur Energie AG  
 Mr. Matthias Krebs, executive board  
 Frankfurter Str.100  
 64293 Darmstadt  
 Tel.: +49 6151 701 3401  
 Fax: +49 6151 701 3401  
 info@naturpur-energie.ag  
 http://www.naturpur-energie.ag

### **Darmstadt-Wixhausen**

Status: operational  
 Commissioning: 2008  
 Capacity (kW<sub>el</sub>): 592  
 Feeding-in into gas grid [Nm<sup>3</sup>]: 148  
 Feedstocks: Maissilage, Roggenschrot, Gülle  
 Maximum capacity [t/a]: 12,500  
 Plant manufacturer: ÖKOBit GmbH

HEAG Südhessische Energie AG (HSE)  
 Mr. Albert Filber, executive board  
 Frankfurter Straße  
 64291 Darmstadt-Wixhausen  
 Tel.: +49 6151 7010  
 Fax: +49 6151 7010  
 http://www.hse.ag

Remarks: Feeding-in capacity 12 Mio. kWh p.a.;  
 Feeding-in capacity: 148 Nm<sup>3</sup>/h; the plant generates  
 about 200 m<sup>3</sup> of biogas per ton of renewable resources.  
 Address: Frankfurter Straße 110, 64293 Darmstadt

### **Dasing/Laimering**

Status: operational  
 Commissioning: 2007  
 Capacity (kW<sub>el</sub>): 526

ASUM NaWaRo AG  
 Mr. Martin Lechner, executive board  
 Sielenbacherstraße 25 a  
 86453 Dasing/Laimering  
 Tel.: +49 8205 963728

### **Deinstedt 1**

Status: operational  
 Commissioning: 2001  
 Capacity (kW<sub>el</sub>): 840  
 Feedstocks: renewable resources  
 Technique: dry digestion  
 Plant manufacturer: MT-Energie GmbH & Co. KG

Neue-Bio-Energie GmbH & Co. KG  
 Visoh 18

27446 Deinstedt

### **Deinstedt 2**

Status: operational  
 Commissioning: 2006  
 Capacity (kW<sub>el</sub>): 850  
 Feedstocks: renewable resources  
 Technique: dry digestion  
 Plant manufacturer: MT-Energie GmbH & Co. KG

Naturstrom Burfeind GmbH & Co. KG  
 Malstedter Str. 18  
 27446 Deinstedt  
 Tel.: +49 4284 926318

### **Deinstedt 3**

Status: operational  
 Commissioning: 2005  
 Capacity (kW<sub>el</sub>): 700  
 Feedstocks: renewable resources  
 Plant manufacturer: MT-Energie GmbH & Co. KG

Deinstedter Biostrom GmbH & Co. KG  
 27446 Deinstedt

### **Delbrück**

Number of CHP plants: 2  
 Capacity (kW<sub>el</sub>): 560

Bernhard Sudhoff  
 Mr. Bernhard Sudhoff  
 Kaunitzer Str. 64  
 33129 Delbrück

### **Demmen/Kobande**

Capacity (kW<sub>el</sub>): 511

Agro-Egge GmbH & Co.KG  
 Mr. Sönke Egge, general manager  
 Crivitzer Chaussee 27a  
 19089 Demmen/Kobande  
 Tel.: +49 38488 21675  
 Fax: +49 38488 21675  
 info@agro-egge.de  
 http://www.agro-egge.de

### **Demmin 1**

Status: operational  
 Capacity (kW<sub>el</sub>): 715

Bioenergie Demmin GmbH & Co.KG  
 Mr. Dieter Bluhm, general manager  
 Jarmener Str. 67a  
 17109 Demmin  
 Tel.: +49 3998 258548

### **Demmin 2**

Status: operational

#### Kishalföldi

Status: operational  
 Commissioning: 2009  
 Capacity (kW<sub>el</sub>): 537  
 Feedstocks: cow manure, cow slurry, feed residues, maize silage  
 Plant manufacturer: UTS Biogastechnik GmbH (U.T.S. Umwelt-Technik-Süd GmbH)

#### Klárafalva

Status: operational  
 Commissioning: 2007  
 Capacity (kW<sub>el</sub>): 526  
 Feedstocks: pig slurry, renewable resources  
 Plant manufacturer: EnviTec Biogas AG

Csanád Gazdaságfejlesztési Közhasznú Társaság  
 Külterület 058/17 hrsz.  
 06900 Klárafalva

#### Matrabella

Status: operational  
 Commissioning: 2009  
 Capacity (kW<sub>el</sub>): 1,000  
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

#### Milkmen

Status: operational  
 Commissioning: 2009  
 Capacity (kW<sub>el</sub>): 1,000  
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

#### Mórichida

Status: genehmigt  
 Capacity (kW<sub>el</sub>): 1,670  
 Plant manufacturer: Ing. Gerhard Agrinz GmbH

#### Nagykanizsa

Status: genehmigt  
 Capacity (kW<sub>el</sub>): 2,120  
 Plant manufacturer: Ing. Gerhard Agrinz GmbH

#### Nyírbátor

Status: operational  
 Commissioning: 2003  
 Capacity (kW<sub>el</sub>): 2,500  
 Feedstocks: poultry manure, cow slurry, slaughterhouse waste  
 Plant manufacturer: Franz Eisele u. Sohn GmbH & Co KG

BÁTORTRADE Kft. Regionális Biogáz-termelő üzem  
 HU- 4300 Nyírbátor

#### Nyirtelek

Status: under construction  
 Commissioning: 2010  
 Capacity (kW<sub>el</sub>): 625  
 Feedstocks: renewable resources, slurry

Plant manufacturer: MT Energie GmbH & Co. KG

#### Pálhalma

Status: operational  
 Commissioning: 2007  
 Capacity (kW<sub>el</sub>): 1,737  
 Feedstocks: slurry, manure, food residues, leftovers, slaughterhouse waste  
 Plant manufacturer: Hese Umwelt GmbH (Schmack Biogas AG)

Pálhalmai Agrospeciál Kft.  
 Mr. Gábor Heteyi  
 Rácalmás-Újgalambos hrsz 0173/3  
 Pálhalma  
 Tel.: +36 25 531-180  
 Fax: +36 25 285-929  
 heteyi@agrospec.hu  
<http://www.agrospec.hu>

#### Standort unbekannt

Status: under construction  
 Capacity (kW<sub>el</sub>): 1,000  
 Feedstocks: slurry, solid manure, energy crops  
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

#### Szarvas

Status: planned  
 Commissioning: 2011  
 Capacity (kW<sub>el</sub>): 3,700  
 Feeding-in into gas grid [Nm<sup>3</sup>]: n/a  
 Feedstocks: pig slurry, renewable resources, slaughterhouse waste  
 Plant manufacturer: UTS Biogastechnik

Aufwind Schmack Első  
 Szarvas  
 Tel.: +49 9 41-69 87 30-0  
 Fax: +49 941 698730-550

Remarks: slaughterhouse waste comes from the second largest turkey slaughterhouse in Hungary (Gallicoop Zrt.), start of construction: July 2010.

#### Szeged

Status: operational  
 Commissioning: 2008  
 Capacity (kW<sub>el</sub>): 1,000  
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

#### Szolnok

Status: planned  
 Capacity (kW<sub>el</sub>): 5,900  
 Plant manufacturer: Ing. Gerhard Agrinz GmbH

Biogas plant eco-energy park Jászládány Kft  
 Szolnok

## Plant register

Aalter 1	45	Baar 2	264
Aalter 2	45	Baasdorf	71
Aarhus	55	Bachenbülach	264
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Ahausen	68	Bad Bodenteich (Schafwedel)	71
Aholting	68	Bad Dürrenberg	72
Aiterhofen	68	Bad Königshofen	72
Aizstrautnieki	192	Bad Köstritz	72
Ålbæk	55	Bad Oldesloe	72
Alderley Edge	314	Bad Rappenau / Obergimpfern	72
Alflen	68	Bad Windsheim	72
Algermissen	68	Bad Wurzach	72
Alicante 1	286	Badbergen	72
Alicante 2	286	Badeleben	72
Alpen	68	Bagnoli di Sopra (PD)	180
Alt Tellin	69	Bahrenbostel	73
Alteno	69	Bakum	73
Altenstadt	69	Bakum, OT Lüsche	73
Altenstadt	69	Banbury	314
Altenstadt/Schongau	69	Barcelona 1	286
Altishofen	263	Barcelona 2	286
Altishofen (LU)	263	Barcelona 3	286
Altkalen	69	Barcelona 4	287
Amadora	248	Barcelona, Ecoparc III	287
Ambla	159	Barsikow	73
Amsdorf 1	70	Barßel	73
Amsdorf 2	70	Bartelshagen II	73
Anderlingen	70	Bartow	73
Angermünde/OT Kerkow	70	Baschurch, Shrewsbury	314
Angermünde/Schmargendorf 1	70	Bassano	180
Angermünde/Schmargendorf 2	70	Bassum 1	73
Ankershagen	70	Bassum 2	74
Anröchte	70	Bátka	277
Aostatal	180	Bätterkinden	264
Arberg	264	Bauska	192
Arneburg	71	Aalter 1	45
Arnschwang 1	71	Aalter 2	45
Arnschwang 2	71	Aarhus	55
Arzberg	71	Åbenrå	55
Asbach-Bäumenheim	71	Ahausen	68
Auce, Dobeles	192	Aholting	68
Aulum	55	Aiterhofen	68
Avila	286	Aizstrautnieki	192
B Aarberg	263	Ålbæk	55
Baar 1	264		

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