



The Market for Biogas Plants in Europe

Market volumes – Projects – Strategies – Trends

Extract

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ecoprogram / 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_{el} are operational. Within the next five years, more than 3,000 biogas plants with an electrical capacity of more than 1,700 MW_{el} 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, ecoprogram 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_{el}, 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_{el} 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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Contents

Preface	11
Management Summary	13
1 Scope	17
1.1. Differentiation by feedstocks	17
1.2. Differentiation by digestion techniques	19
1.3. Geographical differentiation	20
2 Technology	21
2.1. Allocation of biomass	21
2.2. Generating biogas by anaerobic digestion	22
2.3. Biogas utilisation	23
2.4. Digestates utilisation	24
3 Managerial characteristics	25
3.1. Investment costs	27
3.2. Current costs	29
3.3. Revenues	30
3.4. Evaluation / cost minimising potentials	31
4 Background / market factors	33
4.1. Legislation	33
4.2. Acquisition of feedstocks	37
4.3. The potential of biogas in Europe	42
5 The market for biogas plants in Europe	47
5.1. Existing plants	47
5.2. Market volume development	51

6 National markets			55
Austria	55	Latvia	212
Belgium	67	Lithuania	217
Bulgaria	74	Luxembourg	219
Cyprus	76	Malta	227
Czech Republic	77	Netherlands	228
Denmark	82	Norway	247
Estonia	93	Poland	252
Finland	96	Portugal	255
France	102	Rumania	258
Germany	108	Slovakia	260
Greece	188	Slovenia	264
Hungary	190	Spain	268
Iceland	194	Sweden	276
Ireland	206	Switzerland	279
Italy	207	United Kingdom	289
7 Competition			295
7.1. Operators			295
7.2. Manufacturers			300
8 Trends			
8.1. Feeding-in biogas into the gas grid			305
8.2. Digestion of biowaste / municipal solid waste			310
Annex I: List of known new projects in Europe			315
Annex II: List of the 100 largest biogas plants in Europe			320
Methodology / data			330
Glossary			335
Register of plants			341

Table of figures

Figure 1: Generating gas from biomass	17
Figure 2: Proportion of landfill gas, sewage gas and biogas in the EU	19
Figure 3: Analysed area	21
Figure 4: Stages of biogas emergence	23
Figure 5: Average biogas output and methane content of different feedstocks	24
Figure 6: Exemplary calculation of revenues of a plant using renewable resources (500 kW), according to the Renewable Energy Sources Act 2010	31
Figure 7: Instruments for promoting renewable energies in the EU	34
Figure 8: Compensation systems in the individual countries	35
Figure 9: Acreage of renewable resources in Germany 2000-2007	39
Figure 10: Biofuels: efficiency per acreage	40
Figure 11: Utilised agricultural areas in Europe	41
Figure 12: Biogas plants by countries	42
Figure 13: Average capacity of biogas plants by countries	43
Figure 14: Electrical capacity of biogas plants per inhabitant	44
Figure 15: Development of existing plants 2005-2013	45
Figure 16: Market volumes by regions	46
Figure 17: Estimation of the preconditions in the national markets	47
Figure 18: Market forecast Austria	48
Figure 19: Power generation by energy sources in Austria	49
Figure 20: Compensation for biogas in Austria	50
Figure 21: Project outlook Austria	51
Figure 22: Market forecast Belgium	76
Figure 23: Power generation by energy sources in Belgium	77
Figure 24: Power generation by energy sources in Bulgaria	85
Figure 25: Project outlook Bulgaria	86
Figure 85: Power generation by energy sources in Cyprus	87
Figure 26: Market forecast Czech Republic	92
Figure 27: Power generation by energy sources in the Czech Republic	93
Figure 28: Project outlook Czech Republic	94
Figure 29: Market forecast Denmark	104
Figure 30: Power generation by energy sources in Denmark	105
Figure 44: Power generation by energy sources in Estonia	116
Figure 45: Project outlook Estonia	117
Figure 31: Market forecast Finland	119
Figure 32: Power generation by energy sources in Finland	120
Figure 33: Project outlook Finland	122
Figure 34: Market forecast France	125
Figure 35: Power generation by energy sources in France	126
Figure 36: Feed-in tariff for biogas in France	126
Figure 37: Aims of the investment program for renewable energies in France	127
Figure 41: Market forecast Germany	131
Figure 42: Power generation by energy sources in Germany	132

Figure 43: Compensation rates for biogas according to the Renewable Energy Sources Act 2009	132
Figure 38: Power generation by energy sources in Greece	223
Figure 46: Market forecast Hungary	225
Figure 47: Power generation by energy sources in Hungary	226
Figure 48: Project outlook Hungary	227
Figure 40: Power generation by energy sources in Iceland	232
Figure 39: Power generation by energy sources in Ireland	233
Figure 49: Market forecast Italy	235
Figure 50: Power generation by energy sources in Italy	236
Figure 51: Project outlook Italy	237
Figure 52: Market forecast Latvia	248
Figure 53: Power generation by energy sources in Latvia	249
Figure 54: Project outlook Latvia	250
Figure 55: Power generation by energy sources in Lithuania	256
Figure 56: Market forecast Luxembourg	259
Figure 57: Power generation by energy sources in Luxembourg	260
Figure 58: Compensation for electricity from biogas in Luxembourg	260
Figure 59: Power generation by energy sources in Malta	265
Figure 60: Market forecast Netherlands	266
Figure 61: Power generation by energy sources in Netherlands	267
Figure 62: Market forecast Norway	271
Figure 63: Power generation by energy sources in Norway	272
Figure 64: Market forecast Poland	273
Figure 65: Power generation by energy sources in Poland	274
Figure 66: Power generation by energy sources in Romania	280
Figure 67: Market forecast Slovakia	282
Figure 68: Power generation by energy sources in Slovakia	283
Figure 69: Market forecast Slovenia	287
Figure 70: Power generation by energy sources in Slovenia	288
Figure 71: Project outlook Slovenia	289
Figure 72: Market forecast Spain	291
Figure 73: Power generation by energy sources in Spain	292
Figure 74: Project outlook Spain	294
Figure 75: Market forecast Sweden	299
Figure 76: Power generation by energy sources in Sweden	300
Figure 77: Market forecast Switzerland	307
Figure 78: Power generation by energy sources in Switzerland	308
Figure 79: Compensation structure for biogas in Switzerland	309
Figure 80: Project outlook Switzerland	310
Figure 81: Market forecast United Kingdom	321
Figure 82: Power generation by energy sources in the United Kingdom	322
Figure 83: New feed-in tariff in Great Britain	323
Figure 84: Project outlook United Kingdom	324
Figure 86: Market forecast for feed-in plants in Europe	331
Figure 87: Distribution of feed-in plants in Europe by capacity (Nm ³)	332
Figure 88: Project outlook biomethane plants in Europe	333
Figure 89: Manufacturers of plants for biowaste digestion	334

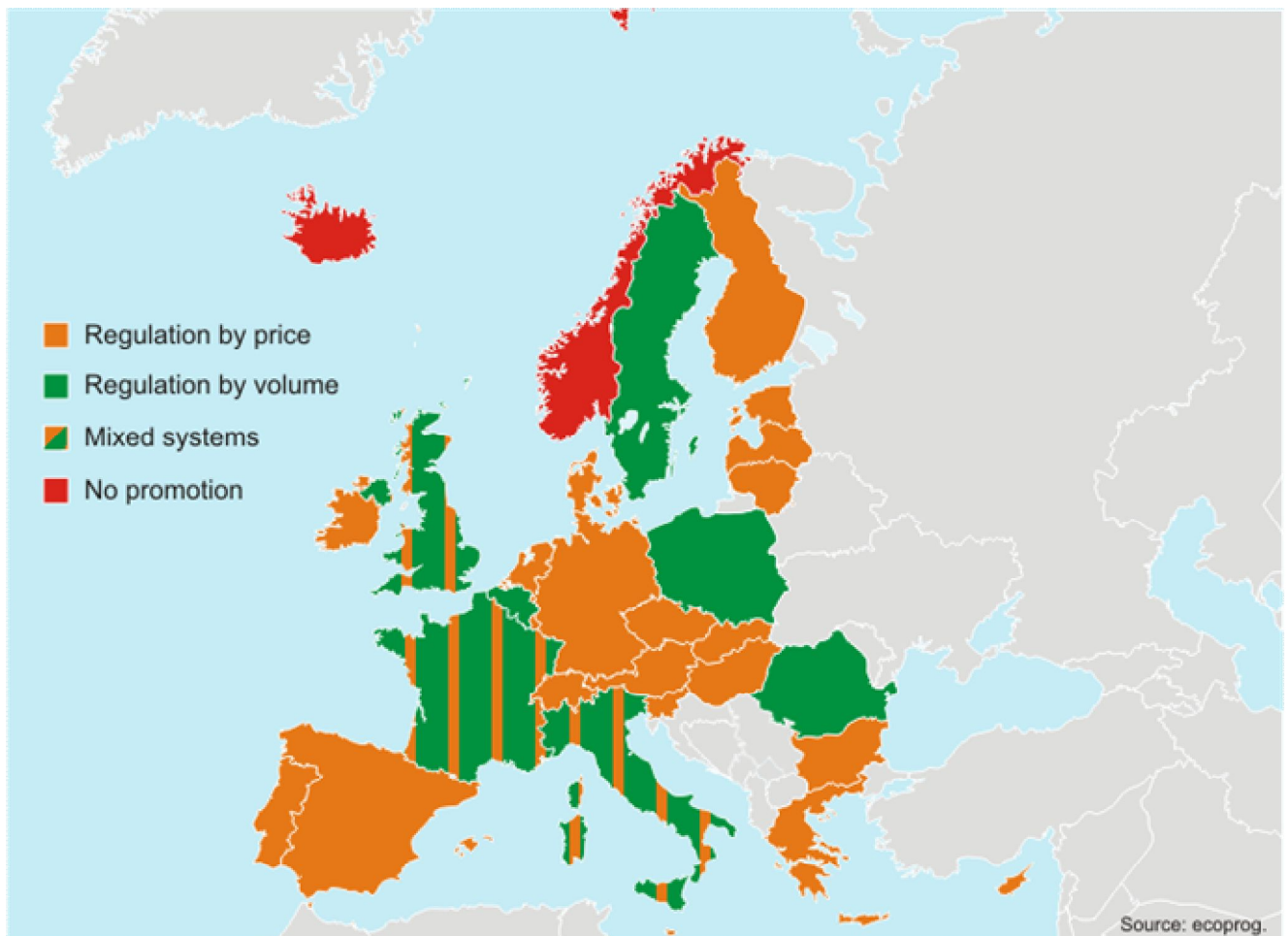
4.1 Legal framework

If the legal promotion did not exist, the technology of biogas generation would currently not be competitive on the electricity and heat market. Consequently, the legal frameworks in the individual EU member states are the most important market factors. Renewable energies are supported with various statutory promotion systems and privileges. Two promotion instruments have to be emphasised:

- Price regulation (feed-in tariff)

According to legal specifications, every producer of electricity from renewable energies obtains a fixed rate or an incentive (bonus) for every kilowatt hour he feeds in. A fixed rate represents a complete compensation. By contrast, the bonus is granted additionally to the electricity price which is realised on the electricity market. The bonus can be either fixed or variable. Generally, the plant operators are entitled to this compensation to be paid by the grid operator, who passes the costs on to the end consumers (which are included in the electricity grid charges). A total of 22 European countries have introduced price regulations.

Figure 7: Instruments for promoting renewable energies in the EU



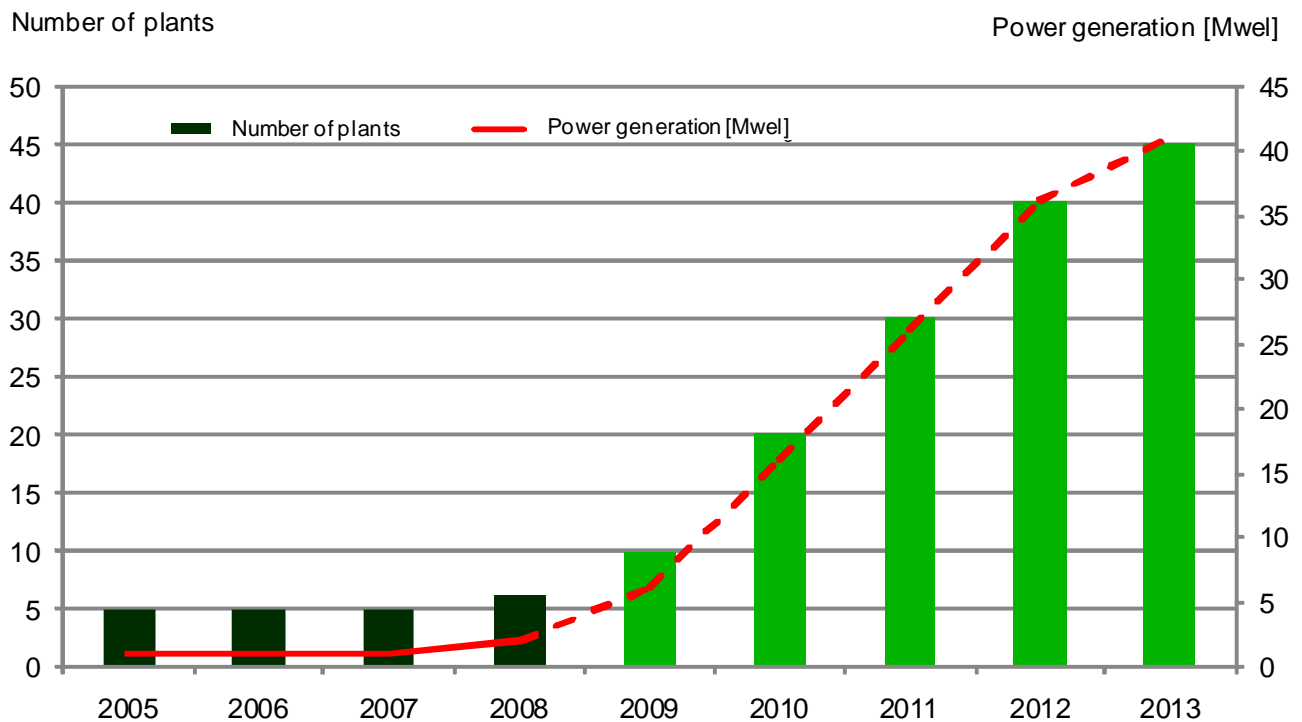
6.24 Slovakia

Number of biogas plants	10	Installed electrical capacity [MW_{el}]	6
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

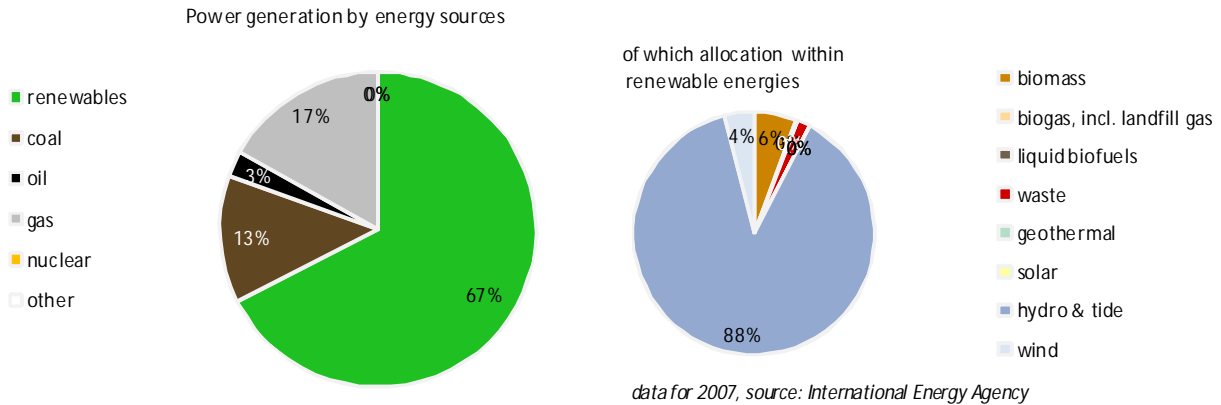


Data up to 2009 partly estimated, forecast from 2009 on, source: ecoprolog.

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 _{el}]	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 ³ .
Engerwitzdorf	500	planned	2010	Feeding-in of biomethane into natural gas grid: 125 Nm ³ .

Biogas plants in Germany

Darmstadt

Status: operational
 Commissioning: 2007
 Capacity (kW_{el}): 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_{el}): 592
 Feeding-in into gas grid [Nm³]: 148
 Feedstocks: Maissilage, Roggenschrot, Gülle
 Maximum capacity [t/a]: 12,500
 Plant manufacturer: ÖKOBit GmbH

HEAG Süd Hessische 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 Nm³/h; the plant generates
 about 200 m³ of biogas per ton of renewable resources.
 Address: Frankfurter Straße 110, 64293 Darmstadt

Dasing/Laimering

Status: operational
 Commissioning: 2007
 Capacity (kW_{el}): 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_{el}): 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_{el}): 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_{el}): 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_{el}): 560

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

Demmen/Kobande

Capacity (kW_{el}): 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_{el}): 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_{el}): 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_{el}): 526
 Feedstocks: pig slurry, renewable resources
 Plant manufacturer: EnviTec Biogas AG

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

Matralla

Status: operational
 Commissioning: 2009
 Capacity (kW_{el}): 1,000
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

Milkmen

Status: operational
 Commissioning: 2009
 Capacity (kW_{el}): 1,000
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

Mórichida

Status: genehmigt
 Capacity (kW_{el}): 1,670
 Plant manufacturer: Ing. Gerhard Agrinz GmbH

Nagykanizsa

Status: genehmigt
 Capacity (kW_{el}): 2,120
 Plant manufacturer: Ing. Gerhard Agrinz GmbH

Nyírbátor

Status: operational
 Commissioning: 2003
 Capacity (kW_{el}): 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_{el}): 625
 Feedstocks: renewable resources, slurry

Plant manufacturer: MT Energie GmbH & Co. KG

Pálhalma

Status: operational
 Commissioning: 2007
 Capacity (kW_{el}): 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_{el}): 1,000
 Feedstocks: slurry, solid manure, energy crops
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

Szarvas

Status: planned
 Commissioning: 2011
 Capacity (kW_{el}): 3,700
 Feeding-in into gas grid [Nm³]: 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_{el}): 1,000
 Plant manufacturer: Biogest Energie- und Wassertechnik GmbH

Szolnok

Status: planned
 Capacity (kW_{el}): 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
Åbenrå	55	Bächingen	71
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 / Obergimpert	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	Bätterkinder	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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