Biomethane Roadmap in Germany

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German Biogas Association

www.biosurf.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme.
The German Biogas Association

4,900 members throughout Germany

- Operators of biogas plants
- Technology manufacturers
- Research institutions
- Public authorities
- Feedstock providers
- Interested individuals

Main objective: promotion of the biogas sector
- Definition of legal framework and technical standards
- Exchange of information
- Political advocacy on federal, state and EU level

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Present situation biogas

• Currently above 9,000 biogas plants in operation with a installed capacity of above 4,000 MWel

• About 150 new biogas plants in 2015 as well as in 2016: mainly small manure based plants (max. 75 kWel and more than 80% manure in the input)

• 42,000 Jobs in 2016

• CO₂ reduction
  • 15 Mt (providing electricity), 4 Mt (substitution fossil heat)
  • about 10 Mt (manure treatment)
Biogas plants in Germany

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Present situation biomethane

• After a booming biomethane market until 2013 the market growth for biomethane has slowed down

• 197 biomethane plants in operation
  • In 2016, 10 new biomethane plants
  • In 2017 (until June) 4 new biomethane plants

• 2016: 201,865 m³/h raw biogas treated

• Capacity 2016 created plants: Range from 200 Nm³/h – 1,400 Nm³/h

• 2016: 9 new created plants based on Energy crops, 1 biological methanisation
Development biomethane plants

Development of new installed biomethane production plants since 2006

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Figures on Biomethane

- 940 Mm$^3$ biomethane, 9.4 TWh$_{hi}$ injected, Biomethane is used for
  - 8 TWh = 85.1% CHP
  - 0.4 TWh$_{hi}$ = 4.3% vehicle fuel
  - 0.3 TWh$_{hi}$ = 3.2% thermal use (heat for about 2.6 Million households)
  - 0.7 TWh$_{hi}$ = 7.4% other uses (raw material, export, …)
- About 120 biogas filling stations in operation; additional about 170 filling stations offer a blend of biomethane and natural gas
<table>
<thead>
<tr>
<th>Barriers</th>
<th>CHP sector</th>
<th>Heat market</th>
<th>Fuel sector</th>
<th>International Trade</th>
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<tbody>
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<td>• No sufficient compensation from the Renewable Energy Sources Act</td>
<td>• Heating applications are hardly supported (obligation to use in CHP due to higher CO2-reduction), except in the state of Baden-Württemberg</td>
<td>• Stagnating CNG vehicles sales</td>
<td>• Prohibitive national legislations</td>
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<td>• New CO2-Quota bears many risks and uncertainties</td>
<td>• Lack of EU-wide mass balance system</td>
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<td>• Confusing price signs at fueling stations</td>
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<td>• Cautious industry</td>
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Drivers

• Growing interest in German in biomethane upgrading technology (not only in the European market, but also in countries like Brazil and India)

• Tax exception on biomethane

• Biomethane in transportation sector as new opportunity
Perspectives of development

• There is still a significant potential for development (e.g. organic household waste, manure...)

• The future role of biogas/biomethane in the electricity sector will be to provide flexibility to the system (balance fluctuation from wind and solar energy)

• The transportation sector has huge potential for biomethane. More renewables in transport sector are needed and electrification is limited. Political support needed!

• Bio LNG? Chances and possible development

• Independency of foreign gaseous sources might become a more important issue for the EU
What’s in the next future?

- The next reform of the Renewable Energy Sources Act is ongoing in 2017. Auctions are introduced for all renewables.

- In the first auction resulted in accepting only very few new biogas plants.

- (Fossil) CHP-legislation is been revised, possibly with a new momentum regarding CO$_2$ saving and therefore chances for biomethane.

- *International barriers need to be addressed in order to provide market uptake*
Thank you for your attention!

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