

SUCCESS STORIES

Of the Members of the European Biogas Association



EBA
European Biogas Association

Good practices and innovations in the Biogas Industry

Energy & Process efficiency | Plant construction | Biological Additives | Feedstock Use | New markets

January 2017

Biogas to grid at Tönsberg Biogas



Operator
Malmberg Water AB
Location of the project
Tönsberg, Norway



Contact details
Tönsberg Municipal

Project results



Physical:

- Optimised feedstock usage
- Digestate
- Gas upgrading

Thermodynamics:

- No heat required for biogas upgrading process

Economical:

- Low total LCC in biogas upgrading

Socio-environmental:

- Waste reduction
- Reduced pollution
- New jobs
- Raised public awareness/acceptance on biogas and renewable energies
- Food waste becomes vehicle gas for public buses
- Manure is brought back to farmers as biofertiliser

Project outline



The biogas plant is named 'The Magic Factory', since it produces totally renewable energy and recycles all of its waste. It's established in Tönsberg Municipality, which financed and owns the plant. Greve Biogas A/S rents the plant back on a long-term contract from Tönsberg Municipality and is also responsible for the planning and construction of the plant on behalf of the owners. The daily operation is done by Lindum A/S from Drammen.

The Magic Factory produces upgraded biogas (by Malmberg) and biofertiliser from 50,000 tonnes of food waste and manure from 45 farms in the area. A second stage is planned with a separate production of biogas and fertiliser from 30,000 tonnes of sewage sludge as well.





Technical data

Year of plant construction: 2014

Year of performed service: 2014

Plant size: 1,400 Nm³/h

Digester volume: 12,000 m³

Gas storage: Yes, storage during overcapacity periods (e.g. weekends)

Type of raw material: Organic waste and manure

Utilisation of biogas: Vehicle gas for 75 busses and 40 garbage collection trucks

Heat utilisation: Yes, heat exchange outgoing substrate with incoming

Utilisation of digestate: Fertiliser



Performed actions

Malmberg performed all main services in-house for the biogas upgrading plant from start to finish:

- Malmberg has delivered a Malmberg COMPACT® GR BAS 14 with raw gas capacity up to 1,400 Nm³/h.
- Activity started with design work after contract signing. The design is based on the large number of successful plants that have been constructed prior to this project.
- Process engineers dimension the flows and optimize the plant to meet the customer's requirements.
- The workshop pre-fabricate piping, columns etc and mount it. The workshop staff also assemble all components in the container.
- Quality controls are made before shipping the plant (pressure testing, x-ray testing etc.)
- After transport to site, Malmberg staff install the plant.
- Lastly Malmberg staff commission the plant, educate staff, and provide back-up support and live monitoring to tune in the plant.

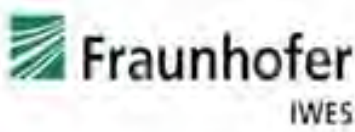
Results of performed service

A Malmberg COMPACT® upgrading machine has been installed in The Magic Factory at Tönsberg. The result is a robust and effective method for the production of at least 98% upgraded biomethane. Output: 68 Mio Nm³/y biomethane (68 GWh/y). 158,000 tonnes of fertiliser.

The concept is based on water scrubbing technology, which requires no heat and chemicals for the production of upgraded biogas.



Associated Members of the EBA



Dr. Jörgen Held (RENEWTEC)



Dutch Metrology Institute

Lars Salling



Lars Salling



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European Biogas Association

Advantages for Associate Members

- **Visibility of your company and services in the Companies' Catalogue**
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- **Raise the visibility of your studies**
- **Provide scientific evidence to EBA position papers and public communication**
- **Advise on programme EBA workshops and conference**
- **Support EBA Board in evaluation project proposals**
- **Extended cooperation with other members (research institutes, universities within SAC in order to increase exchange of experience and information in biogas research.**

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About the EBA

EBA's strategy is based on reaching the full potential of biogas and biomethane production, that equals roughly 10% of EU's current natural gas consumption. Furthermore, EBA's work evolves around the major contributions of biogas and biomethane to the key EU policies such as climate targets, energy security, resource efficiency, circular economy and various environmental legislation including air quality, prevention of contamination, bioeconomy and waste management.

EBA is the only European-wide organisation that supports the entire biogas and biomethane industry and liaises with policy makers in Brussels in order to steer the legal framework of biomethane.

EBA has an extended network across Europe. Our members are national biogas associations, international companies, research institutes as well as private persons. As a company member you can participate and contribute to the EBA's work over the platform of the CAC Company Advisory Council.

EBA is also a partner in different EU projects (e.g. BIOSURF, Biogas Action). As a company member you can be involved in our research activities and cooperate with EBA in removing existing barriers for biogas.



This Catalogue is based on the contributions from EBA Members.
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