Experiences with the production, distribution and use of biomethane in Upper Austria

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1st Information Day in the frame of the project GreenGasGrids
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OÖ. Gas-Wärme GmbH
a 100% subsidiary of OÖ. Ferngas AG

- Turnover: € 133 Mio
- Gas trading: 2.350 Mio. kWh
- Customers: 64.500
- Employees: 49 people
- Market position: Nr. 1 in Upper Austria
Planning of biogas plants since 2004
Planning of 15 plants in Austria

Construction of the first biomethane upgrading unit in Middle Europe – Pucking (Linz)

Market entry in Czech Republic – construction of biogas plants - installed electrical capacity – 25 MW

Market entry in Slovakia – construction of biogas plants - installed electrical capacity – 3 MW
Contents of presentation

- **Current situation of biogas/biomethane in Austria**
- **Current development in Austria**
  - energy strategy, laws, renewable electricity, Labelling
- **Utilization of biomethane**
  - heat
  - electricity
  - fuel
- **View for biomethane**
Development of Biogas in Austria


Ø 30 kWel. | Ø 110 kWel. | Ø 250 kWel.

~ 76 MWel. | ~ 500 GWh

0,7 % des Stromverbrauchs | Strom f. 150,000 Haushalte

Quelle: E- Control
Energy grids in Austria (gas & electricity)
Biogas upgrading units in Austria
grid injection into public grid

- **Pucking - 2005**
  OÖ Gas-Wärme GmbH - PSA - 6 Nm3/h - first upgrading unit in Middleurope

- **Bruck an der Leitha - 2007**
  Energiepark Bruck/Leitha – membrane technology - 100 Nm3/h

- **Schwaighofen bei Eugendorf - 2008**
  GRASKRAFT REITBACH/Salzburg AG, PSA, 40 Nm3/h, (only gras sillage)

- **Asten/Linz - 2010**
  Linz AG, DWW, 380 Nm3/h (3 Mio Nm3/a)

- **Engerwitzdorf - 2010**
  Naturgas Engerwitzdorf GmbH/ OÖ Gas-WärmeGmbH - amincleaning - 140 Nm3/h

- **Leoben - 2010**
  Steierische Gas-Wärme - amincleaning - 160 Nm3/h

- **Steindorf - 2011**
  Salzburg AG, PSA, 150 Nm3/h,

- **Wiener Neustadt - 2011**
  EVN – membrane technology - 120 Nm3/h

Biogas plant in Engerwitzdorf – UpperAustria
Biogas upgrading units in Austria
NO grid injection into public grid – Micro grids/fuelstation

- **Margarethen am Moos** - EVM, membrane technology
  CBG fuelstation - 100% Biomethane as fuel

- **Rechnitz** - Entsorgung Stipitz, PSA, CBG fuelstation

- **Güssing** - CBG fuelstation ; micro grid for biomethane

- **Grüne Bioraffinerie Utzenaich** - Oö. Bioraffinerie

Anlage in Margarethen am Moos
Applications of Biogas

- heat and electricity
- transportation
- grid injection
  - heating
  - electricity
  - transportation
Biomethane – comparison CO2 equivalent

CO2 Äquivalente der Energieträger [g/kWh]

Source: ARGE Kompost&Biogas
Biomethane – highest efficiency in renewable energy
Model of energy strategy - Austria

The diagram illustrates the energy strategy for Austria, focusing on the transition to renewable energy sources. The graph shows the energy consumption in PJ (Petajoule) from 2005 to 2008, with a projection to 2020. Key points include:

- Effizienzsteigerung (Efficiency Improvement) with a projected increase of 200 PJ.
- Stabilisierung des Endenergieverbrauchs (Stabilization of End Energy Consumption).
- Ausbau Erneuerbarer Energie (Auspansion of Renewable Energy) with an increase of 70 PJ (as of 2008).

The graph also highlights the goal of achieving 34% renewable energy by 2020, with a total energy consumption goal of 390 PJ (as of 2008) and 450 PJ by 2020. The data is sourced from the Austrian Energy Agency and the graphic design by brainbows.
Use of biomethane in all kind of applications by providing instruments in demand.

- Invest fund and support for building plants
- Predictable framework and funding for raw material (renewable crops, organic waste)
- Defaults in the housing subsidy for the use of biomethane gas mixtures as renewable energy sources in the field of space heating
Rules for electricity and heat, which is produced of biomethane out of gas grid.

Creating an attractive CNG biomethane fuel through tax exemption for mobility from CNG

Acceptance for biomethane in the GWG (Natural Gas Act) – laws for gas
Natural Gas Act 2011 contains references to biomethane

- Increasing use of the potential of biomethane are in the goals of the GWG anchored
- Rules for grid injection of biomethane
- Full grid access for biomethane feed-in, if gas quality and interoperability is not compromised
- Introduction of traceability
  - Basis for product labeling
  - Limit for r obligatory labeling utility
  - Regulatory power of E-Control for gas labeling
The green electricity act refers to biogas which is upgraded to biomethane.

- The conversion to renewable electricity gets supported rates between 13 cents and 16.5 / kWh
- For the injection of biogas into the natural gas network is a technology bonus of 2 ct / kWh provided.
- For biogas fired CHP plants is a surcharge of 2 cents / kWh provided.
- Obligatory documentation and evidence as a further basis for the traceability.
Electricity production from biomethane

Efficient use of electricity through biogas

- CHP where heat is also required
- High reliability due to existing infrastructure
- Existing funding regime for renewable electricity
- Better conditions created by the Green Electricity Act 2011
Heat utilization with biomethane

The room heating market as a huge potential for biogas

- About 1.3 million customers use natural gas in Austria
- High quality and competitiveness of natural gas/biomethane
- Consideration of natural gas-mixing products in the housing subsidies
- Uniform conditions for hole Austria in new acts
Heat utilization with biomethane

Amount of power produced in kWh for EUR 1000, - subsidy

Quelle: Energieinstitut JKU Linz – Studie Vergleichende Betrachtung von Förderkosten
CNG-stations in Austria

Number of CNG fuelstations in April 2012: 173
CNG-vehicles

In Austria about 6,000 CNG cars
Worldwide more than 11 Mio. CNG cars.

So weit fahren Sie mit 10 €
am Beispiel eines VW Touran DSG 7-Gang

Mit einer Tankfüllung um 10 Euro fahren Sie mit

- VW Touran 1.4 TSI, 140 PS: 111 km
- VW Touran 2.0 TDI, 140 PS: 128 km
- Diesel: 128 km
- Erdgas: 218 km

Quelle: OÖ. Gas-Wärme
Stable framework for CNG

5-point action program CNG / Bio-CNG

- Creation of investment protection through fiscal environment
- Promoting the use of biomethane as a fuel
- Increase in stocks of CNG vehicles
- Promotion of the development of infrastructure
- Improvement of technical and legal framework for the biogas feed
Natural Gas and biomethane as fuel

Emissionsvergleich von Biotreibstoffen

Verkehrsleistung:
136 Personen pro Kilometer

Quelle: www.umweltbundesamt.at/umweltschutz/verkehr/kraftstoffe/biokraftstoffe/oekobilanz_bioskraftstoffe
Biogas/Biomethane – Quo vadis?

Requirements for success

➢ Creating conditions that provide investment security (taxes, feed-in tariffs)

➢ Regulatory policies on competition aspects

➢ Competitiveness and quality of natural gas must not be interfered by grid injection of biomethane.

➢ Research into the optimal resources (renewable raw materials, residues, etc.) for production of biogas

➢ Stable development of the market model

➢ Joining forces (agriculture - gas industries)

**Political commitment necessary!**
Nothing is more powerful than an idea whose time has come!

(Victor Hugo)

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