AUSTRIAN COUNTRY REPORT

IEA Task 37 Meeting
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Total Energy Demand in Austria (1990 - 2008)

[Quelle: Statistik Austria]
Total Green Energy Contribution to Total Energy Demand in EU Countries

Green energy contribution to total primary energy demand is 25.6%

2.2% of total primary energy demand is provided by biogas (ÖSTAT, 2007)

Austria
Total Green Energy Contribution to the Electricity Sector in EU Countries

At the moment in Austria biogas is mainly supported via electricity production (Green Electricity Law- „Ökostromgesetz“)


"Ökostrom" - Subsidised Green Electricity

~70% of total electricity is green electricity (mainly hydro power)
~10% of total electricity is subsidised green electricity

In 2009 biogas produced 525 GWh al (1% of total electrical energy demand)
Development of Biogas Plants Registered at the Austrian Green Electricity Company (2001 - 2009)
Plant Size Distribution of Austrian Plants Registered at Austrian Green Electricity Company

341 Austrian biogas plants are registered at the Austrian Green Electricity Company with an maximum capacity of 94.5 MW$_{el}$ -

About one third is from the province "Lower Austria"

However, only 291 plants (77,0 MW$_{el}$) applied for subsidies at OeMAG and produced 525 GWh$_{el}$

Average plant size is 277 kW$_{el}$
## Status of Biogas in Austria (R. Braun, 2008)

<table>
<thead>
<tr>
<th>Substrate / Plant type</th>
<th>Number of plants</th>
<th>Mio. Nm³ biogas per year</th>
<th>% Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill</td>
<td>62</td>
<td>45 - 100</td>
<td>21</td>
</tr>
<tr>
<td>Sewage sludge</td>
<td>134</td>
<td>75 - 100</td>
<td>26</td>
</tr>
<tr>
<td>Agricultural plants (including co-digestion)</td>
<td>350</td>
<td>121 - 182</td>
<td>45</td>
</tr>
<tr>
<td>Industry (including anaerobic wastewater pre-treatment)</td>
<td>25</td>
<td>9 - 14</td>
<td>3</td>
</tr>
<tr>
<td>Plants from municipalities and waste associations</td>
<td>15</td>
<td>15 - 18</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>586</strong></td>
<td><strong>265 - 414</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Current Biogas Feed-In Tariffs in Austria

Economic Support Data:

- **Feed-in tariffs in Austria**
  From 2010 onwards just 3 instead of formerly 5 categories

  18.5 Cent / kWh up to 250 kW\(_{el}\)
  16.5 Cent / kWh from 250 - 500 kW\(_{el}\)
  13 Cent / kWh above 500 kW\(_{el}\)

  + 2 Cent / kWh if biogas is upgraded
  + 2 Cent / kWh if heat is used properly

- **Investment grants in Austria**
  Depend on local conditions
Composition of the Substrates in 200 Biogas Plants Based on Energy Content (E-Control GmbH)
Composition of the Organic Waste in 40 Austrian Biogas Plants Based on VS Content (Laaber et al. 2007)

- Kitchen leftovers and waste
- Grain debris
- Lecithin
- Sugar beet pulps
- Potato waste
- Milling residues
- Wheat bran
- Fruit and vegetable waste
- Separated Fats
- Glycerin
- Brewery waste
- Slaughter house waste
- Others

Composition of Organic Waste

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen leftovers and waste</td>
<td>20.0%</td>
</tr>
<tr>
<td>Grain debris</td>
<td>14.4%</td>
</tr>
<tr>
<td>Lecithin</td>
<td>13.0%</td>
</tr>
<tr>
<td>Sugar beet pulps</td>
<td>11.3%</td>
</tr>
<tr>
<td>Potato waste</td>
<td>10.8%</td>
</tr>
<tr>
<td>Milling residues</td>
<td>7.4%</td>
</tr>
<tr>
<td>Wheat bran</td>
<td>6.3%</td>
</tr>
<tr>
<td>Fruit and vegetable waste</td>
<td>6.1%</td>
</tr>
<tr>
<td>Separated Fats</td>
<td>4.5%</td>
</tr>
<tr>
<td>Glycerin</td>
<td>4.4%</td>
</tr>
<tr>
<td>Brewery waste</td>
<td>3.8%</td>
</tr>
<tr>
<td>Slaughter house waste</td>
<td>3.4%</td>
</tr>
<tr>
<td>Others</td>
<td>2.3%</td>
</tr>
</tbody>
</table>
Average electric process energy demand in Austrian biogas plants is 9 %
Average electric efficiency is 36 % ... and thermal efficiency ?
### Biogas-Upgrading Plant Inventory

**Summary of Up-grading Plants in Austria:**

<table>
<thead>
<tr>
<th>Plant / Location</th>
<th>In operation</th>
<th>Technique</th>
<th>Capacity (raw biogas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruck / Leitha</td>
<td>Since 2007</td>
<td>Gas permeation</td>
<td>180 Nm³ / hr</td>
</tr>
<tr>
<td>Pucking</td>
<td>Since 2005</td>
<td>PSA</td>
<td>10 Nm³ / hr</td>
</tr>
<tr>
<td>Leoben</td>
<td>Since 2009</td>
<td>Amine</td>
<td>140 Nm³ / hr</td>
</tr>
<tr>
<td>Linz</td>
<td>planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Margarethen am Moos</td>
<td>Since 2007</td>
<td>Membrane</td>
<td>25 kg CH₄ / hr (300 bar)</td>
</tr>
<tr>
<td>Eugendorf</td>
<td>Since 2008</td>
<td>Blend of Biomethane by PSA (20%) and Natural Gas (80%)</td>
<td>22 Nm³ / hr</td>
</tr>
</tbody>
</table>

**New plants:** Güssing (gas station), Wiener Neustadt (gas grid)

**Note:** A full up-grading plant list for the country will be needed in order to up-date the plant list on the website.
Political aims „Austrian Energy Strategy“
by Austrian Ministries of Economy and Environment

- In general: to limit Austrian energy demand to the value of 2005: 1.118 PJ
- By 2015: increase energy from biomass by 100 MW_{el} (also no dependence on nuclear energy imports is planned)

Main issues concerning BIOGAS:

- Focus on bio-methane production from biogas
- Use of biomethane as transportation fuel (Bio-CNG)
- Biomethane shall replace 10% of natural gas consumption (800 Mn. Nm³/yr)
- Increasing focus on total energy efficiency
- Keep up the strategy to support efficient electricity and heat production
- Biomethane → pushed by stimulating market demand and investment incentives
- Clear and comprehensible regulatory framework will be established
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Thank you for your attention!

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