Germany

In Germany 7.215 biogas plants with an energy generation capacity of 2,904 MW are installed in 2011. The majorities of these plants are generating electricity from manure and energy crops and are operated and owned by farmers or farmer’s cooperatives. Nearly 1,000 biogas plants are owned by communities and the main substrate is here sewage sludge and the organic fraction of municipal solid waste (OFMSW). 200 plants are operated by the sector “industry” using mainly waste water.

In the field of organic waste the main residues are treated in composting plants (approx. Total sum of 11 Mio t capacities). Merely about 100 biogas plants are operating with a total sum of 2.6 Mio t capacities (Kern, 2011).

Besides the conventional processing of biogas into combined heat and power engines, an injection of biogas into the natural gas grid is promoted. In 2011 already 80 biogas processing installations with a capacity of 460 million Nm³ are connected to the natural gas grid in Germany.

In Germany nearly 92 % of the existing plants are running on wet-fermentation-technologies, only 8 % are operating with dry-fermentation.

The table displays the current acceleration statistics and a forecast for the German biogas sector (FACHVERBAND BIOGAS E.V., 2012).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2010** | **2011** | **Forecast 2012** | **Forecast 2013** |
| **Number of biogas plants****(of these feeding biomethane)** | 5,905(45) | 7,215(80) | 7,521(100) | 7,895(120) |
| **Installed electric output (MW)** | 2,291 | 2,904 | 3,185 | 3,312 |
| **Net electricity production (MWh/a)** | 15.0 Mio. | 18.4 Mio. | 21.57 Mio. | 22.43 Mio. |
| **Proportion of electricity consumption (%)** | 2.5 | 3.03 |  |  |

The biogas plants are dispersed throughout Germany with a concentration in regions with intensive livestock farming

Biogas plants produce electricity and heat. The generated electricity is fed into the public grid, reimbursed in line with the Renewable Energy Source Act "EEG". The heat is partly used by the system itself. According to the DBFZ survey 45 % of the surplus of heat is used for e.g. district heating, heating of buildings, greenhouses or stables and drying processes. [DBFZ, 2012]

As intended by the EEG boni-system, the main input materials in biogas plants are energy crops with nearly 50 % (mass percentages), followed by excrements with 43 %. Organic waste and agricultural residues have only a limited share with fewer than 10 %.

Currently overall 199 million tons of solid and liquid manure from cows and pigs are produced in Germany. Furthermore nearly 8 million tons poultry solid manure are produced. In Germany 24.9 million tons cow and pig manure and 1.2 million tons poultry solid manure are used in anaerobic digestion. In the end, 12.6 % of the manure is used in biogas plants.