Switzerland Country Report

Cork / Ireland - September 2011

IEA Bioenergy Task 37
Biogas Plant Inventory

Development of installations

![Bar chart showing the development of biogas plants from 2000 to 2010. The chart includes data for agriculture, industrial waste, water, and biowaste.]
Biogas Plant Inventory

Gross gas production

![Biogas Plant Inventory Graph](image-url)
Biogas Plant Inventory

Waste Water Treatment Plants (WWTP) – development of installations
Biogas Plant Inventory

Waste Water Treatment Plants – gross gas production

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Country Report Switzerland - EREP SA
Biogas Plant Inventory

Biogas up-grading plants – development of installations

![Graph showing the number of biogas plants by year, with a significant increase from 2004 onwards. The graph includes data for agricultural, WWTP, biowaste, and total plants.]
Biogas Plant Inventory

Biogas up-grading plants – gross gas production

![Biogas Plant Inventory Graph]

- **Country:** Switzerland
- **Report:** Biogas up-grading plants – gross gas production

**Graph Details:**
- **Y-axis:** GWh/a
- **X-axis:** Years (2000 to 2010)
- **Legend:**
  - WWTP
  - Total

**Graph Description:**
- The graph illustrates the increase in biogas production over the years from 2000 to 2010.
- There is a notable increase in production from 2007 onwards, with a significant peak in 2010.
- The black line represents the total production, showing a consistent upward trend.
- The green bars indicate WWTP production, showing a smaller increase compared to the total production.
New biogas plants

- **Münchwilen / Biorender (March 2011)**
  → 30’000 tpy, slaughterhouse- and biowaste, biogas upgrading
- **Cadenazzo / Biogastech (Weltech) (April 2011)**
  → agricultural residues, cogeneration
- **Wauwil / Kompogas (May 2011)**
  → 16’000 tpy, biowaste, cogeneration, first recognized CO₂ reductions
- **Liesberg / Eisenmann (May 2011)**
  → 10,000 tpy, biowaste, cogeneration
- **Chavornay / Kompogas (June 2011)**
  → 20’000 tpy, biowaste, cogeneration
- **Villeneuve / Kompogas (June 2011)**
  15,000 tpy, biowaste, cogeneration
Biogas plants under construction

• Agricultural installations:
  Diesbach, Bure, Fleurier, Cernier Düdingen, Bellechasse, Noréaz, Zwillikon, Gollion

• Waste Water Treatment Plants / Co-digestion:
  Frutigen
Legislation

Modification: Regulation on elimination of animal by-products
• No more animal feeding with food waste
• Thermophilic installations digesting biowaste have to prove the hygienisation effect of their technology (or apply a hygienisation step)
In force: July 2011

Modification: Regulation on cost-covering feed-in tariff (electricity)
• Possibility to sanction in case of abuse (temporary or definite exclusion)
• Specification of how to manage modifications and extensions of installations
In force: October 2011

In revision: Regulation on waste treatment
Discussion on codigestion in WWTP and on digestion temperature in agricultural plants (substrate hygienisation)
Studies and research projects

Appreciation of organic matter in LCA’s
Evaluation of how to integrate the impacts of organic matter (in compost and digestate) in LCA’s and how to quantify them
Study in process (M. Zschokke, Carbotech, K. Schleiss, UMWEKO GmbH)

Optimal plant size – LCA evaluation
Centralised versus decentralised agricultural biogas production
Study in process (A. Dauriat, ENERS Energy Concept Sarl)

Improvement of standardised tests in batch reactors
Experimental evaluation of parameter influence
Study in process (C. Holliger, LBE/EPFL)
Studies and research projects

**MBR reactor: Digestion of manure and co-substrates**
Efficiency improvement for economic and space savings
Study in process (J.L. Hersener, Ingenieurbüro Hersener / U. Baier, ZHAW)

**Optimization of AD: Effects of thermochemical and enzymatic pretreatment and microbial additives**
Improvement of anaerobic degradation
Study in process (U. Baier, ZHAW / J.L. Hersener, Ingenieurbüro Hersener)
Studies and research projects

- **Digestion- & composting installations as a hygiene barrier**
  - Evaluation of the hygienisation potential of the digestion process, including new substrates and processes on the market
  - Shows weak points on substrates, pathogens and technologies
  - Gives recommendations for optimized plant operation

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