

PROSMACO - PROMotion of SMALL scale COgeneration

SAVE II Programme - European Commission

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Case Study One: biogas cogeneration in laab (Austria)

Not far from Vienna but in a typical Austrian rural countryside, sisters of the Laab/Walde Covent (Barmherzigen Schwester) have decided to install a biogas fired cogeneration unit in their agricultural facilities.

The primary aims of the installation is to ensure energy autonomy and transform environmentally harmful waste into a valuable asset.

The principle

Animal waste such as pig dung is collected and methanized in a digester in order to produce biogas. Biogas is stocked in an inflatable tank and burned in a conventional car engine situated in the boiler room of the farm. An alternator is coupled to the engine as well as a heat exchanger. Electricity is consumed by the farm and the nearby covent whereas heat is used for the

farm office and stalls. It is also used to accelerate biogas production. The emissions of the exhausts match local environmental standards.

In the near future it is foreseen to add food residues from a hospital managed by the sisters in order to raise the biogas output (co-fermentation of food and animal waste). In full configuration, the production of heat and electricity will be respectively of 830 000 kW/h and 773 800 kWh per annum.

“A perfect example of sustainable and adapted technology for agriculture”

Matyas Scheibler, ENTEC



Residues from the digestion process are turned into useful fertilizing elements.

Photo: J. Schnotale



Technical characteristics

Installed electrical capacity: 20 kWe

Prime Mover: Ford 3.0 Otto- 6 Cylinder engine (8/10 h/d)

Consumption: 12-15 m³/h

Electrical efficiency: 27%

Thermal efficiency: 58%

Overall efficiency: 85%

Avoided CO₂ emissions: the farm does not have to use carbon intensive fossil fuels any longer (peak heat comes from a wood stove).

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The Otto-6 Cylinder engine.
Photo: J. Schnotale.

Cogeneration and rural development

CHP, Combined Heat and Power, or cogeneration is the simultaneous production of heat and electricity. This proven technology produces around 10% of Europe's electricity and heat requirements. The EU has a target of doubling the share of cogenerated electricity by 2010. Cogeneration has a significant growth potential, which will lead to an improved environment and greater economic competitiveness. It is a highly energy efficient energy solution that delivers substantial reductions in greenhouse gases and other pollutants and is the single largest solution to meeting the Kyoto Protocol on climate change for Europe.

For further information on cogeneration:

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PROSMACO aims to promote the development of small-scale cogeneration in rural areas. PROSMACO is one of the many European projects helping the EU meet its cogeneration target but its originality lies in its geographical scope: the European rural areas. As a typically decentralized technique, cogeneration has got a role to play in rural development by bringing

- ◆ Empowerment of local communities
- ◆ Possible use of indigeneous fuels
- ◆ Local employment
- ◆ Increased security and quality of energy supply

The weather events in December 1999 in France showed that rural areas are often the most vulnerable parts of traditional, centralized electricity systems. However, the potential of small-scale cogeneration, in particular when using alternative fuels such as LPG or biogas, is often not considered at a local level or if it is, it faces a range of market barriers. The project aims at identifying and overcoming these barriers. It also promotes the use of innovative financial measures such as Third Party Financing whereby the energy user does not have to invest directly. 6 Pilot Actions (5 in the EU and one in Poland) and several case studies have been selected in agro-food industries, farms, ski resorts, small hotels and isolated houses. PROSMACO participants are INESTENE (France) , COGEN Europe, Ecotherm (Poland), Theofylactos & Associates (Greece), OEKV (Austria), FR2E (France) and Econoler (Belgium).

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