St. Martin, Upper Austria

Biogas Plant Grossfurtner

This biogas plant in the village of St. Martin is directly integrated into the largest abattoir of Austria. The company Großfurtner slaughters 550,000 pigs and 50,000 cattle per year. It is the first biogas plant worldwide which exclusively uses slaughterhouse waste as substrate for biogas production. All in all 10,000 tons of blood, rumen content, colon content and grease separation material is used to produce 3.6 Mio. kWh electricity and 3.6 Mio. kWh heat per year.

The aim of the project was the improvement of the economic and ecological performance of this abattoir. Two cost intensive areas in the company are the energy costs (natural gas, electricity) and the disposal costs for the slaughterhouse waste. By using the slaughterhouse waste as substrate for biogas production Großfurtner can reduce the disposal costs and can cover approximately 33% of their electricity demand and 75% of their heat demand with renewable energies.

Technology at a glance

- Biogas production: 5,000 m^3/day
- Methane content: 67% – 69%
- Installed power: 525 kWel, 525 kWth
- Digesters: 1x600 m3, 2 x1,000 m3
- Substrate/year: 2,000 m^3 blood, 1,000 t rumen content, 3,000 t colon content, 4,000 t grease separation material
- Input waste/substrate: 170 – 230 t/week
- Pre-treatment: continuous pasteurisation
- Operating hours: 8,400 h/ year

Information on financing

Year of realisation: 2003
Investment costs: € 1.8 million (first stage in 2003)
Feed-in tariff electricity: 11 cent/kWh
Tariff for heat sale: covering for own heat demand
Disposal costs: 5 – 50 €/ton slaughterhouse waste

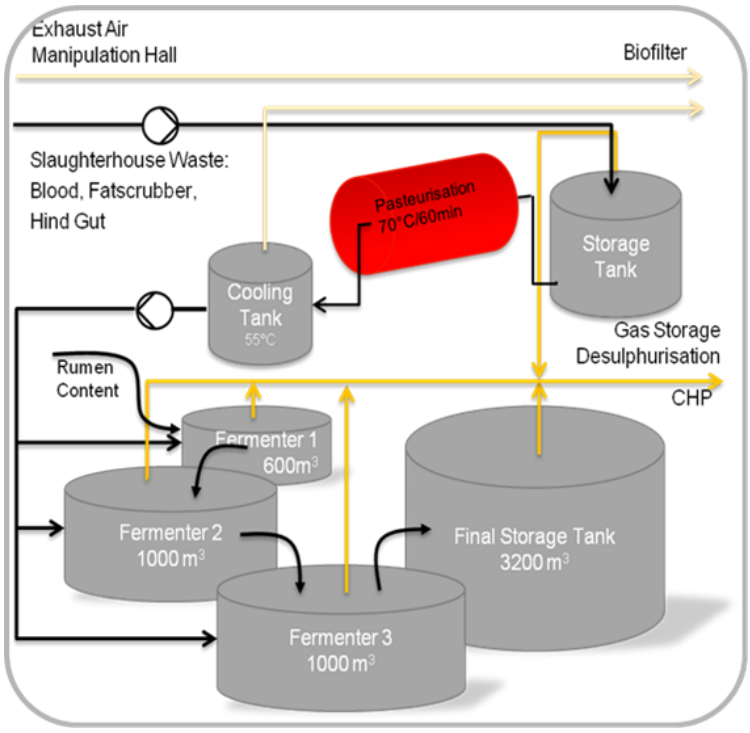
Special features of the project

Slaughterhouse residues are interesting substrates for producing biogas because disposal costs of most fractions are high. So lots of companies are interested to implement biogas technology to reduce disposal costs and energy costs.
However, these fractions (like blood) have high nitrogen content and nitrogen (ammonia) can lead to microbiological inhibition and insufficient biogas production. So slaughterhouse residues are generally used as co-substrate to limit ammonia content to max. 5 g/l in the digester content. The biogas plant Großfurtner was the first biogas plant using 100% slaughterhouse residues with ammonia content of more than 7 g/l and high degradation rates. Within several research projects a number of parameters were changed and the whole process optimized to work satisfactory at high nitrogen concentrations.

Co-funded by the Intelligent Energy Europe Programme of the European Union

BEST-PRACTICE

BIOGAS PLANT ST. MARTIN, UPPER AUSTRIA



Process design biogas plant Großfurtner

More information

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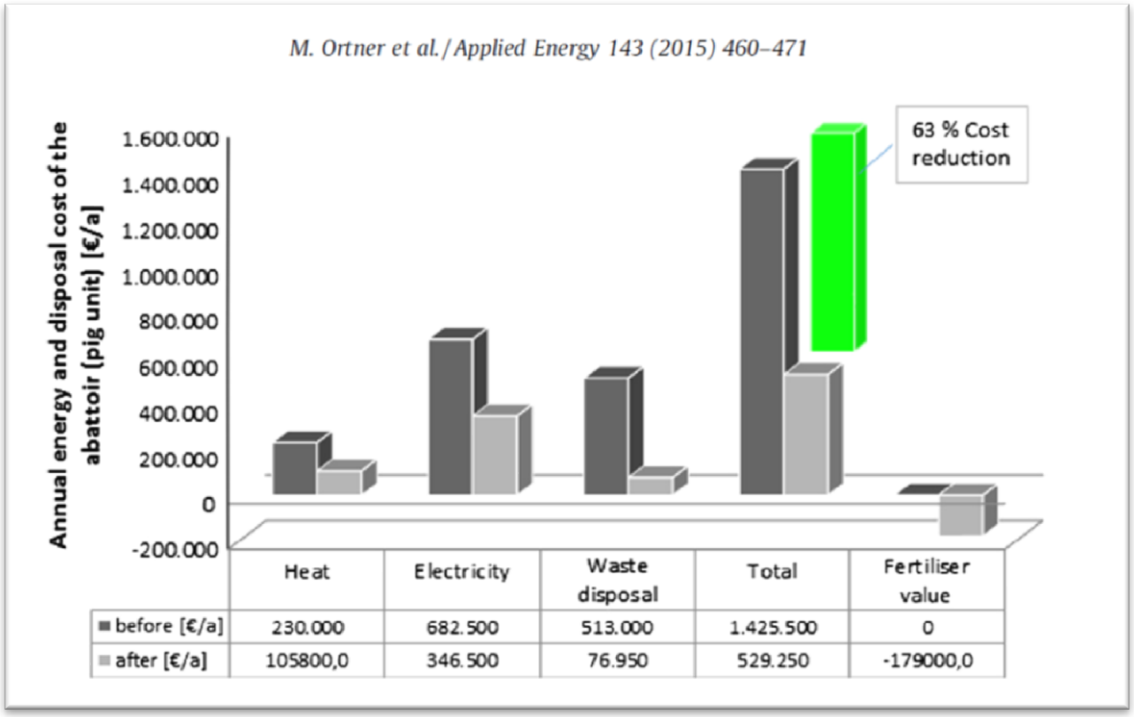

Cost reduction after implementing the biogas plant into the slaughterhouse

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