

Biogas plant „St. Stefan im Rosental“ Rosentaler bio power plant

ltd. partnership with a ltd. liability company as general partner

The “Rosentaler” biogas plant in St. Stefan (Eastern Styria) was built in the year 2003 with the latest technology and was at that time one of the biggest biogas plants in Styria. This plant for the first time realised a combination of organic waste, animal by products, liquid manure and renewable primary products (energy crops) by installing an innovative hygienisation unit (1 hour at 70°C). Thus, the plant fully operates in compliance with EU-hygiene regulations. The corporate partnership includes 10 farmers (owning 80 %), who have pig breeding and pig fattening farms, the municipality St. Stefan (10 %) and a waste management company (10 %). This plant was the first to fully substitute industrial fertilizer with the fertilizer produced in the biogas plant itself. Special emphasis was put on using only regional feedstock.

About 5500 tons liquid manure (pig), 1800 tons silage maize, 950 tons silage grain maize, 200 tons green pruning, about 240 tons apples/pomace (residuals from juice squeezing), 130 tons vegetable matter and 1900 tons organic leftovers make the annual feedstock of this biogas plant. The costs for the plant amounted to 2,600,000 Euro.



Biogas Plant St. Stefan © Rosentaler Bio Power

The plant produces about 750 kW of electricity per hour, which is supplied to the public grid. The produced thermal energy is fed into a district heating system and used for heating the neighbouring stables, two blocks of flats and for drying fruit in a neighbouring plant. In future the link to an older existing biomass district heating system should be realized.

Because of the production of nitrogen fertilizer (residue of the fermentation of the feedstock) it is possible to substitute the acquisition of commercial fertilizer and furthermore to raise the regional added value. The available area for spreading the fertilizer is 345 ha.

The biogas plant St. Stefan is being scientifically monitored during the first years of operation. The results of this monitoring are documented and should provide important know-how for other biogas plants.

Johann Luttenberger (operator)

“A closed regional economic cycle is achieved through the use of biogenous residues from the region and agricultural resources like liquid manure and maize silage. Unfortunately, due to legal restrictions, we are not able to also use the sewage sludge from the communal sewage plant in our biogas digester. The operators are nonetheless proud to have set up a truly exemplary biogas plant.”

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Biogas Regions Shining Example



key data

Start of Operation	2003
Type of corporation.....	Ltd. Company & Co KG
Amount of gas produced	6800 m³ per day
Investment costs	2 600 000 €

feedstock

Liquid manure (pig).....	5500 tons per year
Maize silage	1800 tons per year
Silage grain maize.....	950 tons per year
Loppings	200 tons per year
Apples / pomace	240 tons per year
Vegetable matter	130 tons per year
Organic leftovers	1900 tons per year

About half of the feedstock is provided by the owners of the plant. The other half is supplied externally generating a small revenue.

production data

Available area for the output of the biogas fertilizer	345 ha
Thermal power rating of the gas engine	1240 kW
Generated thermal energy.....	3 100 000 kWh per year
Utilisation of heat	neighbouring stables 2 blocks of flats fruit drying plant
Electric power rating of the gas engine	2 x 500 kW
Generated electric energy	15 300 kWh per day
Power consumption (electricity) of the plant itself	196 400 kWh per year
Annual delivery of electricity to the (regional) electric grid company	5 388 100 kWh per year
District heating network	3 100 000 kWh per year (stables, fruit drying plant = 105°C supply temperature)

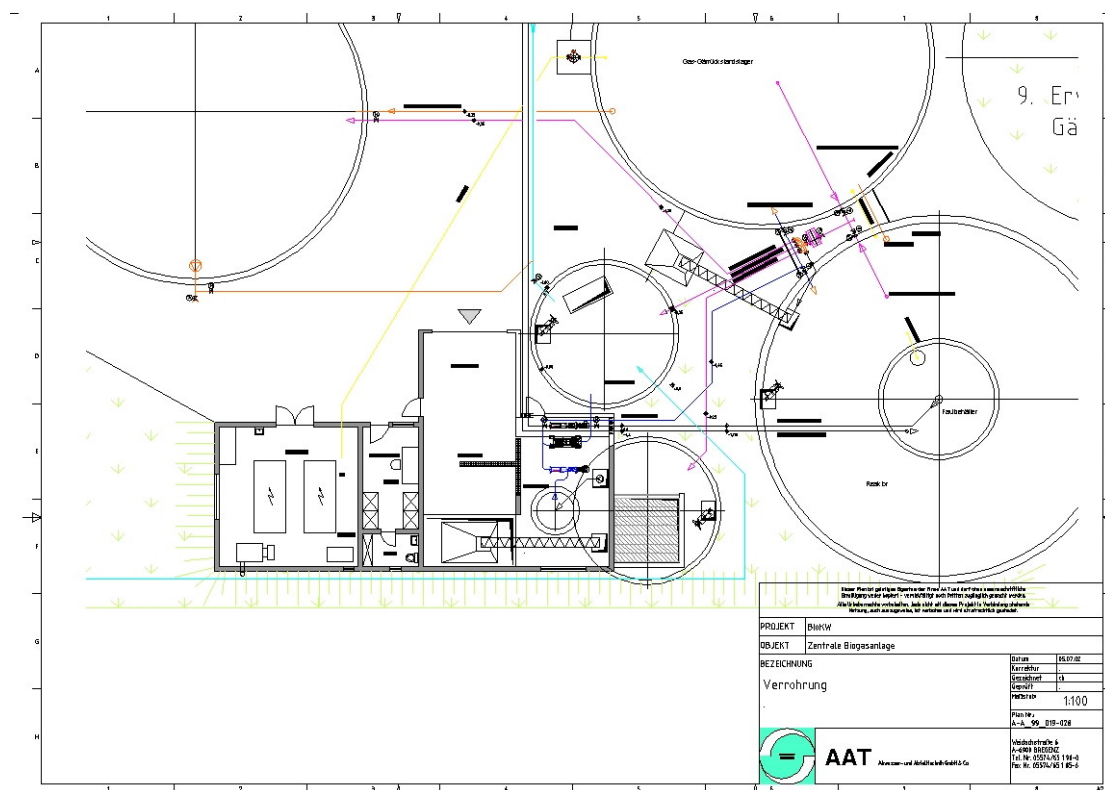
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technical plant description

Digester	1380 m³
Second digester	1430 m³
Gas storage tank	1080 m³
Mixing vessel liquid manure	150 m³
Mixing vessel co-enzymes	120 m³
Residence time in the digester	~ 70 days
Temperature of the anaerobic digestion (operational)	38°C
Average expenditure of human labour	4 hours per day
Liquefied petroleum gas burner	1300 kWh
(for supporting the district heating network)	



For further Information, please visit [the plant's webpage](#) or contact:



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