

## Biogas plant „Gosdorf“ BIO ENERGIE Lukas-Pfeiler-Tscherner GmbH & Co KG

The biogas plant owned and operated by BIO ENERGIE Lukas-Pfeiler-Tscherner GmbH & Co KG started its operation in August 2004 after a construction time of 6 months. The operators of the plant own agricultural businesses specialised on pig, chicken and vegetable production.

The plant operates in a continuous process with completely mixed digesters with a main and a post digester made of reinforced concrete, both digesters have a volume of 2500 m<sup>3</sup> each. The fermentation substrate is made up of around 2000 m<sup>3</sup> liquid pig manure, 1000 m<sup>3</sup> surface water, 30 t grass silage, 2700 t maize silage, 180 t rye and 160 t sunflowers annually, which are produced in part by the plant operators but also supplied to the biogas plant by other farmers in the region. The fermentation substrate is added to the main digester using a spiral screw (auger) system. Lying paddle agitators in each digester prevent the formation of floating layers. An additional agitator which is operated using a tractor is also installed in the digesters. The liquid (liquid pig manure and surface water) is pumped into the main and post digester.



Biogas Plant Gosdorf © LEA

The biogas plant produces around 6000 m<sup>3</sup> of biogas per day. 100% of the generated electricity is fed into the public grid; the amount needed for personal consumption and use in the agricultural businesses by the operators (residential buildings, stables and a maize drying plant) is then bought back.

*Markus Lukas (one of the three CEOs)*

*“Operating a biogas plant is a new challenge and further offers the possibility to keep the added value in the region. This way it is also possible for many small projects and initiatives to do something against the rising amount of CO<sub>2</sub> emissions.”*

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# Biogas Regions Shining Example



## key data

Start of Operation .....	<b>2004</b>
Type of corporation.....	<b>Ltd. Company &amp; Co KG</b>
Amount of gas produced .....	<b>6000 m<sup>3</sup> per day</b>
Investment costs .....	<b>1 700 000 €</b>

## feedstock

Liquid manure (pig).....	<b>2000 m<sup>3</sup> per year</b>
Surface Water.....	<b>1000 m<sup>3</sup> per year</b>
Grass silage.....	<b>30 tons per year</b>
Maize silage .....	<b>2700 tons per year</b>
Rye.....	<b>180 tons per year</b>
Sunflowers (whole plant).....	<b>160 tons per year</b>

## production data

Thermal power rating of the gas engine .....	<b>568 kW</b>
Generated thermal energy .....	<b>2 368 MWh per year</b>
Utilisation of heat .....	<b>Residential buildings stables maize drying plant</b>
Electric power rating of the gas engine .....	<b>500 kW</b>
Generated electric energy.....	<b>4 000 MWh per year</b>
Power consumption (electricity) of the plant itself .....	<b>434 000 kWh per year</b>
Annual delivery of electricity to the (regional) electric grid company .....	<b>3 566 000 kWh per year</b>

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## technical plant description

Clamp silo .....	<b>10 000 m<sup>3</sup></b>
Digester .....	<b>2500 m<sup>3</sup></b>
Second digester .....	<b>2500 m<sup>3</sup></b>
Gas storage tank .....	<b>900 m<sup>3</sup> each</b>
Slurry tank.....	<b>350 m<sup>3</sup></b>
Surface water tank.....	<b>250 m<sup>3</sup></b>
Residence time in the digester .....	<b>~ 80 days</b>
Temperature of the anaerobic digestion (operational) .....	<b>38 -40°C</b>
Average expenditure of human labour .....	<b>5 - 6 hours per day</b>
Liquid manure pond .....	<b>8 000 m<sup>3</sup></b>

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