

Absolute efficiency in electricity and heat production from biogas by fermenting renewable substrates in Třeboň, Czech Republic

SUCCESS STORY

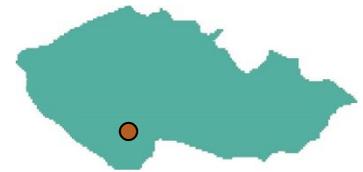


Picture: MT-Energie

Operator

BIOPLYN Třeboň spol. s.r.o.

Location of the project



Třeboň, Czech Republic

Contact details

MT-Energie GmbH
info@MT-Energie.com

Customer: BIOPLYN Třeboň
Třeboň, Dukelská 134/I.
PSČ 379 01

Project results

Socio-environmental:

- Raised public awareness and acceptance on biogas and renewable energies
- Waste reduction
- New jobs
- Renewable electricity or heat supply

Project outline

The City of Třeboň is a famous health resort village in southern Czech Republic. The huge energy demand and rising energy prices for the resort town on, together with the enthusiasm of a farmer for biogas, made it possible to create an innovative biogas project for the area.

The investor was already running one of the oldest biogas plants in the country (built in the 1970s) and wanted to build another one using modern technology to fully use the excess heat. The new biogas plant, built next to the first one, was expected to be a significant economic contribution to the farm.

Technical data

Year of plant construction:

2009

Year of performed service:

2009 - today

Plant size: 844 kW + 170 kW

Digester volume:

2 x digester (2 x 3.325 m³ gross or 6,095 m³ net). Dimensions: 21 m x 6 m

1x secondary digester (3.325 m³ gross).

Dimensions: 23 m x 6 m

Gas storage: 2,450 m³ net

HRT : ~130 days

Process temperature: 40°C

Type of raw material:

Maize silage, grass silage, pig manure

Utilisation of biogas:

Production of electricity and heat in two independent cogeneration units

Heat utilisation:

Heat is used in health resort village and for heating of the swimming pool. Part is also used by the operator of biogas plant

Utilisation of digestate:

Digestate is given for free to farmers and spread as a fertilizer on nearby fields

Total investment costs:

~€4,500,000

Subsidy:

45% from the Czech Ministry of Industry .
FIT for electricity obtained in 2009 4.12 CZK/kWh (approx. 0,16 EUR/kWh). Internal contract for heat between the operator and consumer.

Performed actions

MT-Energie developed a concept for this situation. A new biogas plant was built and connected to the old one. When biogas produced in the old facility meets certain quality requirements, it is mixed with gas of the new plant. Biogas produced passes through a 4.6 km long pipeline to the resort village. Locally, the gas is used in a cogeneration plant with the capacity of 820 kW to generate heat and electricity. All excess heat is used in spa and wellness center. Electricity is fed into the network. The CHP is located in the immediate vicinity of houses and is particularly well sound-proofed.

There is also a small cogeneration plant with the capacity of 170 kW located directly at the biogas plant. With the heat it produces, the buildings of the investor are heated, and the power created is used for own consumption with the excess power fed into the grid.

Results of performed service

The operator of the resort gets stable, cheap, and ecological energy year round. The biogas plant accepts animal waste from the pig production, lowers energy costs and creates a stable income for the farm. In such operations, both entities can operate very effectively.

This project concept is positively presented not only to the Spa visitors, but also in local press and energy journals and has won many awards. One of the most important is the designation: "Czech Ecological and Energetic Project of 2009".

Positive reaction to this project has helped increase the acceptance of biogas plants and renewable energy in the Czech Republic, which in recent years had been heavily damaged by the photovoltaic industry.