

BIOGAS PLANT OTTERNHAGEN

Harnessing nature's energy



Pre-insulated
Flexalen pipes



Certificates



PROJECT INTRODUCTION

The heating circuit is a co-generation plant (CHP) which delivers a thermal output of 581 kW per day through the conversion of 2.500 cubic meters of biogas into heat and power. To ensure a trouble free production of heat all year long, the drive-way to this plant (that part of the system that "consumes" the substrates) is equipped with a biogas-powered floor heating. It prevents snow and ice on the drive-way, making an all year-round safe transport of substrates possible.

GOALS

The generation of heat and power, independent from fossil fuels through cow manure, maize silage and grass, is in line with the objectives of the regional action program: reducing greenhouse gas emissions, energy costs and boosting the local economy. Additionally the landscape in and around Otternhagen is very impressive. In the east of Otternhagen there is a nature reserve, which is 1.000 acres large, including the Otternhagener moor. Preserving this exceptional landscape was a critical consideration.

PROJECT PROCESS

The pipes were surrounded by a layer of sand, which, after closing all sides, reaches up to 10 cm. Fine-grained material was also mixed with the sand when filling the trench. This prevents continuous air channels, which improves the insulating properties of the surrounding soil. When the flexible Flexalen pre-insulated pipes pass under roads, a minimal overlap of 80 cm was necessary. For areas without traffic load an overlap of 50 cm was enough. An important task is attributed to the compression of the soil in the pipe trench. This serves not only to expel air bubbles, but leads also to a more pronounced layering of materials (sand and backfill). By doing this, a transition area between the layers and an additional thermal barrier was created.

PROJECT INTRODUCTION

- 📍 Neustadt am Rübenberge, Germany
- Duration: 2 Months
- 70 hectares of grass, producing 2,500 cubic meters of biogas per day
- 2,500m of Flexalen distribution network
- 120 cows and 75 acres of corn transforming in 581 kW of electricity and heat per day

APPLICATIONS

- Heating Networks

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RESULTS

The new biogas plant in Otternhagen is now one of more than 7,300 facilities in Germany. Their total electric output is over 3 Gigawatts. This roughly corresponds to the nominal power of two major nuclear power plants, covering nearly 15% of the electricity from renewable energy sources. In Germany, five million households receive electricity from biogas plants, and thousands of homes are supplied with clean, sustainable heating via combined heat and power from waste heat. For the Otternhagen project, an advanced heating network was built in a trench of more than one kilometer in length with 2.5 km of Flexalen. The entire product range from DN20 to DN80 was used.

