

Province of Warmia and Mazury, Poland

Biogas Plant Boleszyn

Special feature of Project

Biogas plant in Boleszyn is an example of investment which benefited both the farmers and the local community. Currently burdensome slurry formed during the rearing of pigs is not a problem for local residents, and additionally inhabitants, school and the church in Boleszyn receive hot water, so that the cost of winter heating has significantly decreased. Electricity is sold and the heat produced in the biogas plant is also used by the local distillery. What is more, the owners built the pool, water in which will be heated by thermal energy produced from biogas. It is much cheaper than if it was produced from gas and coal. What's more, the owners signed a letter of intent with the local municipal governments in which they declare that they will lead the swimming classes for students from the schools.

Biogas plant owners decided to reach for external funds for the development of biogas plant for the installation for digestate management. The project was co-financed by the The Regional Operational Programme Warmia and Mazury. Thanks to a grant, the installation in Boleszynie was enriched by a third gas cogenerator of electric power of 800 kW, which is powered by biogas. Thus, the power of biogas plant was increased to 1.8 MW. The owners decided to go even further and once again reach for funds from the European Union to build a biomass heating plant and processing line for digestate.

Biogas plant description

Construction of biogas consumed approx. 22 million PLN, however more than 11.3 million PLN was funded from the Operational Programme Infrastructure and Environment.

The biogas plant in Boleszyn was built next to the pig farm. The substrates in this biogas plant are: manure, corn silage, as well as distillery stillage and whey. In the process four different co-substrates are stably fermented yielding high biogas production. All in all 43,900 tons of maize silage, slurry, distillery stillage and whey are used to produce 8.5 mln kWh of electricity and 9.2 mln kWh of heat per year. Firstly, the resulting gas - methane was burned in two cogeneration units - engines with an output of 500 kW, currently the biogas plant capacity was increased to 2 MW.

Initially, the residents of Boleszyn began to protest against this investment. That is why the investor invited to the village the scientists from the University and installation designers to speak about this technology. Some people opposed to the construction of biogas and the protests did not stop. Then investors invited all residents of Boleszyn for a coach trip to Germany to see some local agricultural biogas plants. They paid all costs, including the hotel. But not everyone wanted to take advantage of this offer. Moreover, even some of those who went to Germany, they still doubted. However, the attitude of the residents changed only when the biogas plant started operation. The residents found out that proximity of the installation do not have to be a nuisance, that biogas plant does not generate odours.

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Boleszyn residents have recently been teased by the odor that came from standing on the edge of the village pig farm for a few hundred of pigs. Actually, from the slurry tanks in which it was stored (in Polish legislation for several months of the year it cannot be exported to the field). Also the odours came from the fields, on which it was spread. That all changed when the pig owners, built this biogas plant, in which all the manure from the farm is managed straight away and there is no need to store. The manure is transported to the biogas plant with the pipeline, which was built for this purpose. Thanks to biogas plant the piggery is much less annoying to neighbours than before.

What is more the owners of the biogas plant offered the residents to supply them hot water (for heating), heated by the energy produced in the biogas plant. The price was very attractive, so the costs of heating the house decreased twice.

So far, more than 20 homes in Boleszynie, church, rectory, and in cooperation with the municipal government- primary school was successfully connected to the pipeline.

Due to the fact that the owners built biogas plant, the piggery again began to be profitable. First of all, the buildings in which piglets and sows are holding must be heated. Previously, it cost thousands of PLN per year. Today, the entire house is heated by the biogas plant. Secondly, they do not have to export the manure to fields, which was also associated with considerable costs and was a pain for the villagers. Thirdly, they sell the digestate. And finally, manure makes more profit as a substrate for energy production than as a fertilizer. Currently, biogas plant in Boleszyn is one of the few in Poland, which do not generate losses. Mainly because they do not buy substrates



(Source:http://energiaodnawialna.kpodr.pl/index.php?option=com_content&view=article&id=115:biogazownia-po-ssiedzku&catid=39:biogaz-&Itemid=90)

for their installation which consumes 50 tons of corn silage and 30 tons of manure per day. They have their own silage and manure, and the rest of the substrates are waste from agro-food industry.

The owners decided to go even further and once again ask for funds from the European Union. This time, in order to build a biomass heating plant and the processing line for digestate. According to estimates heating plant will produce heat for 6, 5 thousand. hours per year and deliver it to 100 % Boleszyn residents and to newly built pool. In addition, the investment will contribute to the use of part of the heat generated by the biogas plant, which is now lost in the cooling process.

The main difficulties in the realization of biogas plant project were: obtaining the approval of inhabitants from Boleszyn. Another barrier was the wrong way of interpretation of the regulations not only during the process of issuing a building permit, but also obtaining licenses and permits for use and all decisions that are associated with it. Another stumbling block in the investment process was connection to the grid.

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Technology at a glance

Biogas production:	4 230 000 m ³ /year
Methane content:	53%
Installed power:	1050 kWel 1156 kWth
Digesters:	3x4239 m ³
Substrate/year:	20 000 t maize silage 13 000 t slurry 7 300 t whey 3 600 t distillery stillage
Input waste/substrate:	43 900 t/year

Information on financing

Year of realisation:	2012
Investment costs:	22 mln PLN
Feed-in tariff electricity:	0.38 PLN/kWh
Tariff for heat sale:	not available
Disposal costs:	not available

More information

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