



Added value from an agricultural biogas plant

The biogas plant BIO-NIK ELEKTRA Sp. z o.o. in Kisielice, with the capacity of 0.999 MWe and 1.1 MWth, launched in 2014, is an integral part of an agricultural farm (1,800 ha).

The feedstock used in this biogas plant is maize silage in an amount of 17.5 thousand tons and slurry in an amount of 7,000 m³ obtained from own arable land and piggery. The biogas plant is a classical installation with sections of harvest, ensiling and storage of maize silage, and the transport of slurry, a fermentation digester and secondary digester, digestate tank, and a cogeneration system with the capacity of 1.2 MW. The average annual production of biogas is 4,300 million m³, including 8,400 MWh of electricity and 29,733 GJ of heat. The biogas plant has a potential for further improvement of energy efficiency.

The biogas plant, while generating revenue from electric power sold to an electrical grid, is also a part of the organic matter circulation on the farm. In addition, some of the heat generated at the plant is used internally on the farm while part of it is sold to the municipal district heating system.

The added value of the biogas plant operating on the farm has

- an economic dimension, i.e., the price for sold kilowatt of electric power, own costs of operating the biogas plant plus price for blue certificates,
- an environmental dimension, i.e., digestate mass supplied to the farm's fields and
- a social dimension, i.e., quantity and price of heat power sold to the district heating system in Kisielice municipality.



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ADDITIONAL INFORMATION

Following the principles of good agricultural practice, digestate from the biogas plant is used for organic fertilization of the farm's fields. According to the current soil analyses, the systematic enrichment of soil with organic matter from digestate has had a positive effect on the concentration of carbon in soil reaching the level of 2.2%, which indicates a significantly higher content of organic matter in soil compared to the values of 1-2% for 56% of arable land in Poland.

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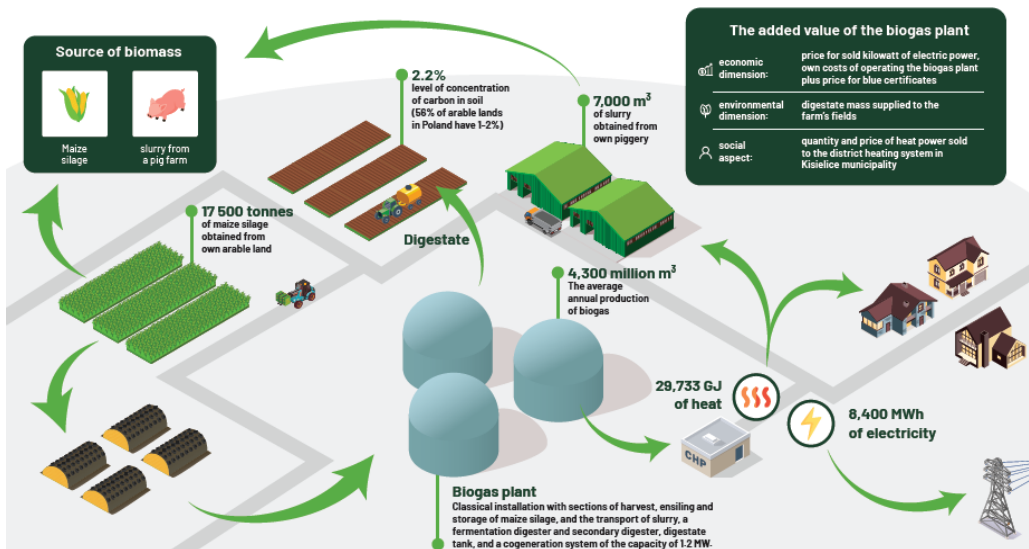


Photo source: Bio NIK, Waldemar Przechadzki

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BRANCHES is a H2020 "Coordination Support Action" project, that brings together 12 partners from 5 different countries. The overall objective of **BRANCHES** is to foster knowledge transfer and innovation in rural areas (agriculture and forestry), enhancing the viability and competitiveness of biomass supply chains and promoting innovative technologies, rural bioeconomy solutions and sustainable agricultural and forest management.



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