European Network for Rural Development

Alvesta Biogas – expanding its production capacity

EAFRD-funded projects

Sweden

Greenhouse gas & ammonia emissions

Location
Hjortsberga

Programming period
2014 – 2020

Priority
P5 – Resource efficiency & climate

Measure
M6 – Farm & business development

Funding (EUR)
Total budget 283 619
EAFRD 46 060
National/Regional 67 388
Private 170 171

Project duration
2015 – 2017

Project promoter
Alvesta Biogas AB

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Website
n/a

Support from the rural development programme was used to buy new machinery and expand the production capacity of a biogas plant.

Summary

During the 2007-2013 programming period, twelve farmers in Alvesta municipality began to look for possibilities to produce renewable fuel. Using Rural Development Programme (RDP) support they set up the Alvesta Biogas company in the county of Kronoberg.


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After operating the Alvesta Biogas for a year, several possibilities for improvements were identified. The main one was that the biogas plant had only one compressor and when maintenance work on the compressor took place, the whole production stopped. Having one compressor also limited the amount of manure that could be processed. Support from the 2014-2020 RDP was used to install an additional compressor in the biogas plant.

Results

An additional 100 000 kg of biogas are produced per year thanks to the new compressor. In total, 1.5 million kg of biogas are produced annually. This amount of biogas replaces about 2.2 million of litres of petrol.

About 150 tons per year of substrate are processed by the plant. Besides biogas, the anaerobic process also produces 'bio-fertiliser'. The produced 'bio-fertiliser' is not only used by the farmers who run the plant, but the company also sells about 15 000m^3 of the bio-fertiliser per year to other farmers who are not co-owners.

The higher concentration of usable nitrogen for plants in the 'bio-fertiliser' means that farmers do not need buy as much mineral fertiliser.

The bio-fertiliser does not smell as much as ordinary manure. So, farmers whose home is close to their fields are less affected by the smell when fertilising the fields.

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Alvesta Biogas – expanding its production capacity

Context

The company 'Alvesta Biogas' was set up by farmers for the production and use of biogas in the Kronoberg county. It started as a Leader-project in 2009 when twelve farmers in Alvesta municipality began to look for possibilities to use renewable fuel, improved fertilisers, reduce the odour when spreading manure and create new business opportunities. The pre-study resulted in concrete proposal for a biogas plant. In 2013, the Alvesta Biogas received approval for financial support from the County Administration Board. The support would contribute to construction of a biogas plant and a fuel station. RDP support (2007-2013) helped to set up the company and construct the production facilities.

The first biogas was produced at the beginning of 2015. After operating the Alvesta Biogas for a year, several possibilities for improvements were identified. The biogas plant had only one compressor. This meant that when maintenance work on the compressor took place, the whole production process had to stop. Having one compressor was also limiting the amount of manure that could be processed.

Objectives

The objective of this project was to increase the production of biogas for vehicles and process greater volumes of manure.

Activities

Support from the 2014-2020 RDP was used to install a new compressor in the biogas plant. The biogas and the 'bio-fertiliser' are produced from manure and the waste from a nearby slaughterhouse and a syrup distillery. The biogas is sold to the local gas station and to the energy company 'EON' who distributes the gas. The 'bio-fertiliser' is used by farmers in the area.

Main results

After the investment, a full time technician was hired. Another seven people work on a seven week roster (based on a rotation system) and are on call to provide support, in case something happens.

An additional 100 000 kg of biogas are produced per year thanks to the new compressor. In total, 1.5 million kg of biogas is produced annually.

Biogas is not the plant's only output. About 150 tons per year of substrate (manure and waste from a slaughterhouse and a syrup distillery) is processed by the plant and through the anaerobic process this produces 'bio-fertiliser'. All the nutrients of the substrate are maintained except for nitrogen, which mainly turns into NH4 and is one of the two forms of nitrogen that plants can use. Ordinary manure has about 15-20 kg/ton of usable nitrogen, while the 'bio-fertiliser' has about 30-35 kg/tonne of usable nitrogen. This is a better fertiliser and more cost effective for farmers. The 'bio-fertiliser' is not only used by the farmers/owners themselves, but the company also sells about 15 000m3 of the 'bio-fertiliser' per year to other farmers.

Around 4 500 kg of biogas is produced daily, which is enough to drive a car around the world twice. Manure from 1 500 cows, 2 300 calves, and 1 900 pigs is used to produce biogas. The production of 1.5 million kg of biogas per year replaces about 2.2 million of litres of petrol.

The biogas plant is part of a closed circuit. Manure and waste from a slaughterhouse and a syrup distillery are put into the biogas plant producing biogas and 'bio-fertiliser'. In essence, the nutrients taken from the farm to a significant degree are returned to the fields.

The higher concentration of usable nitrogen for plants in the 'bio-fertiliser' means that farmers do not need buy as much mineral fertiliser. Another positive environmental impact is that because the fresh manure is transported to the biogas plant, the emissions of methane and nitrous oxide from the farmers' depots of manure have decreased.

Another benefit of the bio-fertiliser is that it smells less than ordinary manure. So, farmers whose homes are close to their fields are less affected by the smell when fertilising takes place.

The biogas plant is the outcome of cooperation between twelve farmers. Cooperation between them expanded into other aspects of the farm operations. For example, they constructed smaller manure depots which are smaller manure depots located at the fields to make it easier to disseminate.

Additional sources of information

n/a

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