

## BELGIUM

### Facilitating the supply and use of renewable sources of energy

#### Location

Plombières

#### Programming period

2014 – 2020

#### Priority

P5 – Resource efficiency and climate

#### Measure

M6 – Farm and business development

#### Funding (EUR)

Total budget 222 000

EAFRD 18 150

National/Regional 60 500

Private 143 350

#### Project duration

2015 – 2016

#### Project promoter

Ferme de Bamisch

#### Contact

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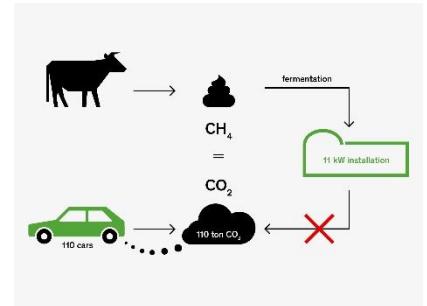
#### Website

n/a

A dairy farm in Wallonia invested in renewable energy production from manure and produced milk using a more environmental friendly process.

### Summary

The Bamisch farm is located in Plombières in the Liège region of Belgium, close to the German and Dutch borders, and has 900 livestock units of dairy cattle and 260 ha of utilised agricultural land. To take advantage of the new technologies for producing renewable energy from manure, the farm owner decided to invest in a biogas plant.



EAFRD and regional financial support helped the farm to set up a biogas unit of 33 kW. The plant pumps on a daily basis a fixed quantity of manure from the reactor to the digestate storage and replenishes the discharged volume with fresh manure from the manure pit. Though the process is fully automated, the farmer can supervise via a smart phone application.

### Results

The main achievement is the use of green energy for electricity on the farm, mainly during the milking process, which is fully automated, and is highly energy consuming.

After two years of use the farm is only half heated by the biogas plant. The farmer hasn't been able to use renewable energy to heat the milking area due to technical problems and ongoing adjustments to the system.

### Lessons & Recommendations

- ❑ The economic model of agricultural biomethanisation is not completely stable, especially those of the equipment companies, due to the continuous evolution of the technology;
- ❑ Getting connected to the electricity network takes a very long time and tends to slow down the amortisation schedule;
- ❑ The legislative context is also not stable. In Wallonia, rules for obtaining green certificates were relaxed in 2015 to ensure a return on investment over seven years, but the region lags behind Flanders in this area;
- ❑ Energy autonomy requires adjusting work on the farm and skills towards the use of complex technical devices, which entails indirect costs that are difficult to quantify.

## Context

The agricultural holding is located on the municipality of Plombières (around 10,000 inhabitants) in the Liège region, close to the German and Dutch borders. The rural area belongs to Pays de Herve. The farm has 900 dairy cattle and 260 hectares of utilised agricultural land. In 2006 the manager of the Bamisch farm became interested in the new opportunities being offered by green energies and acquired a Class 2 environmental permit.

## Objectives

The objective of this project was twofold: to protect the environment and to increase the farm's resilience to market fluctuations in the price of milk owing to the economic benefits of producing renewable energy.

## Activities

The EAFRD support was complemented by regional aid (investment premium) for the construction of the 33 kW agricultural biogas unit. The biogas plant daily pumps a fixed quantity of manure from the reactor to the digestate storage and replaces the discharged volume with fresh manure from the manure pit. This process is fully automated under the supervision of the farmer via a smart phone application.

A contract was signed with an equipment company that provided the following services:

- Access and site management (civil engineering works);
- Installation of the injection system;
- Installation of the production unit under shelter (300 cubic meters digester with hygienisation and separation of the phases);
- Connection to the electricity network;
- Installation and configuration of the security and monitoring systems;
- Provision of certification for the equipment.

## Main results

The biogas is formed in the reactor through anaerobic fermentation. The gas is then purified and converts in the combustion engine to energy. Such green energy can be used on the farm in the form of electricity and heat. The residual manure can be used as fertiliser in the fields.

The main achievement is the use of green energy as electricity on the farm, mainly during the milking process, which is fully automated, and requires high electric power.

The management plan of the biogas unit provides for three types of use of the energy produced, as outlined in the table below:

Type of use	Electricity (kW/year)	Heat (kW/year)
Milking farm	180 000	300 000
Biogas unit	24 000	165 000
Electricity resale	60 000	/
TOTAL	264 000	465 000

After two years of use, however, these figures were not reached because of technical problems and the adjustments still being made to the system. The farm is only half heated by the biogas plant and hasn't yet produced its own heat for the milking area.

## Key lessons

- The economic model of agricultural biomethanisation is not completely stabilised, especially upstream (equipment companies), due to the continuous evolution of the technology (early standardization);
- The requests to connect to the electricity network take a very long time to be processed and tend to slow down the amortisation schedule;
- The legislative context is constantly evolving; in Wallonia, the relaxation of the rules for obtaining green certificates in 2015 ensures a return on investment within seven years, but the region lags behind Flanders in this area;
- Energy autonomy requires a reorganisation of work and skills towards the use of complex technical devices; these indirect costs are difficult to quantify. In the case of the Bamisch farm, the system does not operate full time and the digestate production rate must be followed in order to be able to use green energy at the time of milking. On average, the technical monitoring requires around an hour a day.

## Additional sources of information

[www.bioelectric.be/en/](http://www.bioelectric.be/en/)