

Case Story

LOCATION/YEAR

Rødkærsbro, Denmark, 2017

PLANT PERFORMANCE

Input capacity

45,000 tons per year, consisting of pig slurry, cattle manure, cow dung/deep litter, barley straw, hay and maize silage, glycerin and others.

Output capacity

Biomethane: 2.75 million m³/year

AREA

Approx. 170 x 150 m

LEAD TIME

Building (biogas plant)

9 months for construction and 3 months for commissioning.

Total project

24–36 months.

»Testimonial from Sjoerd Ydema, owner of Vestergaard Bioenergi«

I didn't know much about biogas when Combigas started building the plant at my farm. The project was altered several times and took a little longer than expected. However, since the plant was put into operation, it has worked flawlessly. It runs automatically, is very manageable and easy to operate. Gas production, and thus our income, is higher than expected. Biogas has proven to be the right technology for us.

Vestergaard Bioenergi

CONTEXT/HISTORY

Sjoerd and Martine Ydema are from the Netherlands and they own Vestergaard, a cattle farm located in Rødkærsbro in Denmark. The farm has expanded significantly since its purchase and now has a large number of cattle that produce large amounts of dung and slurry.

Arla owns a nearby dairy which is a leading producer of mozzarella and pizza cheese: food products where the production is energy intensive. In addition to environmental considerations, this was the main reason why Arla became interested in sustainable energy derived from biogas.

Arla signed an agreement with two local farms for the supply of biogas to the dairy. One of the farms was Vestergaard, which could now supply biomass to the biogas plant Vestergaard Bioenergi, thus converting agricultural waste into a stable income.



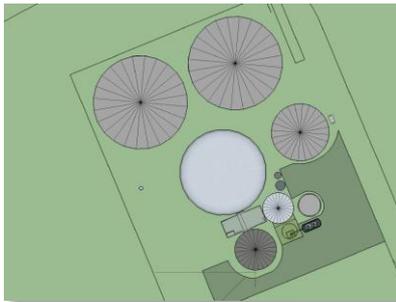
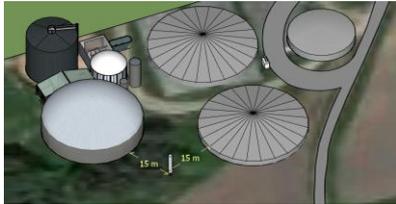
The biogas plant was put into operation in March 2017 and has been running successfully ever since.



The daily operation of the biogas plant is carried out by the farmer and an operations manager.

Combigas ApS
Ryttervangen 11C
7323 Give, Denmark

P | +45 96 80 80 60
W | www.combigas.com



Layout overview



Construction of Reactor Tanks

APPLIED TECHNOLOGY

The plant utilises different types of waste. The calculations are based on standard figures for these products. It may be adjusted, when composition of the input is known.

The biomasses are suitable for digestion and based on the content it is asessed that the biomass can be digested in thermophilic conditions (digestion at 50 - 53 °C).

Some of the heat is used for the fermentation process.

The plant is designed to produce 2,75 million m³ of biogas every year.

SCOPE OF DELIVERY

Mix Tank

Net capacity is 560 m³

Primary digester

Volume: 2,550 m³.

Secondary digester

Volume: 4,600 m³

Pre-storage tank

Volume: 1,500 m³

Other equipment

- Control system for automatic plant operation
- Commissioning and performance test

INVESTMENT COSTS

CAPEX

Cost of supply and installations, as described above of approx. 2,6 million Euro.

OPEX

Approx. 10% per year.

LESSONS LEARNED

The building of this kind of project involves not only the sale and implementation of technology, it also involves the transfer of knowhow at various levels.

General experience and the allocation of resources for training and education of the local workforce must be taken into consideration when it comes to biogas technology and applied science.

This is done to ensure the optimal and sustainable operation of biogas plants.