



## Green gas at the manor

- We believe strongly in the whole agenda of sustainability and circular thinking - making more of what we have. If we can use the residues and turn it into a business, then it will be interesting. This is how farmer Kristian Lundgaard-Karlshøj formulates his approach to biogas and other green initiatives, which he is rolling out on a large scale at Ausumgaard manor farm these years. The biogas plant is currently being expanded to a capacity of 15 million cubic metres a year.

Ausumgaard manor, located between Struer and Holstebro in the western part of Denmark, dates back to the Middle Ages. It is one of the few remaining manor houses in West Jutland and is today run by the fourth generation of the same family, Kristian Lundgaard-Karlshøj, together with his wife and their three children. The farm has over 20 employees and seasonal workers during the harvest season.

Ausumgaard has organic farming, chicken production, a minor pig farm and a farm shop. Since 2017, Kristian and his people have been producing biogas, and in 2020 they started a plant for extracting grass protein. Grass protein can be used as an additive to animal feed and is expected to replace soy, which Danish agriculture imports in large quantities from abroad. Kristian says:

- We already grow grass to optimize our organic crop rotation in the field and then bring it into biogas production. Therefore, it is interesting to "borrow it" first in the extraction of grass protein. It fits very well with circular business models. All we add is sun and rain and electricity from wind turbines.

### Robust tanks are important

Ausumgaard currently produces enough biogas to cover the annual heating needs of 7,743 households. But from 2024, when the plant is expanded with four new tanks, production will increase to cover the annual consumption of around 11,000 households. Ausumgaard purifies and upgrades the biogas, which is then sold to the gas grid, allowing the biogas to reach many places in Europe - from Holstebro to Hamburg.

The post-digester is supplied by A-Consult. That also goes for the water tank and the tanks for inward- and outward delivery. The concrete tanks are industrial tanks with a high degree of tightness, and the bottom is reinforced with steel mesh and thicker than the bottom of concrete tanks for agriculture.

The Danish company A-Consult is supplying the four new reactor tanks for biogas production. Kristian has used A-Consult for many years and is very satisfied with the quality of the tanks:

- We have a good cooperation with A-Consult. The tanks meet our partners' quite specific requirements for what they should be able to do. And they are robust, which is also important for biogas plants. There is a lot of expensive equipment tied up on the tanks, so warranty and safety are essential.

### Great confidence in biogas

Construction is well under way of the 7-metre-tall reactor tanks, which measure about 35 meters in diameter. The tanks are supplied with central reinforcement for membrane covering as well as openings in the tank wall for manway and apertures for mixers. The four tanks should be ready around the end of the year, so that the subsequent work of connecting them to the gas grid can take place. That is why A-Consult's delivery reliability is crucial for Kristian:

- In these wild times with various external factors such as war and the energy crisis, it's nice to use known partners and feel confident that things will be done successfully. We'd rather not risk having to rebuild anything.

Kristian also says that he has great confidence in biogas as an energy form, especially in these times:

- Biogas acts as a huge buffer. Besides the fact that there are many productions that need gas right now, it is important that you have an energy form that is storable and that is distributed efficiently.

*Note: article written in October 2022.*