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Energinet.dk about gasification plants:

It is now or never

With a total grant of approximately DKK 18 million, Energinet.dk now wants to have tested whether the gasification technology is viable or not. The money will partly go to a two-stage gasifier at the district heating plant Hadsund Fjernvarme, and partly to the development of a fluid bed gasifier, enabling the power plants to use waste instead of coal to a higher degree.

By Torben Skøtt

It has taken a long time. Too long, many would probably say. Since the first gasification projects were launched in the beginning of the 1990s, about DKK half a million has been used for the development of the technology, but the big breakthrough has still not occurred.

However, a single success story has taken place during those years. In Harboøre, the local district heating plant has had a gasification plant in stable operation since 2003, but it did take ten years to get that far. It took four years to get the gasifier to run optimally, three years to get the plant to produce electricity and another three years before a number of problems with the purification of the waste water had been solved.

There has been no shortage of failures. In the 1990s, a plant in Blære was given up, in 2003, the municipal works in Herning gave up getting a gasification plant in the village Høgild to work, and more recently, a gasification plant in Gjøl in Northern Jutland has been recommended for scrapping before it has even been put to use. In Skive, where they have built a gasification plant for DKK 250 million, they have not given up hope yet, but they are significantly behind schedule according to the original timetable, and the budget has been overrun several times.

It is remarkable that we have actually gotten this far, considering the results of the many research and development projects. Danish researchers have often attracted international attention with regard to development of technologies that can convert biomass into clear gas and with regard to gasi-

photo: torben skøtt/biopress

The gasification plant in Harboøre has now had stable operation since 2003, but apart from this, there have not been many success stories.

fication plants that can use many different types of waste as raw materials. Thus, there are plenty of success stories from laboratories and test plants, but when it comes to upscaling the technology and using it in real life, there is quite a bit of difficulty.

Two-stage gasifier

Energinet.dk, who administers the PSO funds, wants to do something about this. To start with, they have allocated about DKK 18 million for the purpose, and if it is a success, the company is prepared to spend even more money on this area.

– It is now or never. A lot of money has been spent on research and development, and with the passing of the act on renewable energy, the plants can look forward to some reasonable framework conditions, so now we have to test whether it can work in practice, says Kim Behnke, who is a section manager at Energinet.dk.

The majority of the money from Energinet.dk will go to initialisation and demonstration of a so-called two-stage gasifier at the district heating plant Hadsund Fjernvarme. The technology is based on research results from the Technical University of Denmark and experience from a pilot plant at the boiler factory Weiss A/S in Hadsund.

What is special about the plant is that it is capable of producing clear gas that can be used directly in an engine plant. Thereby, you avoid expensive and complicated gas purification, and you get a plant that can produce electricity and heat with a high efficiency. Thus, there is basis for this type of plant to be a worthy replacement for the many small natural gas-fired plants, which often struggle with an overstretched economy.

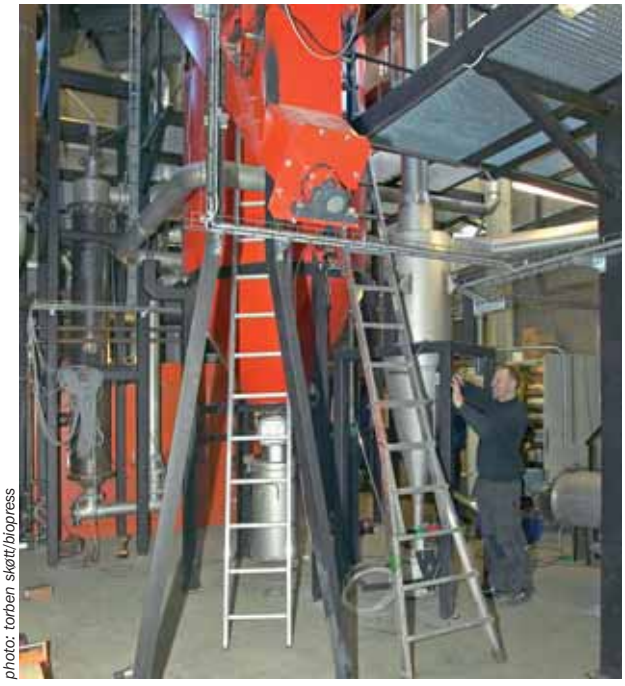
The plant will have an electricity output of 500 kW and will, for the time being, be using wood chips as fuel. Energinet.dk supports the project with DKK 10 million from the ForskEL programme and DKK 5 million from the ForskVE programme.

Fluid bed gasifier

In addition to the plant in Hadsund, Energinet.dk has granted DKK 3.2 million for the design of a demonstration plant developed by Danish Fluid Bed Technology. The plant, which has been mentioned several times in the magazine, is able to degas organic waste, including manure fibres and other residual products from farming. The technology has been tested thoroughly in pilot scale at the Technical University of Denmark, and now, the plan is to upscale the plant with a factor of ten. However, the support from Energinet.dk only goes to a design study, after which a decision has to be made about the construction of the plant in connection with one of DONG's power plants.

– If the project becomes a success, we will be favourably disposed towards an application for support for an actual demonstration plant, says Kim Behnke. He can see large perspectives in the technology, not least because it gives the power plants good possibilities for replacing part of the coal with waste.

– In the latest energy settlement from February, the power plants were given permission to fire with certain types of waste, so we need to develop a technology that can handle the waste in a sensible way. Here, the fluid bed gasifier can turn out to be a good solution, because it can convert waste into gas, which can subsequently be burned in a power plant boiler, explains Kim Behnke. ■



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DKK 15 million from the PSO funds of the year will go to the construction of a two-stage gasifier based on research results from the Technical University of Denmark and experience from a pilot plant at the boiler factory Weiss A/S.