

Translation by Götaverken Miljö AB

# Danish waste incineration cleaned with Swedish help

The waste incineration plant Måbjergværket in Holstebro on Jutland is to be upgraded to the order of 90 million Danish kroner. The Danish energy giant Elsam is behind the investment and the main part of this gilt-edged contract has gone to a company in Göteborg, Sweden.

The incomplete incineration of waste forms dioxins, one of the most dangerous environmental toxins in the world and also one of the most carcinogenic substances.

At the present time dioxin is emitted from the waste processed at Måbjergværket straight into the air, but new EU directives are now putting a stop to this health hazard and have set the limiting value for emissions to a maximum of 0.1 nanograms per normal cubic metre of exhaust gas.

## Patent pending

The plant's existing flue gas plant is to be supplemented with an additional scrubber based on ADIOX technology, and developed by Götaverken Miljö. This development has taken place in co-operation with a research centre in Karlsruhe, Germany. A patent has been applied for and the technology has already been installed at waste incineration plants in Sweden, Denmark, Germany and France.



The Danish waste incineration plant Måbjergværket is to be modernised to meet the new EU directives concerning hazardous emissions. The energy company Elsam will also be upgrading four other similar plants in Denmark. Photo: Elsam.

The old scrubbers in Måbjergværket can handle the cleaning of chloride emissions, but not dioxins

and sulphur. The upgrading of the plant also includes the modification of the old scrubbers, the idea being that the new scrubber will be filled with tower packing material of carbon doped plastic for the absorption of dioxin. The scrubber will be 4.8 metres in diameter, with a height of 30 metres.

in the EU directives," says Christian Morgen, project leader for the upgrading of the Danish energy company's subsidiary Elsam Engineering.

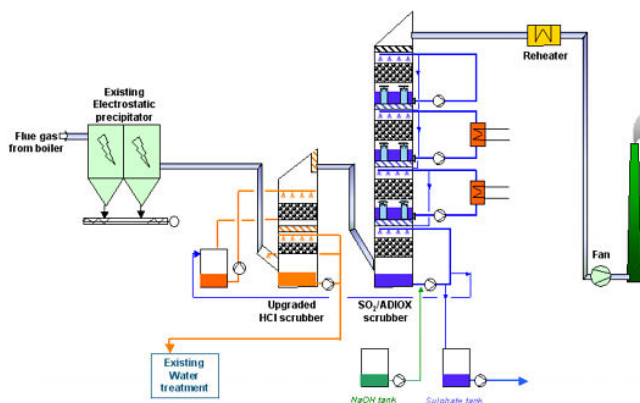
Måbjergværket was commissioned in 1994 and has a waste incineration plant and a biomass section. The plant has two boilers for the incineration of waste, and each respective line has a capacity for the incineration of 10 tons of waste an hour.

Each boiler is at the present time provided with a wet flue gas cleaner consisting of an electric filter, a scrubber for chloride cleaning and flue gas reheating.

## Largest Denmark

Elsam is Denmark's largest producer of electricity and the company completely dominates the market on Jutland and Funen. It has still not encroached on the lucrative island of Zealand, largely because the deregulation of the Danish electricity market only took place three years ago.

## Upgrading of the flue gas cleaning system at Måbjergværket.



ADIOX technology will be used to take care of the dioxins hazardous to health.

## Breakthrough

Anders Lorén is the project manager for the contracted company from Göteborg, Götaverken Miljö. He explains that the construction work with the new scrubber started in October last year, and that the work is expected to be completed in December this year.

- The undertaking is a breakthrough for our ADIOX technology," says Anders Lorén.

In addition to the work done by Götaverken Miljö, Elsam will be heavily investing in the plant in 2005.

- We are going to install nitrogen dioxide cleaning and an ignition burner that follow the requirements



*Måbjergværket has two boilers for the incineration of waste, and the combustion capacity is 10 tons of waste an hour.*



*The scrubber in Måbjergværket in Holstebro is filled with packing material that absorbs the dioxin.*

Elsam produces both electricity and district heating at 20 combined heat and power plants, of which five are jointly owned. In addition to this there are six waste incineration plants. A large part of production is exported to Norway, Sweden and Germany through European electricity stock exchanges.

Elsam also produces electricity at some 500 wind power plants, spread out over the whole of Funen and Jutland, and in the Kattegat and the North Sea. Elsam produces electricity in Poland as well, where

the company has the largest wind power park.

In 2002 Elsam had a turnover of almost six billion Danish kroner and employed some 1,400 persons, producing 13.3 terra watt-hours of electricity and 38 petra joules of district heating. This corresponds to 36% of the Danish production of electricity and 49% of the Danish consumption of district heating.

BY SVEN WETTERGRUND