

High pressure in the boiler at E.ON in Norrköping

Sydkraft Öst Värme AB (now E.ON) supplemented its old heating boiler with a CFB boiler. It generates more electricity in waste incineration than ordinary boilers due to a higher steam pressure of 65 bar. This action has reduced the use of fossil fuels and lowered carbon dioxide emissions.

In 2001–2002 Sydkraft Öst Värme AB (now E.ON) expanded its production of electricity with support from the Local Investment Programme (LIP). The company started using a new heating boiler in December 2002. It is a circulating fluidised bed (CFB) boiler. The boiler utilises separated, combustible household and business waste. Following a reconstruction, the turbine output was 11 MW, compared with 8 MW in the application. The steam is used by a nearby ethanol factory and for the production of district heating. The electricity is supplied to the municipal grid.

This measure is a good example of how it is possible to reduce the use of fossil fuels and emissions of climate-changing gases by using new, better technology for the production of electricity and heat.

POSITIVE ENVIRONMENTAL AND ECONOMIC IMPACTS

- Reduced emissions of carbon dioxide (16 000 tonnes/year) and nitrogen oxides (13 tonnes/year).
- Reduced emissions of sulphur oxides (36 tonnes/year).
- Just over 10 000 tonnes of coal a year have been replaced by fuel from waste.
- Cleaner ash due to separated and processed waste.

Photograph: E.ON



IMPLEMENTATION

The CFB boiler was installed at Händelöverket in Norrköping. Alongside the boiler, the company built a turbine for electricity production and outside of the LIP support built a fuel preparation facility. The concept of using high steam pressure in waste incineration had never previously been tested in Sweden. When it was installed, the plant in Norrköping was one of only ten in the world.

POTENTIAL AND FUTURE BENEFIT

Developing and testing new technology is an important part of environment development. Using biofuels which otherwise do not have any natural alternative use, for example for digestion, is both economically advantageous and beneficial to the environment. District heating systems reduce air pollution locally, make it possible to utilise waste heat from other activities and produce combined heat and power. The prospects for expanding district heating are improving as urbanisation advances.

WHY BEST PRACTICE

Compared with a traditional waste heat boiler using grate technology, CFB incineration offers many good characteristics – high fuel flexibility, the possibility of higher steam data, higher yield of electricity and a lower investment cost. The project has led to reduced emissions of carbon dioxide and other climate-changing gases. E.ON has gone further with the concept since the LIP project was completed. The company is investing in a new CFB boiler and larger turbines in order to be able to produce more steam, electricity and district heating.

FOR FURTHER INFORMATION

Contact
Romel Makdessi, E.ON
Telephone: +46 (0)730-49 93 18
E-mail: romel.makdessi@eon.se

Contractor
CFB boiler: Metso
Turbine: Siemens

Further information on Best Practice
www.swedishepa.se/bestpractice
www.naturvardsverket.se/mir

FACTS
LIP Norrköping 2001
Action 5
Environmental investment: SEK 16.2m
Grant: SEK 4.5m

