



Joint Actions on Climate Change

Technical tour to Nordjyllandsværket Unit 3 – Industrial Symbiosis

8 June 2009

Nordjyllandsværket, unit 3 is a 400 MW_e pulverized coal-fired, combined heat and power plant commissioned in 1998. The boiler and turbine operate with ultra supercritical steam data and the boiler is equipped with double reheat and full flue gas cleaning.

During the design phase, high energy efficiency and the lowest possible use of natural resources were the main objectives. To achieve this, Nordjyllandsværket increased the existing industrial symbiosis with the city of Aalborg and the local cement manufacturer Aalborg Portland. This symbiosis includes the following elements:

- Chalk is transported from Aalborg Portland to the flue gas desulphurisation plant, where it is converted into gypsum in the absorber. The gypsum is then returned to Aalborg Portland and is used in the manufacturing of cement, reducing the need for imported natural gypsum.
- A by-product from flue gas cleaning at another Vattenfall power station in the city of Odense is converted to gypsum in the flue gas desulphurisation plant. The product contains CaSO₃ etc. and is called "Spray dryer absorption product".
- In addition to producing electrical power, the coal fired Unit 3 is also supplying district heating to the city of Aalborg and suburbs.

- Fly ash from the electrostatic precipitators is sold to Aalborg Portland cement factory where the fly ash is essential for the cement production.
- Low quality water is used in the flue gas desulphurisation plant instead of drinking water. This includes rain water from paved areas, drainage water from fields and waste water from both the production of boiler feed water and the water for the district heating system.

Practicalities:

The tour is free of charge for conference participants.

Departure by bus June 8 at 13:30 from the Conference Centre. The visit starts at 14:00.

Leaving the power plant after 2½ hours at 16:30, you will return to the Conference Centre at 17:00.

Guide: Niels Ole Knudsen MSc. Chem. Eng. Vattenfall A/S, Heat Nordic

Seats are limited so please make your **seat reservation** by sending an e-mail to jette.clausen@vattenfall.com. Subject: Vattenfall tour