

## Demonstration project The Netherlands

### *The Netherlands: Zero Emission Power Plant*

In Drachten, a town in the North of the Netherlands, a project is being developed to build the first Zero Emission Power Plant (ZEPP) in the world that is able to produce enough emission-free electricity for a small town of hundred thousand households (68 MW). The climate neutral power plant has a go/no-go decision point in 2007 and should be operational in 2009. To realise the project two relatively new technologies are combined.

The ZEPP will be equipped with an innovative gas generator in which the combustion takes place with pure oxygen. To avoid extremely high temperatures, water is injected in the flame. The exhaust of the generator consists of pure CO<sub>2</sub> and water vapour. After condensation, the water is re-used for injection and pure CO<sub>2</sub> remains. This CO<sub>2</sub> is stored in an existing gas field. All consequently the plant produces electricity without substantial emission of any kind. This will result in a CO<sub>2</sub> reduction of one megaton in six years.

The ZEPP will use a gas field which is no longer used but still contains a considerable amount of natural gas. The injection of CO<sub>2</sub> leads to an increased pressure and eases the extraction of the remaining gas of the field (Enhanced Gas Recovery),

which will be used in the power plant. Additionally the residual heat of the plant will be used for heating nearby buildings. In the Netherlands, several gas fields are suitable for ZEPP technology. And after the plant in Drachten will be operational, possibly others will follow. This project will be the first project in the Netherlands with inland underground storage of CO<sub>2</sub>.

The ZEPP in Drachten is initiated by the Dutch company SEQ Nederland B.V. Financial support is given by ONS energy, an electricity distribution company, local governments and by Energy Valley, a public-private foundation with local, national and European members, which stimulates the economy of the North of the Netherlands through the financing of energy activities.

