



# Power for over 2.5 million homes

Eemshaven ultra-supercritical steam  
power plant, The Netherlands

## A huge challenge

One of the biggest challenges facing power producers today is ensuring a stable, reliable and affordable supply of electric power while minimizing emissions at the same time. Although the expansion of renewable energies is progressing rapidly in Europe, coal-fired power plants still form the backbone of an economic and uninterrupted power supply.

## Groundbreaking efficiency

The security of supply for the more than 17 million inhabitants of the Netherlands also depends on coal-fired power plants. The new Eemshaven ultra-supercritical steam power plant makes a significant contribution to stable power supply in the Netherlands. Based on state-of-the-art power plant technology from Siemens, it is one of the most ecofriendly coal-fired power plants in the world. Thanks to its ultra-supercritical steam parameters, the plant achieves a maximum efficiency of over 46 percent. Thanks to a highly efficient power plant process the Eemshaven power plant consumes less hard coal compared to conventional coal-fired power plants. This leads to a reduction of CO<sub>2</sub> emissions of 2.5 million metric tons per year.

## Two powerful power plant units

The Eemshaven power plant consists of two units. Each of these units has an installed electrical capacity of 800 megawatts. That means that the entire plant can produce enough electricity for more than 2.5 million households. The heart of each unit is a SST5-6000 steam turbine, containing three low-pressure turbines that drive a water-cooled SGen5-3000W generator. Siemens also supplied an SST-500 steam turbine that is used as a boiler feedwater pump, the SPPA-T3000 control system, as well as an SCon-7000 condenser and the auxiliaries for each unit. All components come from Siemens' German factories in Mülheim and Görlitz.

## Key facts:

- Customer: RWE AG
- Commissioning: 2014
- Power output: 2x 800 MW
- Efficiency: 46.2 %
- Main steam: 275 bar / 597 °C  
3,989 psi / 1,107 °F
- Reheat steam: 609 °C  
1,128 °F

## An exemplary footprint

In addition to its high efficiency, the Eemshaven power plant can also be co-fired with biomass. This further improves the ecological footprint of

the plant, as it allows additional reductions of CO<sub>2</sub> emissions. And the plant also provides socio-economic benefits. The overall project created more than 130 new jobs in Eemshaven and the surrounding area.



Eemshaven steam power plant.

Located close to the Eemshaven port, the plant can continuously be supplied with cooling water from the Ems. Its favorable location also enables coal to be delivered by river barge.

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Siemens AG  
Power and Gas  
Freyeslebenstr. 1  
91058 Erlangen, Germany