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 CO2 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 ºC
- Reheat steam: 609 ºC
- 3,989 psi / 1,107 ºF
- 1,128 ºF

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 CO2 emissions. And the plant also provides socio-economic benefits. The overall project created more than 130 new jobs in Eemshaven and the surrounding area.

Power for over 2.5 million homes
Eemshaven ultra-supercritical steam power plant, The Netherlands