

MONGSTAD GAS-FIRED CHP PLANT

Plant description

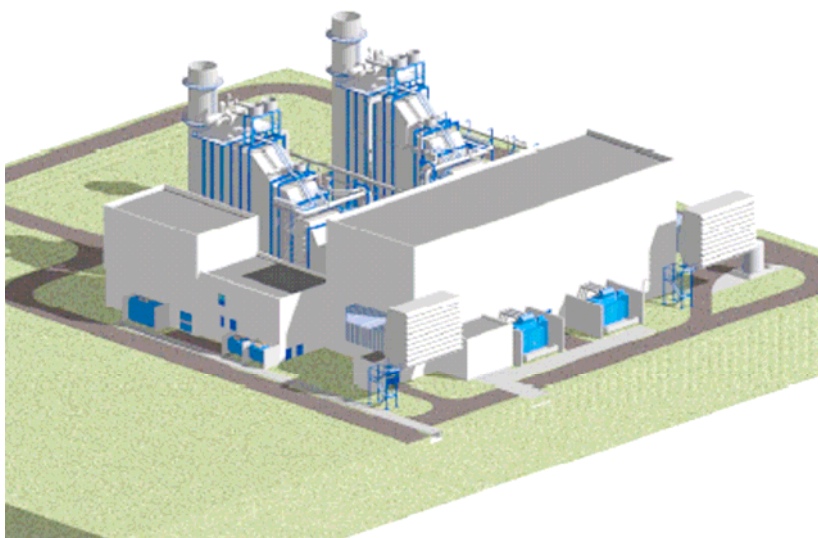
As part of an international competitive bidding process DONG Energy submitted a proposal to Statoil in 2003 for construction and operation of a gas-fired CHP plant in connection with Statoil's large oil refinery at Mongstad, approx 80 km north of Bergen.

On 3 November 2005 Statoil and DONG Energy signed a contract covering the establishment and operation of the CHP plant, which has been named Energiverk Mongstad.

The CHP plant has a total electrical output of approx 280 MW and a heat output of approx 350 MW. The heat is supplied both in the form of steam and crude oil heating. High reliability has been an important issue in plant design, as a plant trip will be costly for the refinery.

The plant is equipped with 2×130 MW gas turbines. The flue gas from the gas turbines is lead to the waste heat recovery units in which the first heating surface is the crude heating coil. Downstream the crude coil a gas burner for supplementary firing provides additional heat input. Subsequently the flue gas is cooled in a traditional one-pressure exhaust boiler producing process steam to the refinery.

An important element of the CHP plant is to utilise waste gas from the refinery by extracting hydrogen from the waste gas and return the hydrogen to the refinery for utilisation in the refinery processes. The waste gas residue depleted from hydrogen is mixed with natural gas and utilised in the gas turbines. The primary components in the waste gas treatment plant are the hydrogen separation equipment and 5 large piston compressors.



The CHP plant also comprises a small steam turbine, the primary purpose of which is to ensure fast adjustment of the steam supply to the refinery without having to adjust the gas turbine output.

DONG Energy's total investment in the plant amounts to approx DKK 1.5 billion for establishment of the plant.

Main plant data

Year of commissioning	2009
Electrical output	280 MW
Heat output	350 MW
Gas turbines	2×130 MW

Services provided by DONG Energy

DONG Energy is responsible for design, purchase and commissioning of the plant. Engineering will require an intense coordination between DONG Energy and Statoil to ensure a good interaction between the refinery and the CHP plant which is planned to be put into operation in January 2009.

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