

# Troll A Power from shore



ABB Id No: POW0103

## The energy company Statoil awarded ABB a second contract to supply subsea HVDC Light transmission systems to the Troll A platform in the North Sea.

This second delivery to Statoil, Troll A 3&4, will provide a total of 100 MW to the platform to power two compressor drive systems. It is scheduled to be operational in 2015.

In 2002, ABB was awarded the world's first offshore transmissions using HVDC Light technology to the same platform - Troll A 1&2, which was successfully completed in 2005. The projects combine HVDC Light technology and the ABB very high voltage (VHV) cable-wound motor. When the second delivery is completed in 2015, it will consist of four transmissions in total - two rated at 44 MW each, and two rated at 50 MW each - on the mechanical shaft of the VHV Motor.

The inverter stations on the platform are directly connected to the motors, so no transformers are required. The rectifiers at the Kollsnes onshore station on the Norwegian mainland connect through standard power transformers to the existing 132 kV network with breakers. From the rectifiers, HVDC Light cables connect the rectifier with the inverter placed on the Troll A platform, a distance of around 70 km. (See single line diagram.)

The AC side of the inverters is connected to the VHV Motors via breakers and AC cables. The VHV motors' outgoing shafts are directly coupled to gearboxes that deliver the right number of revolutions. The VHV Motors are governed by the HVDC Light Mach control system.

Compared with conventional offshore power transmission systems, HVDC Light saves weight and reduces the space the system takes up on the platform.

Main data:	
Commissioning year:	1 & 2: 2005 3 & 4: 2015
Power rating:	1 & 2: 88 MW 3 & 4: 100 MW
No of circuits:	1 & 2: 2 3 & 4: 2
AC voltage:	132 kV (Kollsnes) 1 & 2: 56 kV (Troll) 3 & 4: 66 kV (Troll)
DC voltage:	±60 kV
Length of DC submarine cables:	1 & 2: 4 x 70 km 3 & 4: 4 x 70 km
Main reason for choosing HVDC Light:	Environment, long submarine cable distance, compactness of converter on platform
Application:	Power from shore