

## ABB inaugurates a groundbreaking technology achievement in the North Sea

The Troll A gas platform in the North Sea has just become the first offshore platform in the world to be powered by a direct current (DC) electricity link originating on land – an achievement with considerable cost and environmental benefits made possible by ABB technologies.



The platform, located some 70 kilometers off the coast of Norway, is run by Norwegian oil giant Statoil and started commercial operation in 1996. On October 1<sup>st</sup>, 2005, two 40 MW compressors commenced operation at Troll A to maintain the gas delivery pressure, compensating for falling reservoir pressure.

Under a contract signed in 2002, ABB has deployed two key technologies - HVDC Light (High Voltage Direct Current) and the VHV Motor (Very High Voltage) - as well as other solutions to help power the two 40-megawatt compressor units on the Troll A platform without any local power generation.

### Major savings

The benefits of transmitting power from the shore to the platform - already apparent in the trial phase - include zero pollution (all electricity used on Troll A is generated by hydropower on the mainland), increased transmission efficiency, longer lifecycles for equipment, fewer maintenance stops, and a perfect health and safety record on the platform.

It all adds up to major savings and lower costs.

“It is a tremendous technological achievement, and one that may well be copied at other platforms in the future as the cost and environmental savings become more widely known,” said Samir Brikho, head of ABB’s Power Technologies Systems business.

“This project also underlines ABB’s continuing commitment to the oil and gas industry, and highlights our ability to deliver state-of-the-art technologies that increase productivity and power reliability, while lowering environmental impact.”

The project's importance is underlined by the fact that about 10 percent of Europe's total annual gas demand is covered by Troll A, which can produce up to 100 million cubic meters of gas per day. Troll A produced 26.39 billion standard cubic meters of gas in 2004.

### State-of-the-art technologies

Troll A's power needs are met via ABB's cable-wound, VHV Motor and generator on the platform, and the HVDC Light underwater power transmission connection which delivers the electricity from the mainland.

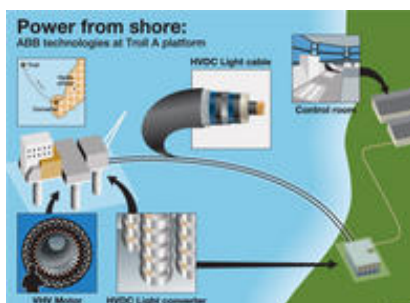


Two key ABB technologies on Troll A are:

- Two 40-megawatt high-voltage ABB VHV Motors that drive the compressor units on the platform, with associated utilities. The VHV Motor can be used in any application where conventional synchronous machines are used, both onshore and offshore.
- HVDC Light, a power system designed for underwater and underground transmission. HVDC is used mainly for bulk power transmission and for the interconnection of independent power grids. HVDC lines cannot be overloaded, ensuring grid reliability and eradicating "loop flows" characteristic of interconnected AC systems.

### Major environmental benefits

Transmission of power from shore to platform eliminates carbon dioxide and nitrogen oxide emissions from the platform and its gas treatment plant at Kollsnes.



Using conventional power generation systems would have meant that gas turbines or diesel engines on the platform would drive the compressors. Their efficiency rate can be low, even under ideal conditions.

Instead, annual emissions of some 230,000 tons of CO<sub>2</sub> and 230 tons of NO<sub>x</sub> are being eliminated. Avoiding tax on CO<sub>2</sub> emissions also cuts costs.



High among the list of other benefits is health and safety. Use of the technologies – and avoidance of onboard power generation – has meant no injuries and no loss of time through incidents, a key element in Statoil’s business strategy.

“We have a long-standing successful business partnership with Statoil,” said Brikho. “The Troll A project is a further example of how technologies benefit not only both companies involved, but the environment as well.”