

## ABB technology delivers clean, reliable offshore power

Offshore oil and gas platforms need clean, reliable power to operate effectively. Ordinarily, electricity is made on the platform itself with gas or diesel turbines running power generators and large compressors.



The problem with making electricity this way is that even under ideal conditions, efficiency can be low.

In addition, gas or diesel fuel consumption and greenhouse gas emissions are high, while emission taxes can add significant extra costs. There are also health and safety risks associated with gas turbines.

A better solution is to bring a clean, reliable supply of power from the mainland to the platform.

That is happening today off the Norwegian coast, where unique ABB technologies like HVDC Light (High Voltage Direct Current) and the VHV Motor (Very High Voltage) are powering Statoil's giant Troll A platform via undersea cables connected to the mainland electrical grid.

### Clean power from shore

Troll A draws power from an onshore grid 70 kilometers away, using ABB's innovative HVDC Light technology, which is specially designed for underwater and underground power transmission, using voltage source converters and cables.

ABB's power system for Troll A is compact, lightweight and stable, offering low maintenance, high efficiency and long lifetime, while increasing production by about 18 percent.

The result: zero power generation on the platform, and zero greenhouse gas emissions.



A conventional offshore gas turbine power generation system would result in estimated annual emissions of about 230,000 tons of CO<sub>2</sub>, and 230 tons of NO<sub>x</sub>. And with CO<sub>2</sub> taxation in effect on the Norwegian shelf, emissions of that size are a significant cost factor.

But with clean hydropower originating onshore, Troll A has no emissions. And even in areas without CO2 taxation, emissions trading supported by the Kyoto Protocol means power delivery systems like the one on Troll A can create additional value.



With CO2 certificates currently trading at about 20 Euros per ton on the European Energy Exchange, 230,000 tons of CO2 is worth about 4.6 million Euros, or \$5.5 million.

With 60 percent of Norway's offshore gas reserves, the Troll field is the biggest gas discovery in the North Sea and the centerpiece of Norwegian gas production. It will supply 10 percent of western Europe's gas requirements.

The platform must operate flawlessly and on schedule, while meeting Statoil's stringent health, safety and environmental standards.