Fact file/Success stories

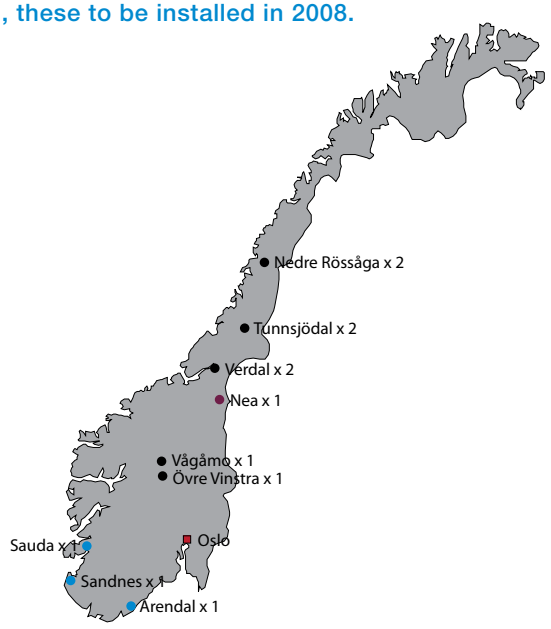
Norwegian Power Grid Company — Statnett
Strengthening the power grid for 300 (420) kV

Facts

Country	Norway
Customer	Statnett
Project	Reactive Power Mid-Norway
Voltage	300 (420) kV
Location of project	Mid-southern Norway
Scope of delivery	9 x 100 Mvar shunt capacitors for 300 kV, prepared for upgrading to 140 Mvar, 420 kV Option: 2 x 100 Mvar (Sandnes and Sauda)
Year of delivery	2007 and 2008
Spin-off	2009 an order for upgrading Nea to 420 kV
Engineering and construction of installation	ABB Sweden, ABB Norway

Customer need

In the Norwegian power grid, the distances are long between generation and consumption. Many heavy industries such as melting plants are situated along the coast, and they utilize energy-consuming production processes. The grid needed to be strengthened to meet the need for improved transmission capacity. This led to the initiation of the Mid Norway project, the biggest tender ever in Norway for fixed compensation.
Nine shunt capacitor banks were to be installed in six different stations during 2007. Each bank was to be rated for 100 Mvar at 300 kV and be upgradable to 420 kV. The design also had to meet tough demands such as for low noise levels and resistance to high wind loads. Statnett required an option for two more banks with the same rating, these to be installed in 2008.



The shunt capacitor banks were installed and energized during 2007-2008.

ABB solution

According the specifications, ABB tendered 100 Mvar shunt banks rated at 300 kV, but these banks were mechanically designed for the higher rating of 420 kV. This to meet Statnett's plan for a future upgrade to a 420 kV grid. The solution included damping reactors and unbalance current transformers.

As the time from inquiry to installation was short, the main solution had to be finalized during the summer of 2007. It pinpointed the necessity of having extremely focused production and logistic. ABB Norway helped finalize the project with erection, supervision and commission. The project was completed within the stipulated time frame.

Statnett exercised the option for Sandnes and Sauda, 2 x 100 Mvar at 300 kV, for installation in 2008.

The 11 shunt capacitor banks are now in operation, doing the job they were intended for — strengthening the Norwegian power grid.

Customer benefits

- Increased grid voltage and transmission capacity
- Grid stabilization
- Reduced losses, which increase the efficiency of the grid
- Low noise emission

Vågåmo 100 Mvar shunt capacitor bank installed and commissioned in 2007

A complete program with comprehensive support

ABB in Sweden has more than 70 years of experience in developing and manufacturing power capacitors.

ABB's capacitors and their applications are used both in transmission and distribution grids.

We have delivered filter components, shunt- and series-compensating gear and HVDC and FACTS transmission systems to power companies and industries all over the world.

There is potential for efficiency gains in most grids and our capacitors and filters are key components in achieving these.

As an ABB customer, you gain access to an all-embracing line of capacitors as well as complete support in the form of analyses, calculations and proposals for custom solutions for generation of reactive power and harmonic filtering. Solutions that make it possible to increase active power and reduce disturbances.

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