Boosting Sweden’s transmission capacity and grid system reliability
South-West HVDC Link, Sweden

Reliable delivery of Sweden’s largest and most important power grid investment
Lowest power losses of any tendered solution
Manufacture and installation of almost 800 km of HVDC cable in just 2.5 years

Scope of supply
HVDC cable system
- Cable system design, engineering and manufacture
- Fiber-optic communication cable
- Underground cable laying and installation
- Cable joints, transition joints and terminations
- Testing and commissioning

Cable data
<table>
<thead>
<tr>
<th>Power rating</th>
<th>2 x 660 MW</th>
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</thead>
<tbody>
<tr>
<td>DC voltage</td>
<td>± 300 kV</td>
</tr>
<tr>
<td>Cable route length</td>
<td>192 km</td>
</tr>
<tr>
<td>Customer</td>
<td>Svenska Kraftnät</td>
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<tr>
<td>Completion year</td>
<td>2014/2015</td>
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</table>
The South-West Link is the largest and most important investment in the Swedish power grid by Svenska Kraftnät, Sweden’s state-owned transmission system operator. The purpose of the link is to strengthen the national power grid, improve grid reliability and increase transmission capacity in the southern part of the country and between Norway and Sweden. The link will also support government plans for the construction and grid integration of large-scale wind parks.

The South-West Link will incorporate HVDC underground cable systems and overhead transmission lines, as well as conventional 400 kV AC overhead transmission lines. It will consist of three sections: a north section comprising a 400 kV AC overhead transmission link, most of which will be built in an existing 220 kV AC corridor; a south section consisting of a 300 kV HVDC cable and overhead transmission link; and at a later stage, a west section that will establish a new transmission link with Norway.

Svenska Kraftnät has selected ABB

After assessing the results of a public tender in which several leading power cable manufacturers took part, Svenska Kraftnät selected ABB to supply the HVDC cable link for the south section between Barkeryd and Hurva.

ABB was chosen for submitting the best technical and economically advantageous solution. ABB’s technical proposal had the lowest power losses. Another key criterion was ABB’s ability to deliver a fast-track solution – cable manufacture, delivery, installation and commissioning – comprising 800 km of 300 kV DC cable in just 2.5 years.

ABB’s track record in high voltage cable solutions was a contributing factor behind ABB’s selection. HVDC cables are an ABB innovation. The world’s first commercial HVDC cable connection was pioneered by ABB in 1999.

The ABB solution

The ABB solution comprises two parallel sets of HVDC Light® cables. Each set include two HVDC Light cables, which operate in bipolar mode. Each set of cables has the capacity to transport 660 MW of power at 300 kV DC. With a total capacity of 1320 MW, the solution has the highest power rating of any underground cable system in the world.

The HVDC Light cable system will run for a distance of 192 km between the HVDC converter stations in Barkeryd and Hurva. ABB is responsible for the design, engineering and manufacture of the cables and accessories, as well as for installation, testing and commissioning of the complete cable system. ABB will also supply, install and commission a fiber-optic communication cable.

ABB HVDC Light cables are lightweight, robust and environmentally friendly. They enable small or large volumes of power to be transported over short or long distances at high voltages. They provide reactive power control and stability in both connected networks, power reversal without interruption, and have black-start capability. The extruded polymeric cables are oil-free and generate neutral electromagnetic fields.

ABB is a pioneer in the high-voltage and HVDC fields. Of the 145 HVDC projects ongoing in the world today, more than 70 have been delivered by ABB.

For more information please contact:

ABB AB
High Voltage Cables
Phone: +46 455 556 00
Fax: +46 455 556 55
E-Mail: sehvc@se.abb.com
www.abb.com/cables