

ABB retraces its pioneering technology roots to upgrade world's first HVDC link

Zurich, Switzerland, January 28, 2016 – \$22million upgrade to enable more renewable energy integration and boost grid reliability on the island of Gotland, Sweden

ABB, the leading power and automation technology group, has won orders worth over \$22 million from Vattenfall Eldistribution AB to upgrade the world's first commercial high-voltage direct current (HVDC) power transmission link, which ABB installed in 1954. This takes the company back to the roots of a game-changing technology it pioneered more than 60 years ago. The orders were booked in the fourth quarter of 2015.

The 150-kilovolt (kV) link has the capacity to transmit 320 megawatts (MW) of power 100 kilometers from Västervik, on the east coast of mainland Sweden, to Ygne, on the island of Gotland. The link provides electricity to meet the needs of the 58,000 residents of Gotland and enables wind power, generated on the island, to be transmitted to the mainland. This upgrade will help enhance capacity and enable greater amount of wind power generation on Gotland, to be integrated into the grid for use both locally in Sweden and across borders.

As a key element of the upgrade ABB will install its state-of-the-art MACH control and protection system, which is like the brain of an HVDC link. ABB's MACH control system offers unmatched calculation capacity and a high degree of integration capability to handle control and protection functions, designed to run around the clock for 30 years or more. It also incorporates advanced fault registration and remote control functions. The cooling system will also be upgraded as part of the project. The upgrades replace aging equipment and will help improve security of power supply to the island. The addition of a modern operator interface will also help extend the lifetime of the link in addition to providing improved availability and functionality.

The world's first commercial HVDC transmission system installed by ABB between the island of Gotland and the Swedish mainland, came into operation in 1954. History was repeated when the world's first interconnection using HVDC Voltage Sourced Converter (VSC) technology, called HVDC Light by ABB, was installed on Gotland in 1999. The HVDC installation has been progressively upgraded by ABB as this technology has developed, and the latest upgrade is another step in this direction.

"Having pioneered HVDC technology by commissioning this first commercial link in 1954, we are proud to provide a new life to this critical asset. By enabling more wind power integration more people will benefit from clean renewable energy, helping to lower environmental impact" said Patrick Fragman, Managing Director of ABB's Grid Systems business, part of the company's Power Grids division. "This upgrade project reaffirms our Next Level strategy focus on providing our customers with differentiated value through technology, during the whole life cycle of build-up, operation and maintenance of their assets."

Since it pioneered HVDC technology more than 60 years ago, ABB has been awarded over 110 projects, representing a total installed capacity of more than 120,000 megawatts and accounting for about half the global installed base. ABB continues to be a market and technology leader in this space and today, amongst its increasing number of applications, HVDC is playing a key role in integrating renewables, evacuating power efficiently and reliably across long distances and interconnecting regions and countries.

ABB (www.abb.com) is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

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