

# Innovative power restoration technology reduces outage time to fractions of a second

Zurich, Switzerland, December 4, 2015 – ‘Black-start’ HVDC feature successfully simulated in power link between the Åland islands and mainland Finland – helps provide energy security and reduce carbon dioxide emissions

ABB, the leading power and automation technology group, has handed over the new high-voltage direct current (HVDC) power link between the Åland islands in the Baltic Sea and mainland Finland to Kraftnät Åland, the transmission grid operator. Prior to handover ABB successfully simulated the ‘black-start’ outage restoration functionality, a key feature of ABB’s HVDC solution. The real-time simulation was carried out in the early hours of the morning, with the power supply to intentionally cut off and then restored with an automatic start-up sequence.

The Åland link transmits electricity between mainland Finland and the archipelago, which lies between the Finnish west coast and Swedish east coast. The link will allow integration of renewable energy sources, delivering clean power to 28,000 inhabitants.

With the ‘Black Start’ feature restoration time can be reduced to fractions of a second under operational conditions. This functionality when incorporated with ABB’s HVDC Light® technology, performs an intelligent and controlled injection of electricity into the grid to quickly re-energize the system. As demonstrated in the Åland simulation, even when the link is not in active operation, the black-start system can restore power in under five minutes - many times faster than in the absence of this innovative feature. It also replaces local auxiliary power supply needs like diesel generators, and eliminates the use of costly and carbon dioxide emitting fossil fuels.

The simulation was performed to demonstrate how ABB technology could restore electricity after a complete power outage, a worst-case scenario for the isolated islands which would require a lengthy and challenging process to restore power with traditional technology.

“We are pleased to hand over this project, and demonstrate the innovative ‘black start’ feature embedded in our cutting-edge HVDC technology – a key focus area of ABB’s Next Level strategy,” said Patrick Fragan, head of ABB’s Grid Systems business, a part of the company’s Power Systems division. “The link will deliver clean energy and enhance security of power supply to the inhabitants and we are grateful to the community for their support in conducting the real-time simulation”.

Black-start is one of the many innovative features provided by ABB’s HVDC Light solution which is being increasingly deployed across applications like cross-border interconnections, integration of renewables, city in-feeds and to reinforce existing AC grids.

ABB has been awarded over 110 HVDC projects since it pioneered the technology more than 60 years ago, representing a total installed capacity of more than 120,000 megawatts and accounting for about half the global installed base. ABB further developed HVDC in the 1990s by introducing a voltage sourced converter (VSC) solution named HVDC Light and leads the way in this technology, having delivered 17 out of 23 VSC HVDC projects in commercial operation around the world.

ABB ([www.abb.com](http://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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