

SUCCESS STORY

ABB's grid automation improves reliability in Elenia's network

Elenia, Finland



Smart compact secondary substations, the best fault location in the market, and Arctic communication technology give Elenia's distribution network its reliability and flexibility.

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01 ABB is one of Elenia's key suppliers.

Project at a glance

Customer: Elenia Oy, the second-largest electricity distribution system operator in Finland

Segment: Utility

ABB Products: Compact Secondary Substations CSS (Unipack), Ring Main Unit RMU (SafeRing), Wireless Controller (ARC600), Advanced Fault Indicator (RIO600).

Customer challenge

To improve the security of supply of their distribution network, Elenia began extensive grid automation and cabling work back in 2006. The maximum outage limits of the new Electricity Market Act and the official regulation model gave the development a boost in 2013.

The continued rise of wind and solar power, the distributed and intermittent nature of energy generation and the need for energy storage, together with electric vehicles, smart homes and demand flexibility require a substantial degree of smart automation in the electricity networks of the future.

ABB's solution

Elenia's distribution network is covered with smart compact secondary substations featuring ABB's latest technology. Faults can be located and isolated and power restored automatically on the grid, both in underground cables and the network's overhead line sections.

Fault indications come from ABB's award-winning multi-frequency admittance calculation method, which can reliably identify every type of fault. ABB and Elenia have worked together to develop this method. The fault indication method, which is far more reliable than competing methods, was tested in real circumstances in Elenia's grid.

Remote use of the network is based on ABB's Arctic technology. The communication system has strong cybersecurity and makes use of public mobile networks, and it has proved its reliability in more than one storm. Real-time, automatically gathered data relayed by the system allows the grid operator to manage the network reliably at every point in time.

Customer benefits

- The most reliable technology for fault location in the market to shorten and minimize outages.
- Factory ready compact secondary substation automation solutions for easy commissioning.
- Reliable, wireless monitoring and operation of the entire grid, based on real-time data.
- Remote condition monitoring of compact secondary substation equipment for easy maintenance.
- Strong cybersecurity and scalable data system
- Future proof distribution network solution enabled to integrate renewable generation.

About the project

Elenia, a globally significant pioneer in grid automation, is building a weatherproof distribution network. The company builds 3,000 kilometers of underground cables in 2017. By 2028, underground cables will comprise 70 percent of the network.

ABB has been a partner in Elenia's distribution network improvement project since 2009, and the Elenia network already features a significant installed base of ABB grid automation devices. Last year, Elenia continued its automation of the network with ABB providing remote control for more than 1,000 switches. Elenia and ABB have entered into a framework agreement on compact secondary substation automation, including the new fault indication method. The delivery will take place during this and next year.

For more information, please contact

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