

CASE STUDY

Northern European TSO enlists ABB to keep the lights on and fend off cyber attacks



01 A typical substation electric tower

Finland's primary transmission system operator (TSO) is responsible for the nationwide high-voltage grid – the backbone of the country's electricity transmission system. It also manages the nation's cross-border electricity connections and promotes the smooth functioning of Finland's electricity marketplace.

This TSO's operation includes over 14,000 kilometers of transmission lines, 49,000 towers and 116 substations. The operation also transmits over 77 percent of the nation's electricity. The TSO operates 10 reserve power plants running 21 gas turbines capable of generating 935 MW of power. Sixteen of their turbines are managed by System 800xA, Harmony Infi90 and P13 control systems from ABB.

The TSO signed a comprehensive ABB Power Generation Care agreement to manage and maintain the full lifecycle of their assets and protect against potential cyber security threats.

Customer Challenge

Because of the aging digital infrastructure of these control systems, the customer wanted to safeguard its systems against cyber attacks and equipment failure. The reason was straightforward: insufficient visibility into the hardware and software assets interacting with control systems across its fleet.

The entry next to "Control Systems" in their asset-inventory ledger simply listed "System 800xA." In reality, they had over 900 hardware and software assets interacting with their control systems, but there was no comprehensive list of connected assets and associated details. Additionally, they had no way to measure the lifecycle status of these assets. Without this knowledge, they were blind to the vulnerabilities they faced.

ABB's Solution

To update the TSO's cyber security, ABB first ran an ABB System Benchmark service against all of the customer's control systems to uncover its asset portfolio and determine the lifecycle stage of each connected hardware and software asset. This was done using ABB's service products data collector (SPDC) and system configuration extractor (SCX) data collector. The information was then uploaded to the customer's myControlSystem for analysis.

The resulting System Benchmark report allowed ABB and engineers at the TSO to establish a system performance baseline – a crucial first step to any system upgrades.

These efforts led the TSO to update its System 800xA operating systems from Windows XP to Windows 10 and to install new servers that are more cyber-secure. To maintain their cyber security readiness moving forward, the customer also signed a three-year ABB Power Generation Care agreement that ensures, among other things, their systems are kept up to date with the latest security patches and control system software updates.

The ABB Power Generation Care agreement covers control system hardware maintenance and sustainability, performance and reliability, operational improvement and lifecycle management. It even offers customers discounts on future system upgrades. The customer was so pleased with the Care agreement, they also extended it to cover Generator Protection, Excitation and Synchronization devices for all 10 sites.

ABB's engineers also developed a parts-focused website to keep track of the availability and location of control system spares. This was a capability missing prior to the system upgrade and Care agreement.

Benefits to Customer

- Decreased risk from cyber attacks
- Up-to-date control systems software
- Up-to-date control systems hardware
- Visibility into installed base and asset lifecycle
- Increased productivity
- Improved system availability
- Improved system performance
- Greater reliability
- Discounts on future control system upgrades

Featured Solutions myControlSystem

The myControlSystem is a self-service portal offering customers a single source of access to information, services, lifecycle information and service contacts, as well as spare parts management for their ABB products.

System Benchmark

ABB's System Benchmark service is an automated service that allows customers to benchmark their current control system performance and configuration – an essential step before improvements can be made. ABB Benchmark is available for the Freelance, Harmony, MOD 300 and System 800xA control systems. Cyber security and alarm benchmarks are also available. The System Benchmark Report is available on the customer's myControlSystem web portal within minutes after data is uploaded for analysis.

Lifecycle Assessment

ABB's Lifecycle assessment in myControlSystem provides customers with the lifecycle status of their control system installed base, allowing for the proactive planning of upgrades and provisioning of spare parts to mitigate operational risks.

ABB Power Generation Care Agreement

An ABB Power Generation Care agreement is a comprehensive service option that improves the performance of the plant's automation and electrical assets, operations and maintenance staff, production processes, and cyber security readiness.