Cyber Security Services for Grid Integration
Solutions to ensure security, reliability, and availability
ABB
Industrial Cyber Security

Our expertise
Our first priority for digital: making your data safe, in all cases

Cyber Security solutions
Solutions for in-depth defence

Cyber Security services
Cyber Security agreements

Cyber Security – a process
Rules, directives, IT/OT people & processes

Conclusion
Achieving successful integration
Mission

ABB’s Cyber Security Care portfolio includes solutions that are designed to secure our customers’ control systems. Our services can identify strengths and weaknesses, remediate security gaps, and maintain security.

Why ABB?
- Reduce system vulnerability while increasing system security, availability, and reliability
- Solutions to cost-effectively meet corporate/ regulatory requirements
- Maintain system data integrity and operational availability
- Our experts collaborate with our customers and trusted partners
Our expertise
Our first priority for digital: making your data safe, in all cases

Cyber Security solutions
Solutions for in-depth defence

Cyber Security services
Cyber Security agreements

Cyber Security – a process
Rules, directives, IT/OT people & processes

Conclusion
Achieving successful integration
Information and Operational Technology expertise
The best of both worlds

- Our Information Technology (IT) and Operational Technology (OT) competency supports our customers.
- Cyber security is handled by people and processes, in collaboration with customers and partners, to secure our customers’ assets.
- We minimize the impact of cyber-attacks
- International/national rules and legislations supported.
- Cyber security tools, people, and processes
Customer segments and applications
Grid Integration of cyber security solutions and services

Renewables
- Solar plant
- Wind plant

Power Transmission (HVDC)
- Grid interconnectors
- Offshore wind connections
- City infeeds
- Power from shore
- Remote loads and generators

Power Quality (FACTS)
- Fixed series capacitor
- Thyristor controlled series capacitors
- Static var compensators
- Series capacitor
- Static frequency converters
- Synchronous condensers

Substations
- AIS substations
- GIS substations
- Digital substations
- Hybrid and mobile solutions

Power Supply
- e-Bus (TOSA)
- Rail
- Ports and ships
- Data centers
- Industrial sites
Cyber Security solutions
Securing data and communications

With increasing cyber security threats to critical infrastructure, new standards and regulations are being created to ensure that proper levels of security and resiliency are in place for vital utilities.

ABB Ability uses advanced cyber security solutions that help customers comply with the strictest known regulations in the world.

Customer benefits:
- Less risk of successful cyber attacks, due to a reduced attack surface
- Reach and exceed business objectives by safely enabling advanced services that require remote connectivity
Cyber Security Care agreements
Values and benefits

Reasons to choose ABB:

- **A peace of mind to focus on your core business**
  Thanks to a single-point of contact and agreed service level, evolving needs during the system lifecycle are met.

- **Customized and tailored Cyber Security Service agreements**
  Service agreements are tailored to fit our customers unique needs.

- **Production uptime insurance**
  Minimized down-time and maximized availability.

- **Increasing cost awareness**
  You’ll know your cost of ownership.
Cyber Security Considerations in the project life cycle
ABB addresses cyber security throughout the entire life cycle

Plan
- Strategic planning partner
  - Network and asset analysis
  - Project development
  - FEED (Front End Engineering Design)

Build
- System integrator
  - Engineered sub-system packages
  - Engineered system packages
  - Turnkey solutions

Operate
- Lifecycle service partner
  - Assessments
  - Operation and maintenance
  - Upgrades
ABB
Industrial Cyber Security

Our expertise
Our first priority for digital: making your data safe, in all cases

Cyber Security solutions
Solutions for in-depth-defence

Cyber Security services
Cyber Security agreements

Cyber Security – a process
Rules, directives, IT/OT people & processes

Conclusion
Achieving successful integration
Cyber Security solutions
Solutions for in-depth defence

ABB is continuously improving mitigation strategies and techniques applied in each system as new threats and mitigations develop.

A de-facto strategy for mitigation of such threat scenarios is defense-in-depth, meaning there are multiple techniques applied in layers to prevent, delay, and detect cyber security threats.
1. ABB Ability™
   Industrial Cyber Security

2. Our expertise
   Our first priority for digital: making your data safe, in all cases

3. Cyber Security solutions
   Solutions for in-depth defence

4. Cyber Security services
   Cyber Security Agreements

5. Cyber Security – a process
   Rules, directives, IT/OT people & processes

6. Conclusion
   Achieving successful integration
Grid integration
Service Portfolio

All service solutions contained in the Grid Integration portfolio are developed and delivered with safety and cyber security as a core element of our design, making cyber security an inherent advantage of our offering.

**Rapid response**
We guarantee fast and flexible response to maximize system uptime, with a high focus on ensuring that cyber security procedures are followed during all interactions.

**Operational excellence**
We address the vital role of cyber security when working together with customers to minimize risks and ensure that assets are delivering strategic business results.

**Performance improvement**
We optimize productivity and reliability through careful and creative analysis, planning, and execution of cyber security programs and processes.

**Lifecycle management**
We employ powerful tools, knowledge, and experience in cyber security to optimize your system uptime.
With the increasing importance of cyber security solutions, regulations and standards are being created to protect utilities and ensure the correct response to any threats.

**Customer Cyber Security Services**

Enabling life-long safety for your systems

1. **Security Update Management Service (SUMS)**
   Keeping the station up-to-date with the most recent available patches and security measures.

2. **Annual Security Refresh**
   Annually reviewing / refreshing cyber security-related configurations and settings.

3. **Cyber Vulnerability Assessment**
   Identifying gaps in standard compliance and weaknesses in the system.

4. **System Restoration Exercise**
   Simulate restoration procedures in a crisis situation.
1. Security Update Management Service (SUMS)

The Security Update Management Service (SUMS) is ABB’s response to continually increasing threats targeting the operating systems, firmware, and software used in PGGI stations.

**Security Update Management Service**
keeping the stations up-to-date
(Example shown is Gold)

---

**Customer Configuration Collection**

ABB visits the site in order to collect information from all Cyber Security Assets and retrieve state images from all computers.

**Customer Configuration Report**

A report is generated, including a list of all identified assets, installed software and configurations, open ports, installed patches, and registry keys.

**Patch Tracking and Validation**

New patches are identified and validated internally in a representative test system intended to closely mirror the customer production environment.

**Monthly Security Patches Report**

Customer receives a monthly report containing identified and tested patches with ABB recommendations.

**On-site Security Update**

Once a year, ABB visits the site and installs all validated and recommended patches, as well as performing a security refresh.
2. Annual Security Refresh

A security refresh includes a visit on site to verify the pre-existing customer cyber asset inventory and perform tasks required by cyber security standards.
3. Cyber Vulnerability Assessment
Identify gaps and vulnerabilities

The Cyber Vulnerability Assessment produces an actionable report of possible vulnerabilities in a station, identifying and addressing compliance gaps with cyber security standards.

The assessment covers missing security patches, misconfigurations, network architecture review, and an analysis of cyber security controls.
4. System Restoration Exercise
Simulate a control system restoration

Being able to restore the system when an emergency occurs is fundamental to maximizing station uptime.

The System Restoration Exercise includes:
- Review of the customer’s recovery plans for the control system
- Custom designed test case for a recovery plan exercise
- Recovery exercise in cooperation with customer
- Documentation review together with the customer

ABB then develops a lessons-learned report, listing recommended and corrective actions.
ABB Ability™
Industrial Cyber Security

Our expertise
Our first priority for digital: making your data safe, in all cases

Cyber Security solutions
Solutions for in-depth-defence

Cyber Security services
Cyber Security agreements

Cyber Security - a process
Rules, directives, IT/OT people & processes

Conclusion
Achieving successful integration
Cyber Security - a process
Customer, partners, and ABB

**Cyber Security (IT)**
Supported by Information Technology departments – as a continuous IT process.
- Threat detection and mitigation
- Risk assessment
- Vulnerability management
- Preventive and predictive actions
- 24/7 rapid response

**High-Voltage Operations & Maintenance (OT)**
Supported by Operation & Maintenance & Technology departments – as a continuous OT process.
- Asset tracking
- Risk assessment
- Configuration control
- Integrated with 24/7 rapid response
Cyber Security Regulations
An area of constant development

With the increasing threat of cyber security, regulations and standards are being created to ensure the protection of utilities and the correct responses to cyber threats.

Since HVDC links are important components in the power grid, they are subject to increasingly strict cyber security regulations, e.g. NERC CIP and the NIS Directive.

<table>
<thead>
<tr>
<th>United States and Canada</th>
<th>European Union</th>
<th>Other regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERC-CIP</td>
<td>NIS Directive - National Legislations</td>
<td>Upcoming directives and national legislations</td>
</tr>
<tr>
<td>NERC CIP standards address the security of cyber assets necessary for dependable operation of the electric grid. NERC CIP compliance essentially protects bulk power systems against cyber security breaches.</td>
<td>The NIS Directive is the first piece of EU-wide legislation on cyber security, aiming to raise Europe's preparedness to ward off cyber incidents. Member states must identify essential services and transpose the directive into national laws.</td>
<td>National legislations and directives are being created to overcome the challenges faced by the players in the field of critical infrastructure. We are seeing continuous development in regulations and standards.</td>
</tr>
</tbody>
</table>
Conclusion
Achieving successful integration
ABB Grid Integration solutions help to balance the demand created by new electricity consumers entering ports with traditional and renewable power generation by enabling a stronger, smarter and greener port grid.

Patrick Fragman
Managing Director, ABB, Power Grid, Grid Integration

Critical infrastructure
Critical infrastructure such as HVDC, FACTS, and Substations require utility-grade cyber security solutions. Cyber security is not a one-time activity, but an integrated part of lifecycle management. ABB is therefore committed to supporting evolving cyber security standards.

Collaboration
Cyber security is handled in collaboration with our customers and partners, and we all work together to ensure the safety and security of our customers’ assets.

Thierry Pollet
Digital Lead
ABB, Power Grid, Grid Integration

Building stronger, smarter and greener grids requires secure integrated solutions throughout the value chain, from power generation to supplying power for end users.
Grid integration
Contacts

Thierry Pollet
Digital Lead, Power Grids Grid Integration
+41 43 3175384
thierry.Pollet@ch.abb.com

Erik Jansson
Global Product Manager HVDC Service
+46 240 783920
erik.jansson@se.abb.com

Mateus Damiao
Product Sales Manager
+46 240 782223
mateus.damiao@se.abb.com

Urban Elgqvist
Service Marketing Manager
+46 21 324939
urban.elgqvist@se.abb.com