



ABB Ability™ Performance Monitoring for power generation

Maintain peak performance
in any market, at any load

ABB Ability™ Performance Monitoring for power generation is an operator application that seamlessly captures data from multiple sources to provide real-time visibility into equipment, unit, and plant performance.

The solution continuously monitors critical system efficiencies and identifies deviations from expected performance, enabling operators and engineers to make real-time O&M adjustments, and helping plant managers meet profitability targets.

Current power markets demand responsive unit operations, which are inherently less efficient than 24/7 base loading

Today's power producers operate in uncertain times as traditional operating models are disrupted. Besides daily load swings, and the increasing penetration of renewables, the greater dynamics of real-time power markets now in effect. Every traditional unit needs to run under these dynamic conditions, which are not at all conducive to the best-efficiency operation of individual units.

Why you need Performance Monitoring:

- Understanding real time thermal efficiency
- Inaccurate understanding of costs means inaccurate bidding into the energy markets
- Operators need a real-time view of overall unit performance to ensure they are not "missing something" that they can control for better performance
- Third party systems do not present operations with real-time information directly at their operator consoles
- Many units rely on offline periodic performance analysis, which is inaccurate and expensive
- Still others have no unit performance system at all. In this regard, they are "flying blind."

Introducing ABB Ability™ Performance Monitoring for power generation. Continuous fleet wide monitoring while maintaining your bottom line.

ABB Ability™ Performance Monitoring provides comprehensive unit efficiency calculations for all major subsystems, and makes them visible to operators right at their consoles, in real time. Downstream users of performance information, such as fleet performance engineers and operations managers, have access to this and summary report information as well.

Performance Monitoring is an operations application that provides visibility into equipment, plant, and fleet performance, exposing financial and reliability-relevant pre-defined equipment KPIs, and can be obtained through "Software as a Service" arrangements.

What does it do for our customers?

- **Provides real-time visibility** into equipment, subsystem, unit, plant, and fleet performance
- **Identifies deviations** from expected performance

How is it supplied to our customers?

An ABB control expert commissions hardware (ABB or customer provided) and software that supports monitoring of the plant and all specified equipment.

Typically provided as an ongoing service, Software as a Service, may also be coupled with ABB Ability Collaborative Operations.

What is included?

ABB commissions expert software and hardware that support baseline performance calculations and ongoing monitoring of all selected equipment and operating parameters. Best results are obtained through a version that is fully integrated with an ABB Control System.

ABB provides:

- Baseline performance calculations
- Real time Operator Performance Views
- Consistently calculated and maintained reports that periodically summarize performance against defined unit KPIs
- Periodic on-site engagements that include system and usage analysis, with performance improvement recommendations

ABB Ability™ Performance Monitoring for power generation

ABB Ability™ Performance Monitoring for power generation is a monitoring system now tightly integrated with ABB Ability™ distributed control systems, utilizing Operations and the Historian.

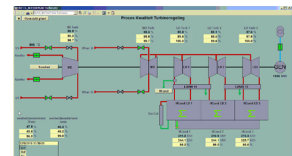
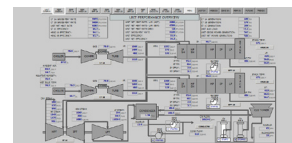
Performance monitoring provides a comprehensive set of plant graphics.

ABB Ability™ Performance Monitoring

Featured highlights:

- Graphics of unit & sub-system performance
- Controllable losses displays for continuous real-time reference by operators
- Detailed performance modeling, using industry standard libraries
- Applications from Local Units right up to the Corporate Performance Center
- High-Performance graphics (recommended)

In addition, these same performance evaluation tools are available for non-ABB industrial control systems.

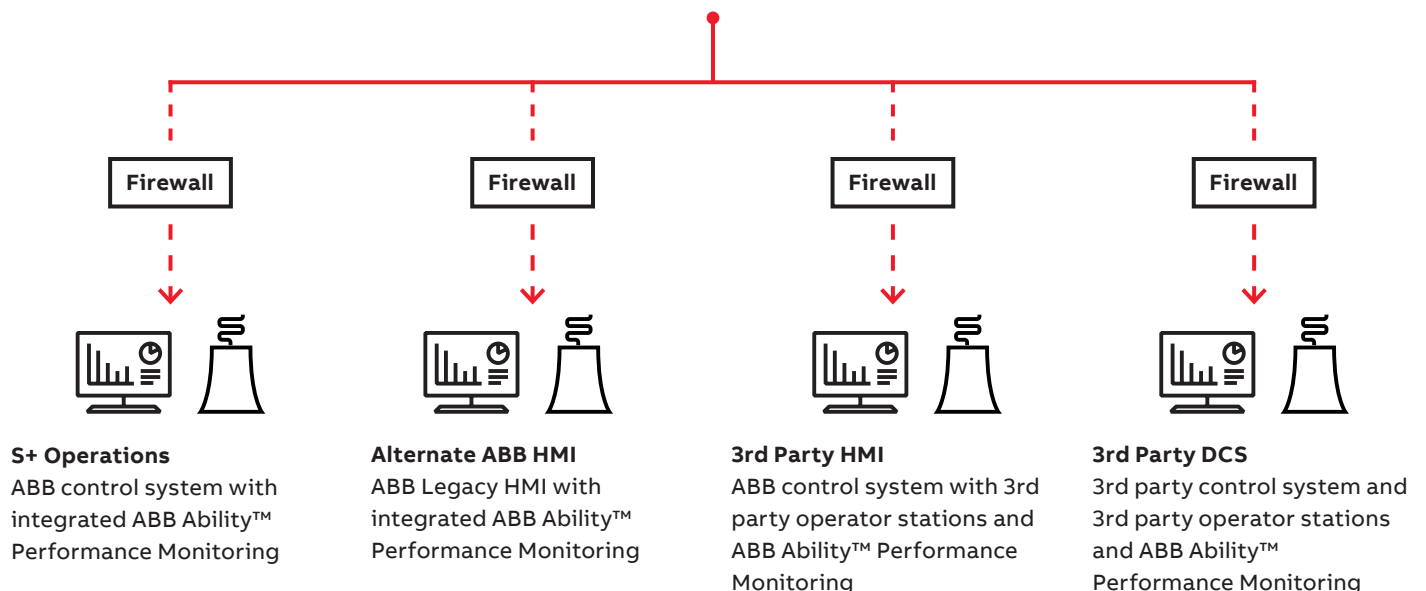


System at-a-glance

Network topology



**Plant or Corporate Office:
Centralized O&M Performance
Monitoring**



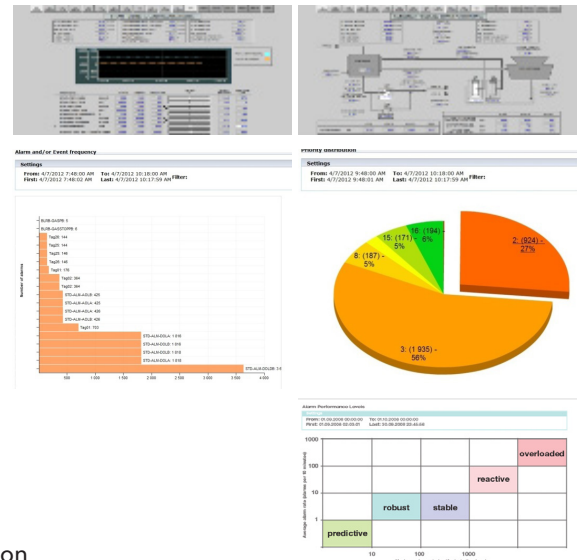
Learn, use and maintain only one performance software package across the entire fleet.

Plant-wide process data collection within the ABB DCS Historian

Performance monitoring seamlessly manages data from multiple sources throughout the plant. The Historian server collects process data from the DCS controllers and I/O, including it into the master database with full sorting, analyzing and reporting capabilities. All configured performance calculations run on desired schedules using integrated performance calculation libraries and correction curve entries, returning results to the historian for use on operator and corporate performance displays.

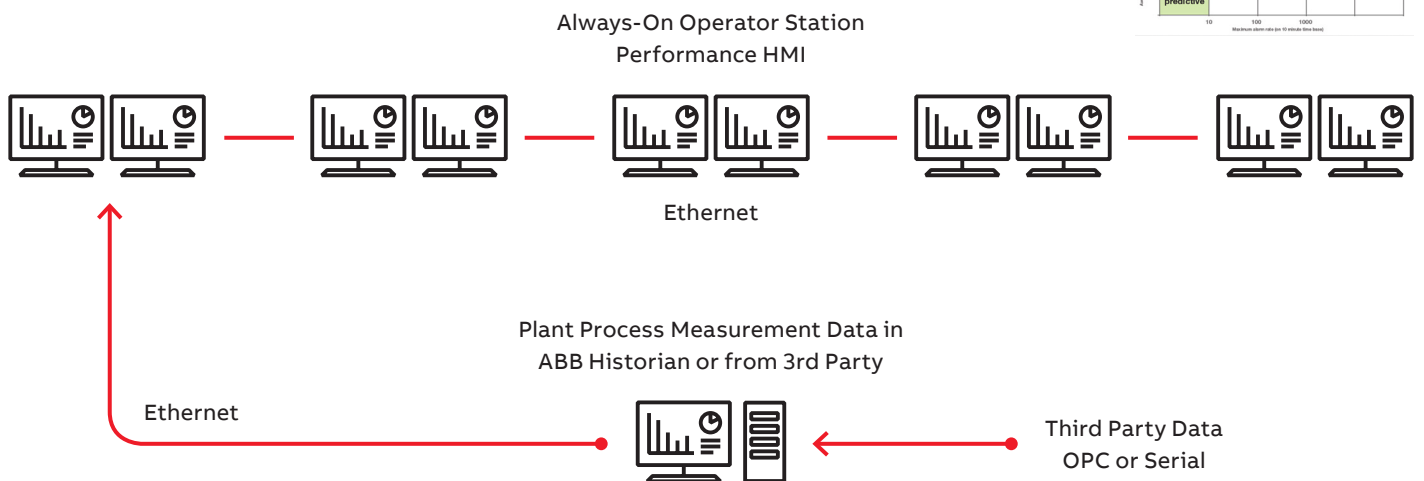
Viewable in Local Operations and via ABB Ability™ Collaborative Operations

- Monitor Performance at a glance from any unit operator console
- Create/View/Run Unit & Fleet Performance Analysis & Reports



System at-a-glance

Integration within DCS Operations



- PCU Boiler/HRSG
- PCU Steam Turbine
- PCU Combustion Turbine
- PCU Feedwater, Condenser, Cooling Tower
- PCU Electrical Systems

Performance monitoring for improved financial results

Simple paybacks provide full ROI in just a few months

ABB Ability™ Performance Monitoring provides the total integration of performance management tools within a DCS HMI. The High Performance Graphics option gives operators at-a-glance real-time performance status, providing the best possible means of reaching and maintaining the best unit efficiency & design performance.

ABB's performance engineers help customers create a blueprint for achieving effective performance monitoring and improvement, utilizing existing operator experience for best practices and knowledge retention.

01 ABB Ability Performance Monitoring for power generation is delivered through an ABB Power Generation Care contract.

ABB Power Generation Care is a complete service offering that raises the performance of the plant's automation and electrical assets, its operations and maintenance staff, and the production process during the life cycle of the facility.

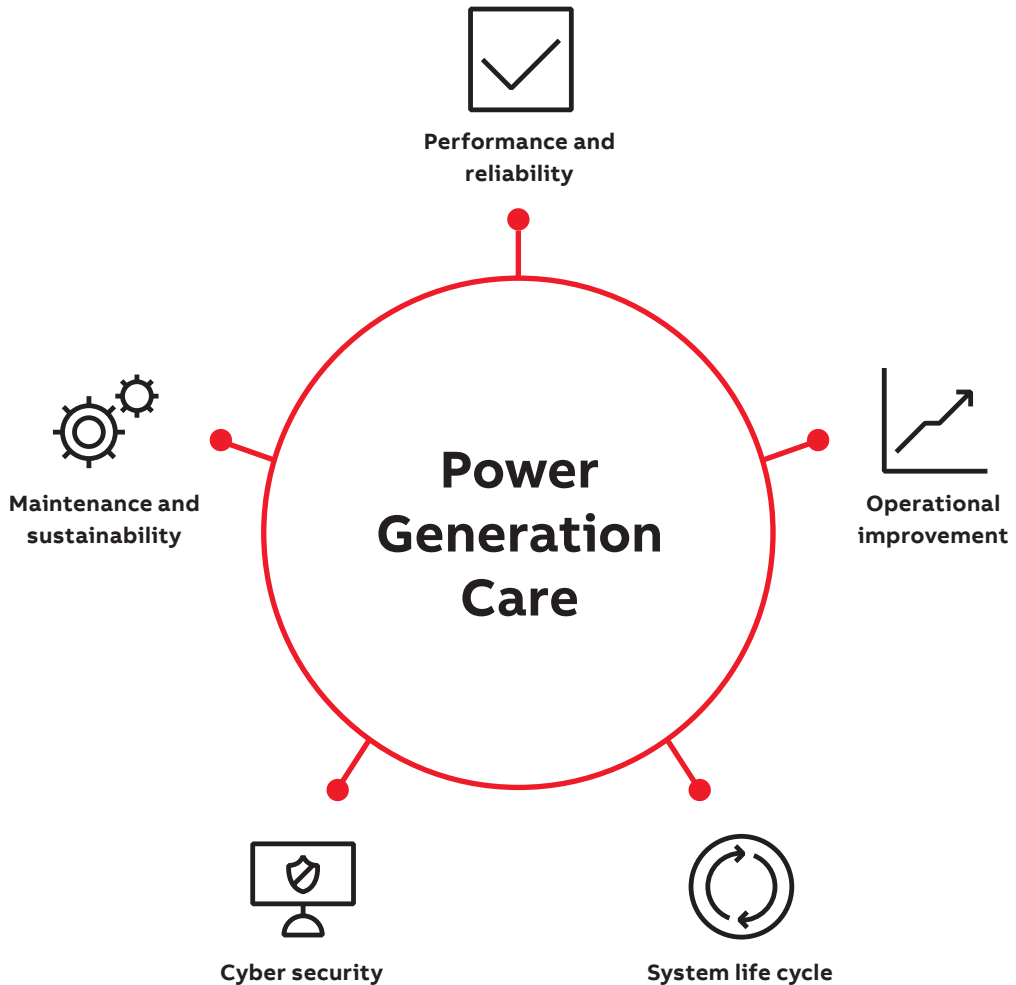


ABB Ability™ Performance Monitoring Implementations

1. Performance Display Definition & Configuration

- Merging your plant or fleet goals with ABB's expert standards & recommendations
- Mapping available process instrumentation & I/O into calculation inputs
- Mapping how to achieve these using both Symphony Plus tools & capabilities, as well as other on-site data infrastructure

2. Performance Visualization and Analysis

- Performance calculations and presentation for continuous monitoring & assessment
- Performance management response techniques
- System installation, configuration, and startup on-site
- First level Operator Training

3. Software as a Service (SaaS): Annual Plant Performance Improvements & Utilization Reviews

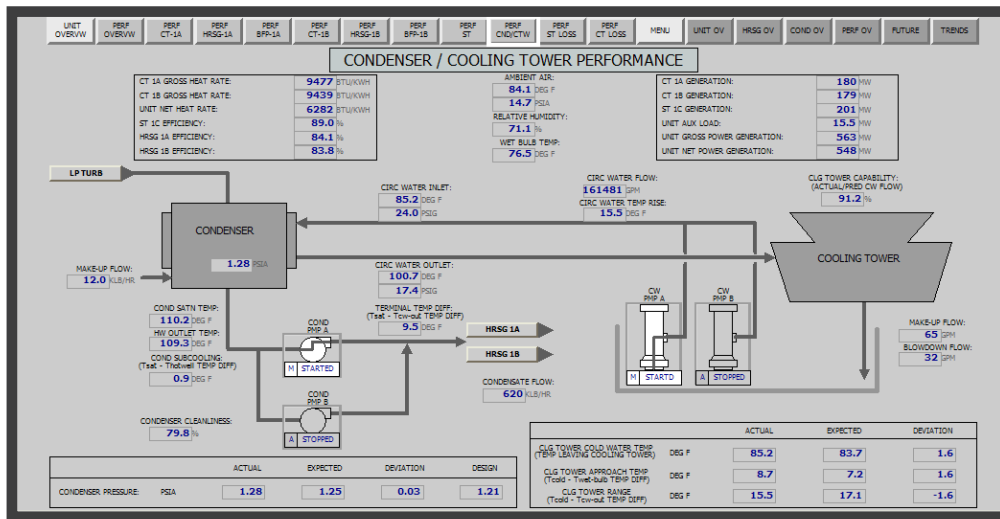
- Lower cost in Years 1 and 2, with results-justifiable annual service maintenance costs
- Three year renewable contract within ABB Power Generation Care
- Plant Performance Utilization Training
- Performance reports for various plant disciplines
- Managing changes in unit configuration – model review & minor tuning
- Review any needs for significant model modifications and generate proposal
- Performance improvement techniques and best practices for operators
- Plant KPI data collection and review



Plant Performance for operational improvements

Performance Screens, Tools & Reports

Performance KPIs Calculated in Real Time
 Use the available **High Performance Graphics** to quickly find and uncover money-losing operational abnormalities.



Controllable Losses For Realtime Operations
 Use the **Controllable Losses** graphics to view the most operator-manageable efficiency issues before they have a significant financial impact.

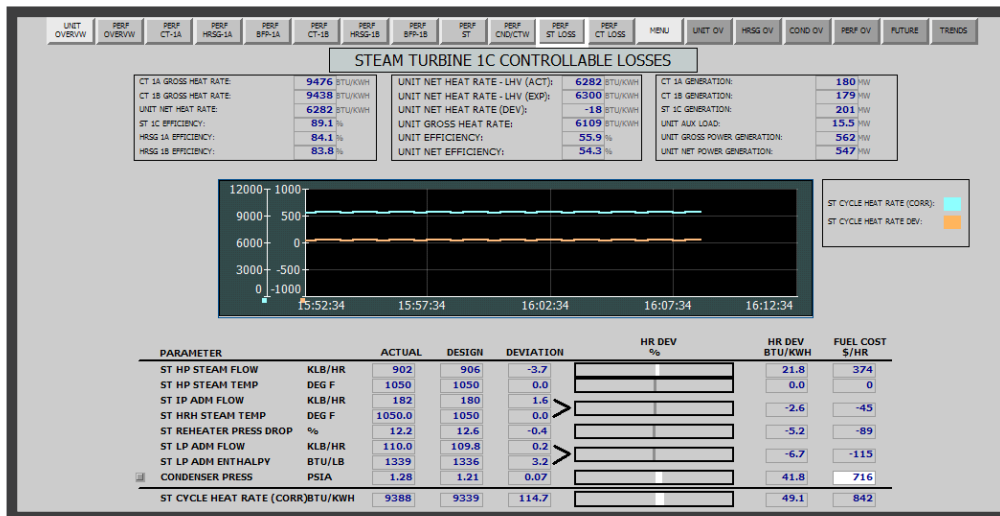


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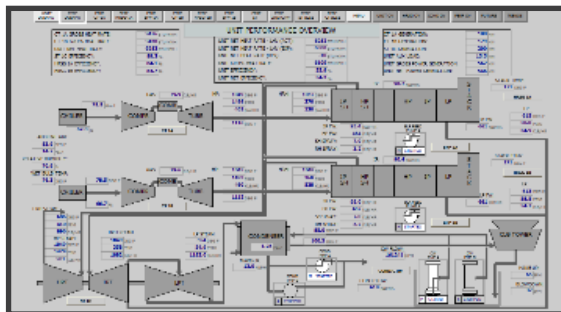
Apply best practices to unit efficiency management, offering guidance for situational response via custom help displays. Capturing existing operational expertise into these help displays enables retention of workforce experience.

ISO, ANSI & ASME Standard Libraries & Methods for:

- Water/Steam Tables
- Thermodynamics
- Gas & Steam Turbine Performance

Preconfigured tools and displays ready to adapt to your plant:

- Performance Calculation Libraries
- Correction Curve Implementation
- Pump and Fan Curve Entry
- Boiler & HRSG Performance
- Steam Turbine Performance
- Combustion Turbine Performance
- Feedwater Heater Performance
- Condenser Performance
- Air Heater Performance
- Fan Performance
- Cooling Tower Performance
- Boiler Feedwater Pump Performance
- Site-specific performance calculations & displays





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To get started or learn more, please contact your local ABB sales representative or visit:

abb.com/powergeneration

Let's write the future. Together.



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