MITSUBISHI POWER

APPLICATION GUIDE:

GTCC PERFORMANCE DIAGNOSIS

CHALLENGE

As competition among power sources continues to grow, optimizing GTCC plant performance and ensuring efficient operations are becoming even more important. Plants need to reduce operating expenses, especially fuel costs. These trends prompted Mitsubishi Power to develop a web-based thermal cycle solution, TOMONI® GTCC Performance Diagnosis, to support operators for decision-making and enable proactive maintenance planning.

SOLUTION

As an equipment manufacturer that also designs, builds and operates power plants, Mitsubishi Power used its unique expertise to create an interactive web-based service that gives operators a holistic view of plant thermal performance. The GTCC Performance Diagnosis application monitors throughout the plant and delivers performance data, diagnostic evaluations and engineering insights which help plant operators develop effective action plans.

The GTCC Performance Diagnosis application uses a comprehensive thermal cycle digital model to provide comparisons between current and previous plant performance. This actionable knowledge can be used to identify lost energy, improve efficiency and support maintenance cost benefit analysis. It can also be used to evaluate operational options that can minimize further performance deterioration.

TOMONI®

MOVE THE WORLD FORW>RD MITSUBISHI HEAVY INDUSTRIES GROUP

FEATURES

- Plant thermal performance modeling enabled by a comprehensive digital model
- Calculations of daily performance and reporting of degradation
- Automated root cause analysis smoothly transitions into maintenance actions

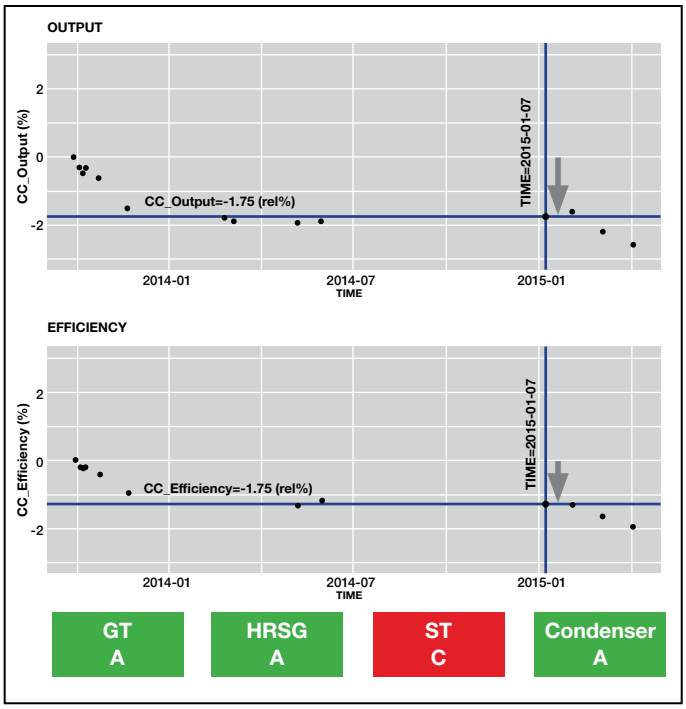
BENEFITS

- Precise and dependable analysis of plant thermal performance
- Potential to avoid further performance deterioration
- Prioritization of action items for outage planning
- Reduction in fuel costs
- Guidance for optimal recovery strategies

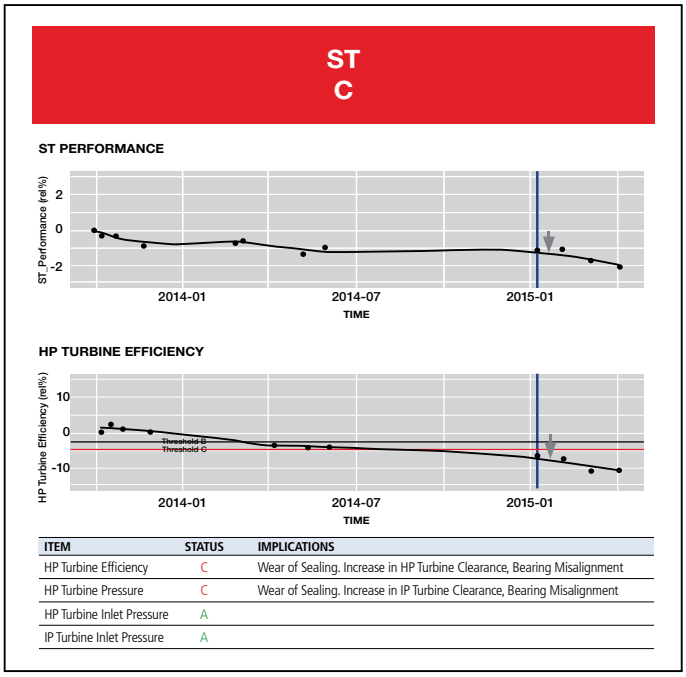
IMPLEMENTATION

- Does not require an outage if necessary sensor data is available on plant data management platforms
- Information will be needed for scope not provided by Mitsubishi Power, to complete the digital model of the facility
- Available as a supplement to total plant monitoring or as a stand-alone application

VISUALIZATION OF PERFORMANCE DEGRADATION AND SOURCES



EQUIPMENT-LEVEL VIEW, KEY VARIABLES AND POSSIBLE CAUSES



ITEM	STATUS	IMPLICATIONS
HP Turbine Efficiency	C	Wear of Sealing. Increase in HP Turbine Clearance, Bearing Misalignment
HP Turbine Pressure	C	Wear of Sealing. Increase in IP Turbine Clearance, Bearing Misalignment
HP Turbine Inlet Pressure	A	
IP Turbine Inlet Pressure	A	

TOMONI® is a suite of intelligent solutions that accelerates decarbonization with power plant design, O&M and system knowledge, together with strong customer and partner collaborations. TOMONI leverages advanced controls, artificial intelligence and machine learning with multi-layered cybersecurity to make energy systems smarter, more profitable and ultimately more autonomous on the road to a sustainable future.

TOMONI®

- Data Foundation & Enablers
- O&M Optimization
- Performance Improvement
- Flexible Operations