

CASE STUDY:

TOMONITM TOGETHER. SMARTER. POWERING THE ENERGY TRANSITION.



BUILDING SMARTER POWER PLANTS

TOMONITM 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.

KEY STATISTICS

- Enables power plant efficiency improvements of up to **1.5%**
- Generates savings of up to **US\$ 3 million** from optimized plant operations
- Reduces planned and unplanned downtime by up to **8 days per year**



DIGITALIZING POWER PLANTS ACROSS ASIA PACIFIC



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

TOMONI intelligent solutions improve the efficiency, reliability, profitability and flexibility of power plants through data foundation and enablers, O&M optimization, performance improvement and flexible operation.

Data Foundation & Enablers

TOMONI intelligent solutions provide a customized range of platforms and upgrades to provide exactly the right data management and control system capabilities needed to achieve your digitalization objectives.

From cybersecurity and digitalization assistance to control system upgrades, enabling platforms and remote monitoring and diagnostics, TOMONI provides the foundation and enablers needed to make your plant smarter.

O&M Optimization

TOMONI intelligent solutions leverage decades of O&M experience to provide asset-management solutions that directly improve your power plant's operation and maintenance, increasing plant effectiveness and productivity.

TOMONI HUBs around the world provide expert recommendations, which can help you make smarter, more informed decisions. The result is more effective maintenance planning and improved total plant reliability and uptime.

Performance Improvement

TOMONI intelligent solutions organizes complex data for practical use to improve the performance of power plants.

As the energy industry transitions to increasingly competitive wholesale power markets, improved dispatchability is pivotal to plant performance. These total plant solutions help increase your plant's output and efficiency, which benefits your business and boosts your profits.

Flexible Operation

TOMONI intelligent solutions uses AI simulation technology that responds quickly to changes in the environment, ensuring the reliability of baseload operation of power generation facilities while enabling flexible operation.

Our Flexible Operation solutions equip you to nimbly meet the changing demands of the market – such as new support requirements, less predictable fuel characteristics and renewable energy penetration – and also lead to new revenue streams in ancillary service markets.

A NERVE CENTER FOR POWER PLANT OPERATION AND MAINTENANCE

For over 20 years, Mitsubishi Power has been steadily expanding its global network of TOMONI HUB Analytics and Performance Centers, successfully increasing the use of advanced analytics to make power plants smarter, reliable and profitable.

These facilities in Japan, Germany, the Philippines and the United States feature connected software, hardware and services that enable remote monitoring and pre-warning of impending issues. They provide up-to-the-minute data analysis and give customers ample information to make necessary operational decisions in a timely manner.

Our TOMONI HUBs are connected to power plants across Asia Pacific, monitoring operating conditions 365 days a year and arming our teams with data to recommend needed corrective action, help avoid unit trips or load reductions, eliminate energy efficiency losses, and minimize unnecessary maintenance.

REAL-WORLD APPLICATIONS

Several customers in Asia Pacific have seen the benefits of TOMONI for themselves.



Gulf JP Nong Saeng Control Room

Nong Saeng Power Plant (Thailand)

Upon installation of the TOMONI Edge Enabler and TOMONI Inlet Guide Vane Optimization, Gulf JP Nong Saeng saw plant heat rate improvements of up to 1.6%, and the unit performed optimally during both governor control mode and frequency response mode.



Ratchaburi Power Plant

Ratchaburi Power Plant (Thailand)

Ratchaburi Power Company Limited installed the TOMONI Inlet Guide Vane Optimization solution to optimize the power plant's turbine inlet temperature, reduce fuel consumption and improve inlet guide vane closure over a wider load range. The application of these technologies led to annual savings of over US\$ 1.2 million.



Pagbilao Control Room

Pagbilao Power Plant (Philippines)

In the first three years after installing TOMONI monitoring and diagnostics solutions and connecting the plant to the TOMONI HUB in Alabang, TeaM Energy Corporation identified 138 anomalies in operations. Upon rectification of these anomalies, the operators managed to prevent up to 35 days of unplanned downtime – equivalent to over US\$ 3 million of losses averted.

About Mitsubishi Power Asia Pacific

Mitsubishi Power is a power solutions brand of Mitsubishi Heavy Industries, Ltd. (MHI).

Mitsubishi Power's products enable the decarbonization of energy and delivery of reliable power to more than 30 countries around the world.

Mitsubishi Power Asia Pacific Pte. Ltd. is headquartered in Singapore and supports business growth in key markets such as Bangladesh, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. With more than five decades of experience in the region and over 2,000 employees, the company applies its deep knowledge of Asia Pacific's evolving energy needs to help power the region's development. Through its cutting-edge technologies, best-in-class products and strategic local partnerships, it is paving the way for countries, economies and communities in the region to transition to a low-carbon and sustainable energy future.

For more information about TOMONI™ intelligent solutions, visit <https://power.mhi.com/regions/apac/>



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