



### Plant Details

- Shenhua Guohua (Beijing) Gas-Fired Cogeneration Co., Ltd.
- Owned by China Shenhua Guohua Power Co., Ltd.
- Beijing, China

### Equipment Notes

- 950 MW GTCC Power Plant
- 2 MHPS Gas Turbines
- 1 MHPS Steam Turbine
- MHPS-TOMONI® Solutions Installed: 2016 (Gas Turbine), 2019 (Total Plant)

AI-driven anomaly detection makes Beijing plant more reliable.

### MHPS-TOMONI® Solutions Used:

Pre-ACT  
Post-ACT  
KPI Analyst

## CHALLENGE

The Shenhua Guohua (Beijing) Gas-Fired Cogeneration Co., Ltd. is known for its early adoption of technology and well-furnished IT infrastructure. The plant was awarded the gold honor for the 2017 Gas Power Project of the Year by the Asian Power Awards, which recognizes innovative and trailblazing initiatives in the power sector. Also, structural and market reforms in China's power sector are increasing competition among generators, and the plant wanted to use the latest advanced technology to maximize its dispatch rates and profitability. Partnering with Mitsubishi Hitachi Power Systems (MHPS), the team saw an opportunity for the plant to become the first GTCC power plant in China to implement a digital solution that provides plant operators with real-time actionable knowledge on operational issues that may be in the early stages of development.



## SOLUTION

MHPS incorporated Pre-ACT, an anomaly detection solution from MHPS-TOMONI®, which uses AI to predict the possibility of abnormalities to improve the plant's O&M. Pre-ACT uses advanced monitoring data from the plant, MHPS fleet-wide knowledge and AI to detect if an anomaly is imminent and identify the possible root cause to avoid an alarm occurrence and unplanned downtime. This allows the plant to take preventive actions during planned downtime to maintain better reliability during periods of peak power demand and, in turn, better profitability. Similar analytics have proven to help other plant operators increase plant reliability by at least 1%, which has saved them the equivalent of \$2M to \$4M USD per year.

## RESULT

In the past two years, Pre-ACT detected more than 15 anomalies at Shenhua Guohua (Beijing) prior to an alarm occurrence. This advance awareness of developing issues, some with major implications, allowed the plant to take preventive action. If these weren't detected at early stages, they may have forced the plant into unplanned downtime to fix the problems.

The initial program was specific to the gas turbine. The gain in insights and profitability made a compelling case to cover the total plant beginning in 2019.

The MHPS-TOMONI® Pre-ACT is one of many analytics and visualization solutions available from MHPS to optimize the O&M of the entire plant. This solution is typically bundled with MHPS-TOMONI® KPI Analyst and Post-ACT alarm guidance solutions, which are also deployed at Shenhua Guohua.



**"We pride ourselves on staying at the forefront of technology and innovation. Partnering with MHPS gives us the benefit of technology that allows us to be more innovative and profitable. The Pre-ACT solution gives us advance warning of impending issues and allows us to take corrective action during a planned outage. This potentially saves us the equivalent of millions in USD by avoiding unplanned downtime."**

Jia Jianbo  
General Manager, Shenhua Guohua (Beijing)  
Gas-Fired Cogeneration Co., Ltd.



**O&M  
OPTIMIZATION  
SOLUTIONS**



**PERFORMANCE  
IMPROVEMENT  
SOLUTIONS**



**FLEXIBLE  
OPERATION  
SOLUTIONS**

### MHPS-TOMONI®

MHPS is leading the development of the digital power plant of the future with MHPS-TOMONI®, a suite of digital solutions enabled by decades of O&M and plant knowledge. Our solutions are driven by customer collaboration and use advanced analytics and adaptive control to lower the cost of electricity and achieve environmental and business goals.

For more information about the MHPS-TOMONI® suite of digital solutions, visit [changeinpower.com/tomoni](https://changeinpower.com/tomoni) or contact your MHPS representative.

