

Emerson Advanced Automation Software Optimizes Cogeneration Power Plant to Improve Flexibility, Drive Revenue

RESULTS

- Bolstered 40-year old plant efficiency
- Increases revenue by 1%
- Reduces fuel costs by \$1 million annually
- Drives 1.5 – 4 MW of improved steam output
- Delivered ROI in under 1 year

APPLICATION

Gas-fired cogeneration plant providing steam and power to a nearby chemical plant.

CHALLENGE

Cogeneration plants operate a complex, challenging series of processes, including continual dynamic demand alignment needed to deliver balanced production of both power and steam.

Maintaining this balance requires careful optimization, precise operations and continuous tuning to help ensure both grid reliability and industrial process stability.

Optimization of a 40-year-old cogeneration plant bolstered efficiency to ensure a continuous supply of steam and power to an adjacent chemical facility, with excess electricity sold to the regional system operator as a secondary revenue source.

SOLUTION

Emerson completed an operational optimization project of the cogeneration plant using the Ovation™ Automation Platform's advanced software. The implemented applications provide the embedded intelligence and sophisticated control strategies necessary to adapt more quickly and efficiently to changing operating conditions, market demands, and regulatory requirements, while driving production to new heights.

The project leveraged Ovation advanced power applications, including performance optimization software featuring Emerson's Aspen Utilities Online and Offline Optimizers, along with steam temperature and extraction pressure optimization software. The advanced applications helped strengthen grid reliability by providing efficient, flexible generation while simultaneously ensuring that the adjacent chemical facility customer receives the consistent steam and power it needs for critical processes.

(continued on page 2...)



“Leveraging the Ovation™ Automation Platform's advanced applications and AspenTech optimization software delivers a powerful combination of improved efficiency, operational agility and measurable economic and environmental impact.”

This cogeneration plant optimization project is a textbook example of how software innovation can breathe new life into legacy infrastructure to help meet today's demands head-on.”

Bob Yeager
President
Emerson, Power and Water Solutions

SOLUTION *(continued...)*

Ovation Performance Optimization software provides real-time optimization of unit dispatch using a digital twin. The simulation helps the plant automatically align its operations with contract limits and grid requirements, even under unexpected conditions. It also enables the detection of potential equipment performance degradation and allows management to schedule maintenance accordingly.

Emerson's software empowers plant engineers to plan power production more effectively and proactively, using multi-period forecasting and 'what-if' simulations. Other Ovation advanced steam applications improve plant flexibility and efficiency by optimizing steam temperature for faster ramp rates and managing steam extraction to ensure a reliable supply even when power demand is low.

The optimization project bolstered efficiency at the gas-fired cogeneration plant, increasing net revenue by 1%. Operating with Emerson's advanced applications drives an additional 1.5 to 4 MW of improved steam turbine output, saving nearly \$1 million annually in fuel gas use and potentially powering thousands of homes. The project delivered a return on investment in under a year.

OVATION[™]

For more information:
www.Emerson.com/Ovation

