



“When we looked at the whole fleet, we wanted to go with the best technology available. We wanted a solution that was robust and flexible to handle all our plants, and we knew EtaPRO was the right answer.”

Kenny Luebbert
Principal Performance Engineer, KCP&L



When Kansas City Power & Light (KCP&L) committed to reducing emissions and improving efficiencies through an agreement with the Sierra Club, they began evaluating additional carbon reduction efforts on their existing generating fleet through efficiency improvement projects.

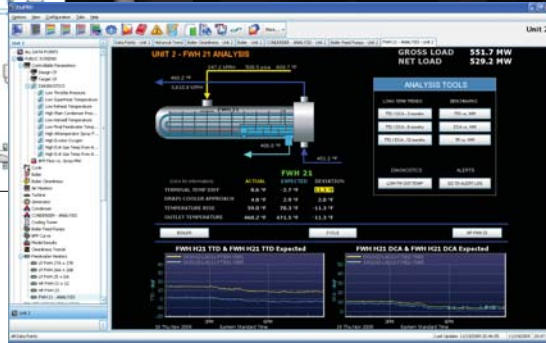
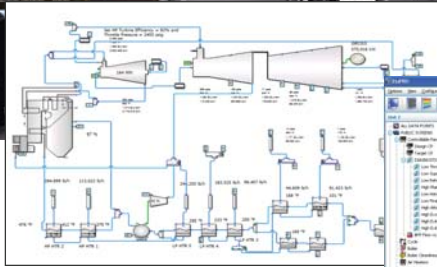
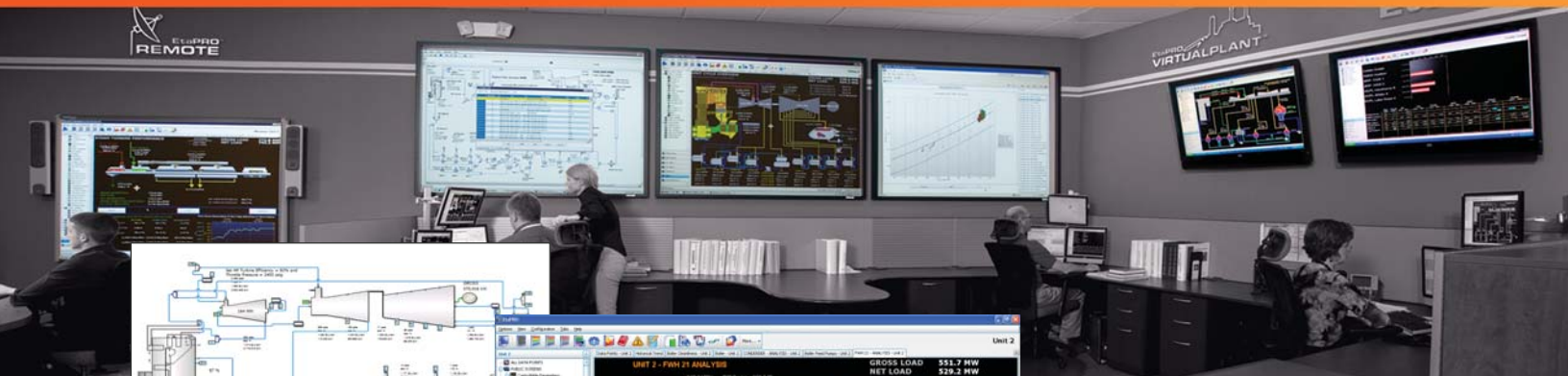
EtaPRO Supports Comprehensive Energy Plan at KCP&L

GP Strategies' EtaPRO™ and VirtualPlant™ performance technologies were installed to help quantify and track the resulting performance gains. Now their Hawthorn Generating Station is on track for a heat rate record of 9,900 Btu/kWhr, and they did it with technology and a team effort by plant staff, corporate engineering, and GP Strategies™.

“EtaPRO provides plant personnel with feedback to effectively monitor incremental improvements in plant operation,” says Kenny Luebbert, Principal Performance Engineer at KCP&L. “The plant operators and engineers see lower heat rates on the screen with every improvement they make. We’re also validating the results by running EtaPRO reports and comparing them to a separate report created by the Fuels Department. When the heat rate results concur on both reports, this confirms that the improvements are really paying off.”

Based upon the early success at Hawthorn and KCP&L's CO₂ initiative, the company is accelerating implementation of EtaPRO to its remaining fleet of six Coal and Combined Cycle plants.

KCP&L evaluated several technologies before choosing to apply the EtaPRO Performance & Condition Monitoring System across their generating fleet. They chose EtaPRO because of its fully integrated VirtualPlant models of the boiler and turbine cycles, the feature-rich online monitoring software, and GP Strategies' extensive experience deploying fleet-wide monitoring solutions.



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Easy to Understand Real-Time Monitoring

EtaPRO conducts a real-time “gap” analysis to identify performance deviations that contribute to lost capacity and increased fuel consumption. The system provides realistic operational and heat rate targets that are achievable through operational changes and routine maintenance. EtaPRO provides real-time financial information for justifying equipment and process improvements. In addition, because EtaPRO is on the desktop, it allows plant personnel to see immediate results.

Hawthorn Generating Station

- Location:** Kansas City, MO
- Fuel:** Coal
- Maximum Achievable Capacity:** 590 MW
- Currently Operating At:** 570 MW
- Uses Best Available Control Technology**

Evaluating Potential Improvements at Hawthorn

KCP&L’s Performance Teams investigate operational and equipment changes by using EtaPRO’s VirtualPlant models to quantify resulting changes in capacity and heat rate. When an operating change or maintenance action is taken, plant personnel trend key performance indicators in EtaPRO to verify actual improvements. Luebbert said, “Having quick confirmation helps fine tune the process. And it provides the data in such a way that it’s easy to understand and easy to disseminate across the plant. EtaPRO provides additional levels of information that allows our plant performance engineers to target and improve specific areas of deviation from design plant performance.” For example, following a recent major turbine overhaul at Hawthorn, KCP&L was able to quickly determine the HP turbine efficiency gain from the capital project due to EtaPRO calculating and recording the HP turbine efficiency data in the plant historian before and after the upgrade.

Collaborative Effort Finds Success

Deploying new technologies in the plant requires more than end-user training. GP Strategies’ FastStart™ service begins immediately after an EtaPRO system is installed and commissioned. Routine, scheduled sessions expose the plant staff to EtaPRO’s state-of-the-art capabilities to solve specific problems they are experiencing. According to Luebbert, “With FastStart, we take a look at the live EtaPRO system with the GP Strategies performance team every other week to talk about what they’re seeing in our plants. During one recent session, Hawthorn staff noted that a growing number of reheater tubes were running at higher than normal temperature. After some follow-up investigation, GP Strategies alerted the team that some of the tubes were exceeding allowable temperature limits, which could lead to tube leaks and premature failure. This prompted a retuning of reheat temperature controls by the plant I&C staff.”

And Luebbert added, “GP Strategies’ FastStart has helped us highlight and validate plant efficiency and reliability issues.” The need to reduce carbon emissions has resulted in increased management focus and attention on plant performance. KCP&L is targeting heat rate improvement at its coal units as one of the principle methods to meet its commitment to reduce carbon emissions. The coal fleet is currently on target to achieve a year-over-year heat rate improvement of 1%–2% in 2010. The success of this system required a coordinated effort and commitment on the part of many people. “Ultimately, plant personnel desire the best unit performance and the necessary tools to make this happen,” Luebbert said. “EtaPRO is an important tool in this effort.”

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