Great River Energy is a not-for-profit electric cooperative that serves approximately 1.7 million people. The cooperative maintains a portfolio of power generation and transmission resources to deliver reliable and affordable electricity to its members. Like many electric utility companies, Great River operates a mix of traditional baseload and renewable power resources. As a testament to its corporate stewardship, Great River Energy achieved Minnesota’s renewable energy standard of 25% renewables in 2017, eight years ahead of schedule.

Maintaining Reliable Operations Takes Heroic Effort

A traditional power generation facility, Great River’s Coal Creek Station nevertheless maintains high levels of standard for efficient operations and service quality. Not surprisingly, the management team at Coal Creek Station are committed to preventive maintenance. Unfortunately, equipment upgrades and plant modernization initiatives over time had increased operational complexity to a point where managers were struggling to prevent outages.

“We run a lot of projects here,” explains Robert Hager, Senior Mechanical Engineer at Great River. “We’re scheduled to do a major turbine overhaul next Spring, for example.”

By their nature, plant operations require engineers to manage at multiple levels simultaneously. One minute they may need to conduct a top-down review of reliability measures; the next minute, they might be investigating a temperature spike on an individual water pump. “We look at day-to-day trends even as we troubleshoot and make repairs,” says Hager. “We don’t always have the time to look at everything.”

“...

Robert Hager | Senior Mechanical Engineer, Great River Energy
Pilot Deployment Quickly Proves Advanced Analytics’ Value

Coal Creek was introduced to Atonix Digital by a Black & Veatch team that was retained to help maximize plant efficiency. The Black & Veatch team discussed how the predictive analytics platform could help Coal Creek reestablish its preventive maintenance mission. After watching a demo, Hager green-lighted a pilot of ASSET360 Monitoring & Diagnostics (M&D). Monitoring & Diagnostics collects data from across the infrastructure, applies machine learning to alert personnel of anomalies, and streamlines problem isolation and diagnosis.

The pilot showed the extent to which the machine learning and advanced analytics of ASSET360 could help Hager and his team wield control over the myriad data streams generated by the plant’s assets, over 6500 in total.

Hager has evaluated similar solutions from other vendors. “One vendor we looked at was significantly more expensive than Atonix’s Monitoring & Diagnostics solution,” Hager recounts, “and had on-premises server requirements that were extremely complex.”

Derek Laning, Leader of Plant Engineering, approved the production deployment of Atonix Digital Monitoring & Diagnostics product, in conjunction with Black & Veatch’s Remote Monitoring & Diagnostics service, a few months later.

Data-Driven Preventive Maintenance with Exceptional ROI

Beyond reinvigorating Great River’s preventive maintenance program, the combination of Atonix Digital’s ASSET360 and Black & Veatch’s Remote Monitoring & Diagnostics service delivers measurable benefits to the Coal Creek plant.

The ability to monitor, analyze, diagnose, and resolve issues quickly and easily has greatly improved reliability at Coal Creek Station, and has given engineering teams new flexibility to work on more strategic projects and initiatives. Early remediation has also extended the useful life of numerous assets at the Coal Creek plant, delivering even more value to Great River. In the first three years after deploying the solution, Coal Creek Station enjoyed cost savings as well as increased reliability from the early identification and resolution of more than 320 issues. Through a combination of extended asset life, reduced outages, and other efficiencies, the plant has benefited from hundreds of thousands of dollars in savings.

Black & Veatch Remote Monitoring & Diagnostics engineers play an early warning role, maintaining biweekly status updates and quarterly performance reviews, and notifying Great River managers of any anomalies that could signal problems. “Between Atonix Digital’s ASSET360 platform and Black & Veatch’s Remote Monitoring service,” Hager remarks, “our benefits many times exceed the cost of the solution.”

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